



**Global Pharmacy: A Comparative Exploration and Analysis of
Initial Professional Education**

Thesis submitted in accordance with the requirements of the University College London
for the degree of Doctor of Philosophy by

Naoko Arakawa

FIP Collaborating Centre, Research Department of Practice and Policy
University College London School of Pharmacy

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*Dedicated with all my love to my beloved and loving parents, Masayoshi and Yoko, brother Motoki,
grandmother Ena, for their unending support throughout my life*

Plagiarism Statement

This thesis describes research conducted in the University College London (UCL) School of Pharmacy between 2012 and 2016 under the supervision of Professor Ian Bates. I, Naoko Arakawa, confirm that the work presented in this thesis is my own and that any parts of the work that have been conducted by collaboration are clearly indicated. Where information has been derived from other sources, I confirm that this has been indicated in the thesis.

Signature: _____

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Abstract

The quality of initial professional pharmacy education (IPPE) is receiving growing attention in the development of modern health policy. This is due to the gradually extended role of pharmacists, a global shortage of pharmacy workforce and their skill-mix imbalances, all of which require improvements to respond to the expanding and ever-changing population health needs. To achieve enhanced and equitable quality worldwide, evidence that can be used as a global basis for identifying gaps and challenges to assist strengthening IPPE is demanded.

The purpose of this research was to generate evidence to construct the first global map of the attributes of quality IPPE for assisting the improvement of IPPE across nations. The research questions what are the differences and commonalities in the current IPPE practices worldwide, and if there are globally shared attributes for high quality IPPE, which can support further development of professional roles.

A mixed-methods approach was implemented to investigate personal and institutional factors in a global context. To seek students' factors in the quality IPPE, a global online survey on students' learning processes and experiences was conducted, resulting in 4,105 student responses from 78 countries. To investigate teaching and institutional attributes of IPPE, an attached email global survey on IPPE institutions and programmes and a curriculum content analysis were conducted, which compared country-level institutional information from 110 countries and territories as well as contrasting in-depth curricula content data from 16 countries.

The combined findings provide measures of current IPPE practices across nations. This includes differences in approaches to learning between regions and nations; pharmacy model to foster the adoption of deep approach to learning; global variation regarding capacity, provision, and regulations; and variation in curricula content when contrasting science and practice components.

The thesis provides evidence for a policy review of IPPE to assist with enhancing global quality.

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List of Abbreviation

ANOVA: analysis of variance
ASI: Approaches to Study Inventory
ASSIST: Approaches and Study Skills Inventory for Students
CBE: Competency-based education
CEQ: Course Experience Questionnaire
CPD: Continuing professional development
FIP: International Pharmaceutical Federation
FIP*Ed*: FIP Education Initiative
GDP: Gross Domestic Product
GNI: Gross National Income
GNI per capita – PPP: Gross National Income per capita on purchasing power parity
HEI: Higher education institution
IPPE: Initial professional pharmacy education
IPSF: International Pharmaceutical Students' Federation
MANOVA: multivariate analysis of variance
PBL: Problem-based Learning
QA: Quality assurance
SAL: Students' Approaches to Learning
SDT: Self-determination Theory
SLEQ: 2013/14 FIP*Ed*-IPSF Student Learning Experience Questionnaire
SPSS: Statistical Package for Social Science
SPQ: Study Process Questionnaire
S-SPQ: Shortened Study Process Questionnaire
UCL: University College London
UK: United Kingdom
UNESCO: United Nations Educational, Scientific and Cultural Organization
USA: United States of America
WFME: World Federation for Medical Education
WHO: World Health Organization

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Chapter 1: Introduction

1.1 Background

A greater access to medicines and the best available pharmacotherapy worldwide is essential for the improvement of global healthcare for patients and populations: a half of the eight health-related *Millennium Development Goals* relate to the availability of medicines and their use because of the limited quantities and scope of human resources (Anderson *et al.*, 2010; United Nations, 2012). According to the World Health Organization (WHO), approximately 4.3 million health workers are additionally required to cover essential health interventions globally (WHO, 2006; GHWA, 2013). Even within countries, the maldistribution of healthcare professionals is problematic. Areas without enough number of healthcare professionals have unsatisfactory access to quality healthcare (AHRQ, 2011). The global workforce crisis is no exception in pharmacy (WHO, 2006). Pharmacy workforce density varies considerably between countries and the WHO regions. The International Pharmaceutical Federation (FIP) *Global Pharmacy Workforce Report* (2012) identified a correlation between the pharmacy workforce density and population or country-level economic development indicators. African countries tended to have lower densities of pharmacy workforces, which showed the inequalities in the access to medicines and medicines expertise.

At the same time, struggling against the global shortage and maldistribution of pharmacy workforce, the roles and responsibility of pharmacists have been evolving from product-oriented to patient-oriented service provision in the last two decades (Anderson *et al.*, 2010; Breland, 2007; Anderson *et al.*, 2011a). It is partly led by additional demands on the pharmacy workforce according to ever-changing and complex health systems and practice environments. Health system and practice environments of health professionals keep changing due to the breakthroughs in medical and pharmaceutical technologies, and challenging new *environmental and behavioural risks* caused by rapid global flows and transactions beyond boundaries (Frenk *et al.*, 2010). Health professional education needs to prepare practitioners to attain necessary knowledge, skills, and attitudes to match the complicated population health needs; however, the failure to meet demands and skill-mix imbalances are often seen (Frenk *et al.*, 2010; WHO, 2011).

These crises, workforce shortages and skill-mix imbalances, are frequently derived from the gap between the health system and education in many countries (WHO, 2011). Establishing professional education and training is a key factor for healthcare professionals to obtain the capability for improving therapeutic outcomes, patients' quality of life, advances in science and firm public health

(Frenk *et al.*, 2010). For pharmacy, too, transformable and contemporary forms of initial education and training are vital for the profession to respond to the increasingly complex healthcare demands of the population in any country (FIP, 2012; Anderson *et al.*, 2012).

Pharmacy education globally continues to have many challenges, including the quality of teaching and learning, and teaching environments in order to respond to evolving new professional roles and modernisation of pharmacotherapeutics in an era of rapidly accelerating change in healthcare delivery and pharmaceutical technology (FIP, 2012).

To achieve universal health coverage for all as advocated by the WHO, pharmacists in any country need to have the capability of ensuring and providing safe, high quality and cost-effective healthcare from the point of development of new medicines to the end of management and responsible use of medicines in patients. A robust and contemporary form of pre-service pharmacy education is a necessary foundation of the profession to prepare pharmacy and pharmaceutical workforce to meet growing and ever-changing health needs of the populations. Thus, evidence that can be a basis for identifying gaps and challenges, and for strengthening initial pharmacy education in any country is required to trigger and encourage development and further improvement of initial pharmacy education.

1.2 Initial professional pharmacy education

Initial professional pharmacy education (IPPE) is the pre-service professional higher education to lead a graduate to a formal registration as a pharmacist with a statutory board of each country where the education is offered.

Students enter the IPPE programme at different ages, which is dependent on the educational system in each country and their experiences. The earliest would be right after second education.

According to Adult Development Theories, including *cognitive development* and *life-span role development* focusing on the learning approaches, motivation and the extent of readiness for learning (Merriam *et al.*, 2007; Knowles *et al.*, 2012: 219, 226), students in IPPE are at least considered as being in the stage of early adults or in the process towards being adults (Knowles *et al.*, 2012). Reflecting some vital learning outcomes of IPPE, for example, critical thinking skills (Cisneros, 2009), pharmacy students need to reach the final stage of adult cognitive development through IPPE.

1.3 Adult learning

As students in IPPE are categorised as adults, exploring existing theories available for adult learning is beneficial to consider the teaching and learning approaches and institutional environments in IPPE. Kidd (1973) also expresses that exploring adult learning theories would lead to possible hypotheses for research or develop criteria for evaluation.

Adult learning opportunities occur in a variety of sizes, forms, and places, involving human resources development individually and organisationally from university to workplace. There is no single adult learning theory which explains all adult learning in such a wide range of settings. Thus, there are many theories trying to explain adult learning. Considering the professional pharmacy education, *andragogy*, *self-directed learning*, *experiential learning*, *transformation learning*, and *reflection-in-action* are reviewed in the following sections.

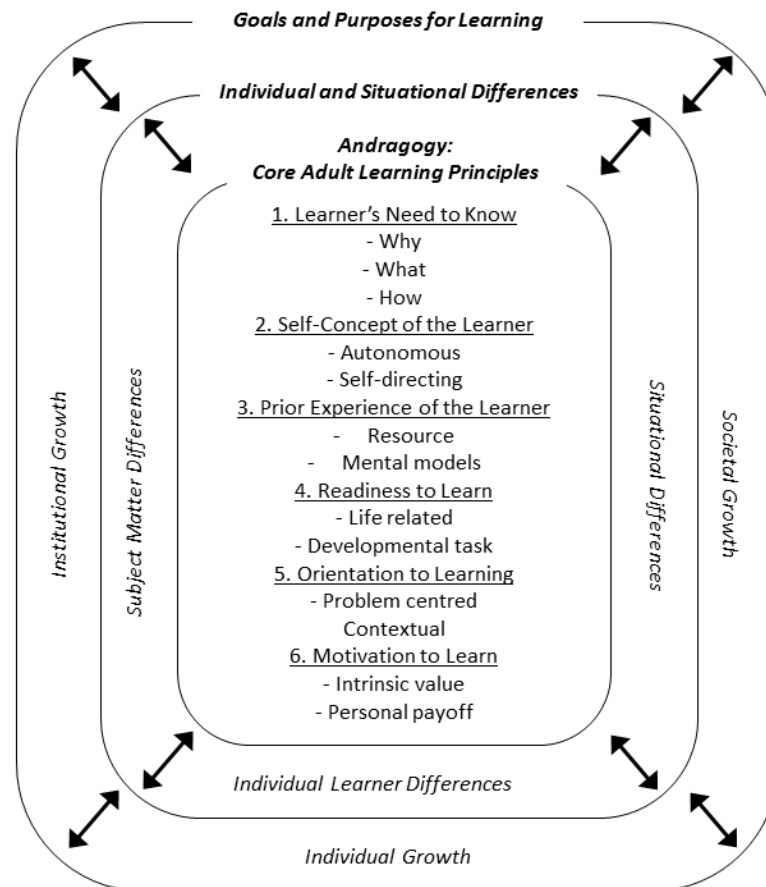
1.3.1 Andragogy

Andragogy literally means “the art and science of helping adults learn” in contrast to pedagogy meaning “the art and science of teaching children” (Knowles, 1980, 43). However, these concepts are not placed as the dichotomy, but considered as a continuum as people move from childhood through adolescence (Malinen, 2000; Knowles *et al.*, 2012).

The latest andragogic model includes six assumptions on adult learners: adults’ self-concept shifts from their dependent personality towards a self-directing one (*learners’ self-concept*); adults accumulate their experiences, which are resources for learning (*learners’ experience*); the readiness of adults to learn is especially linked to the developmental tasks associated with their real life (*readiness to learn*); adults are more problem-centred than subject-centred due to the change in their perspectives from future application of knowledge to immediate application (*orientation to learning*); adults need to know why they need to learn something (*need to know*); and adults are more responsive to internal motivators than external ones (*motivation*) (Knowles *et al.*, 2012: 70; Knowles, 1980: 44-5).

Andragogy is considered to work best in practice and appeal to a wide variety of settings from adult basic education in universities to continuing professional education (Merriam, 2004a; Knowles *et al.*, 2012). There are many critiques about a lack of factors regarding the learning settings. Against these critiques, Knowles, Holton & Swanson (1998) responded by illustrating the andragogy in practice (Figure 1.1).

Figure 1.1: Andragogy in Practice model (adapted from Knowles, Holton & Swanson, 1998)



1.3.2 Self-directed learning

Tough (1971) builds on the pioneering work of Houle (1961), and proposes first the comprehensive idea of self-directed learning as a form of study which Tough termed as *self-planned learning* (Merriam *et al.*, 2007: 106). In a study of adult learning in 66 Canadians, Tough (1971) uncovered that 90% of the participants had engaged in approximate 100 hours of self-planned learning projects in the previous year. The self-planned learning projects included specific tasks and problems on the job, personal responsibility around the home for home improvement, and leisure time interests. This work revealed that these projects which adults engaged in were embedded in everyday life requiring self-planning but not depending on an instructor or a class (Tough, 1971).

The concept of self-directed learning is often applied to lifelong learning. To implement self-direction in lifelong learning, Schrader-Naef (2000) argues a need of the foundation for self-directed lifelong learning at all levels of schools. In healthcare professions, the importance of encouraging practitioners to be lifelong learners is also recognised. Initial formal training is just the beginning of their professional career and the foundation for continuing professional education.

Self-directed learning activities have been accepted as one of the designs of continuing professional education (Williams, 2001; Cole & Glass, 2004). In order to prepare students in higher education to be lifelong learners, Dunlap and Grabinger (2003) introduced three important developments in the educational opportunities: *students' capacity for self-direction, metacognitive awareness, and disposition toward lifelong learning*. To foster these goals, they introduced problem-based learning (PBL), intentional learning environments, and cognitive apprenticeships as teaching strategies (Dunlap & Grabinger, 2003). Similar idea having a specific teaching strategy, *process-oriented teaching*, for self-directed learning was proposed by Bolhuis (2003). In his arguments, the social context, prior knowledge, and motivational aspects of learning are considered as key factors in their learning to foster their self-directed lifelong learning (Bolhuis, 2003).

1.3.3 Experiential learning

Experiential learning proposed by David A. Kolb (1984) is one of the most renowned adult learning theories. The experiential learning theory gives the experience a central role in learning (Malinen, 2000). Kolb (1984) defines learning as *"the process whereby knowledge is created through the transformation of experience"* (p.38). Kolb's experiential learning theory is a holistic model of learning identifying the differences of learning styles (Kolb & Kolb, 2005). His experiential learning theory illustrates the process as cycling or spiral model with four learning modes: the *Concrete Experience, Abstract Conceptualization, Reflective Observation, and Active Experimentation*, in which a learner needs specific abilities to gain new knowledge, skills, and attitudes (Kolb, 1984: 30) (Table 1.1). In the model, the 'Concrete Experience' and 'Abstract Conceptualization' relate to grasping experience, and the 'Reflective Observation' and 'Active Experimentation' relate to transforming the experience. Two modes act oppositely; the 'Concrete Experience' versus 'Abstract Conceptualization' *from specific involvement to general analytic detachment*, and the 'Active Experimentation' versus 'Reflective Observation' *from actor to observer* (Kolb, 1984: 31).

Table 1.1: Learning modes and its specific learning abilities in experiential learning

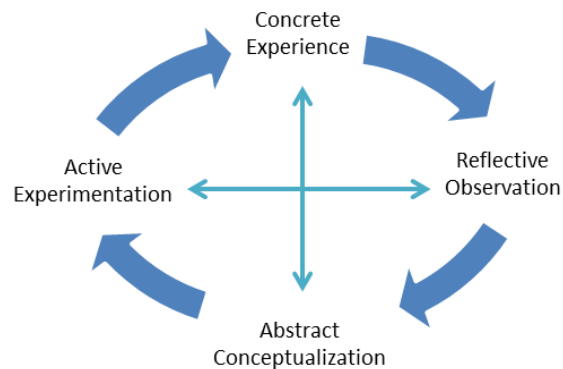
Learning modes	Learning abilities
Concrete Experience	They must be able to involve themselves fully, openly, and without bias in new experiences.
Abstract Conceptualization	They must be able to create concepts that integrate their observations into logically sound theories.
Reflective Observation	They must be able to reflect on and observe their experiences from many perspectives.
Active Experimentation	They must be able to use these theories to make decisions and solve problems.

(Source: Kolb, 1984, p.30)

The learning cycle is recursive, yet opposite learning modes move to each other according to the

level of learning. In addition, adult learners continuously select which set of learning modes they will use in specific learning contexts (Kolb, 1984; Baker *et al.*, 2005). Figure 1.2 portrays experiential learning cycle.

Figure 1.2: Experiential Learning Cycle (adapted from Baker, Jensen, & Kolb, 2005)



The experiential learning theory has been widely supported as a useful framework for educational innovation towards learning centred model including instructional design, curriculum development, and lifelong learning (Kolb & Kolb, 2005).

1.3.4 Transformational learning

Transformational learning is a meaning-centred theory, focusing on a cognitive process of learning, which portrays how adults make sense of their life experiences (Merriam, 2004a; Mezirow, 2000). Mezirow (1991, 2000) is considered as the primary pioneer of transformational learning theory. Mezirow focuses on describing the process towards the transformation as a goal of adult education and the link between transformational learning and adult development (Mezirow, 1989; Merriam, 2004b).

Key points of Mezirow's (1991, 2000) transformational learning are types of meaning structure (*frame of reference*) and its transformation process of frames of reference. Mezirow groups the frames of reference into two types: *meaning perspectives (a habit of mind)* and *meaning scheme (a point of view)* (Mezirow, 1991: 5). According to the types of frames of reference, the speed of transformation and its impact on transformation differ. Transformations in meaning perspectives (habits of mind) may occur suddenly and dramatically while transformations in meaning schemes (points of view) may occur more slowly and incrementally, which consequently lead to a transformation in meaning perspectives (habits of mind) (Mezirow, 2000; Merriam *et al.*, 2007).

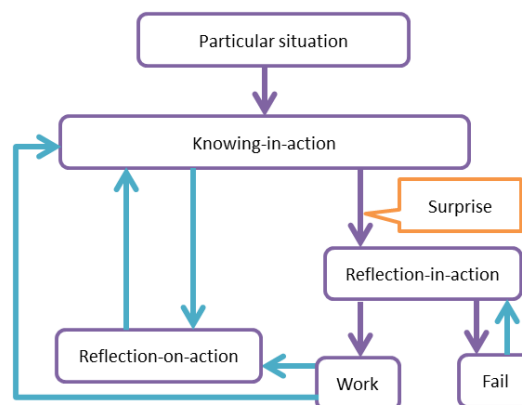
Transformational learning attempts to explain universal situation and practices that are suggested

in linguistic competence or human development (Mezirow, 1991). However, Mezirow's (1991, 2000) theory has been criticised for its lack of attention to context and short on descriptions of how to implement this transformational learning in the instructional setting (Merriam, 2004a). Regardless of the criticism, action learning has been found useful as one of the transformative approaches by adult educators and human resource development professionals (Brooks, 2004). The perspectives of transformational learning have also extended the focus on the leadership development, and the approach to the human resource development is provided (Brooks, 2004).

1.3.5 Reflection-in-action

Among adult learning theories, the 'reflection-in-action' theory especially focuses on professional development. Donald A. Schön is probably the best-known researcher who contributed to bringing the reflective process into the centre of an understanding of professional development (Merriam *et al.*, 2007). The theory proposed by Schön (1987) portrays how competent practitioners would respond to tackle unfamiliar situations encountered in their professional practices, by proposing three states of actions, namely: *knowing-in-action*, *reflection-on-action*, and *reflection-in-action* (Figure 1.3).

Figure 1.3: The process of reflection-in-action



The 'knowing-in-action' is about know-how in problem-solving based on professional knowledge. The 'reflection-on-action' is to contemplate a situation after it has happened, bringing in new attitudes to experiences, difference in behaviour, and dedication to acts, in which learners have time to explore the reasons for acts and events in a group; then, develop a series of inquiry and thoughts on how learner's 'knowing-in-action' may have resulted in an unexpected outcome. In the 'reflection-in-action', learners may reflect in the middle of the action without interrupting it. Reflection of the learner on the spot contributes to reshaping what he or she is doing during the act,

which is a critical function of 'reflection-in-action', questioning the presumptive structure of 'knowing-in-action' (Schön, 1987).

Schön's (1987) 'reflection-in-action' model starts in a situation which a learner brings a routine response to a problem on the spot as 'knowing-in-action'. When the 'knowing-in-action' no longer fit the situation, the routine action produces an unexpected outcome regardless of being pleasant or unpleasant. If the learner is competent and experienced, the learner reflects the failure during the action and tries another response on the spot according to surprise caused by the unexpected outcome. The cycle of reflection-in-action gives rise to '*on-the-spot experiment*' (Schön, 1987: 28). In an on-the-spot experiment, the learner tries out different actions intended to investigate the unexpected phenomena. If the on-the-spot experiment failed, it may generate another surprise leading to further reflection and experiment. When the try-out works, then the learner moves on the reflection-on-action for further reflection, or just restructures knowing-in-action. Throughout this process, the experienced practitioners build up a collection of images, idea, examples and actions that they can use when the similar situation occurs. The concept of repertoire is a key aspect of this reflection cycle for professional development.

Several researchers criticised the theory in terms of: restricted reflection associated with the limited time (Eraut, 1994); no psychological elaboration (Russell & Munby, 1991); fewer contents (Richardson, 1990); and no validation (Usher *et al.*, 1997). However, Schön (1987) argues that reflection-in-action describes the regular use of professional practices, such as reflecting on situations of uncertainty, instability, uniqueness and conflict (Hudson *et al.*, 2012). In addition, this type of reflective practice provides professionals with opportunities to exhibit their professional artistry where professionals generate new perspectives and activities on the dilemma of practice with going beyond the routine application of rules and theories (Merriam *et al.*, 2007). Thus, Schön's contribution observing what the competent practitioners do is significant in order to convey a clear message for practitioners in professional development (Merriam *et al.*, 2007).

1.3.6 Discussion and summary of the review on adult learning

There have been a number of adult learning theories, depending on what the author or researcher puts in the centre of his theory. There has been no single theory to cover all aspects of adult learning. However, there are some key factors in adult learning; the characteristics of adult learners, how they learn, the influence of prior experiences and how to transform to new concepts, and critical reflection. Regarding professional pharmacy education, all theories are important for shaping IPPE programme. The theories can provide a better understanding of and positive impacts on lifelong learning and continuing professional development (CPD) of pharmacy workforce. The

theory, therefore, should be introduced in IPPE to prepare students to go through lifelong learning and CPD so that pharmacy students can have a seamless transition from the preparatory stage (i.e., IPPE) to professional practice to remain and keep up their competencies.

1.4 Education in healthcare professions

1.4.1 Background

Healthcare professionals seem to have failed to keep pace with challenges and additional demands from health systems that have been becoming more and more complex (Frenk *et al.*, 2010). This is partly due to the poorly managed health professional education which produces ill-equipped graduates to deliver demanded services (Lueddeke, 2012). Frenk and colleagues (2010) conclude that the problems of health professional education are largely due to systemic failure: a mismatch of competencies to health needs, weak teamwork, gender stratification, hospital dominance over primary care, labour market imbalances, and weak leadership for health system performance.

1.4.2 Historical development of health professional education models

After the discovery of germ theory in Europe, finding the fact that many diseases are caused by the presence and actions of specific micro-organisms, the innovation of medical understanding had a great impact on reforms of health professional education around the world. It is because the health professionals provide health services through linking people to technology, information, and knowledge (Frenk *et al.*, 2010). Led by the Flexner report about medical education in 1910 in the United States of America (USA), many studies on health professional education brought about breakthrough reforms (Frenk *et al.*, 2010).

The Lancet commissions (2010) largely recognise three generations of educational reforms: *science-based*, *problem-based*, and *systems-based* reforms (Figure 1.4). Figure 1.4 explains the generation shift from science-based to systems-based reforms in terms of instructional and institutional aspects. The instructional design focuses on instructional processes in admission criteria, competencies, pedagogical approaches and technologies, and career pathways of the profession. On the other hand, the institutional design specifies features of each generation focusing on the structure and functions of the education system. Moreover, according to Frenk *et al.* (2010), the shift between the generations is not a linear progression but a complex and dynamic change by inheriting elements of each generation in the subsequent ones.

In the science-based generation, educational reform was sparked by medical breakthroughs and resulted from the effort to integrate modern science into health professional education, aiming to

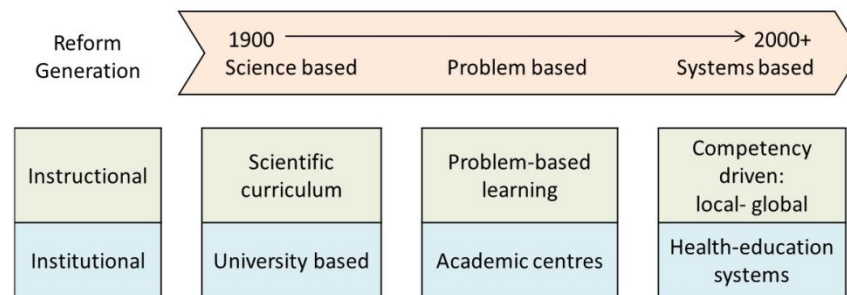
equip health professionals with the up-to-date science-based knowledge. The scientific curriculum was often formed by a series of biomedical science and clinical training respectively. This reform brought about institutional transformation into an university-based construct – linking academic hospitals to universities, closing low-quality private schools, and putting research and education together (Frenk *et al.*, 2010).

A second generation began as national governments engaged more in health issues. This generation shift was triggered by the growth of academic health centres linking with the tertiary hospitals where often train health professionals, conduct research, and provide health services. Hence, the second generation features these three integrated activities (Frenk *et al.*, 2010). The development of the institutional design was accompanied by some instructional innovations, such as problem-based learning (Barrows, 1996), disciplinarily integrated curricula (Papa & Harasym, 1999), standardised patients for assessing student’s clinical performance (Barrows & Abrahamson, 1964), early student exposure to patients and expansion of training settings from hospital dominant to the inclusion of community (Frenk *et al.*, 2010).

A third generation was addressed as recommendations for health professional education of 21st century. The generation was formed by the interdependence and globalisation of education and health system. The recommended educational reform of the generation emphasises patient and population centredness, competency-based curriculum, interprofessional and team-based approach, e-learning using new informatics, leadership skills for policy and management, lifelong learning preparedness (Frenk *et al.*, 2010).

Frenk *et al.* (2010) describes the institutional design of the third generation as health-education system as educated and trained health workforce should be to meet demands from health system based on population needs. The instructional design of the generation focuses on competency driven curriculum. This was recommended for the purpose of improving health system performance by adapting core professional competencies to specific local contexts while exploiting global knowledge (Lueddeke, 2012).

Figure 1.4, as Frenk and colleagues show, identifies that the role of the Higher Education Institutions (HEIs) have been changing. The traditional role of HEIs is “*where people go to obtain information*”. Now HEIs have to play the role to incorporate vast forms of learning for clinical decision-making in the specific context.

Figure 1.4: Three generations of educational reform (adapted from: Frenk *et al.*, 2010)

1.4.3 Competences and competencies

Since the new concept of instructional education model in health professions appeared, *competence* has become a contemporary ‘currency’ that can share values and language commonly in health professional area, which allows health professionals to define their roles and responsibilities, and to create evaluation tools to assess the capability of the professional (Bates & Bruno, 2009; Geheb *et al.*, 2004). Despite the popularity of the word, there is some confusion around the definitions of ‘competence’ and ‘competency’ (Bates & Bruno, 2009). ‘Competence’ expresses the concept of ‘the overarching capacity of a person to perform’ (Bates & Bruno, 2009). ‘Competences’ (plural) refers to being functional for a particular duty, which is often used associated with functional task descriptions (Miller, 1990; Bates & Bruno, 2009). ‘Competencies’ (a different plural) is defined as the quality of the capability of the person, which can be represented as a holistic complex set of knowledge, skills, behaviours, and values, from which safe, effective and consistent professional performance result (Bates & Bruno, 2009).

Miller’s (1990) triangle illustrates the hierarchy and complexity of the delivery of professional works (Figure 1.5). In the triangle, competences can be located in the ‘KNOWS HOW’ as the level of educational goals that learners can apply the knowledge to practice scenarios. Miller’s triangle shows the increasing practitioner’s authenticity from cognition (knowing) to behaviour (doing). At the second top level of the triangle, ‘SHOWS’, practitioners demonstrate their competencies as the quality of their practice (Bates & Bruno, 2009; Gruppen *et al.*, 2012; Miller, 1990).

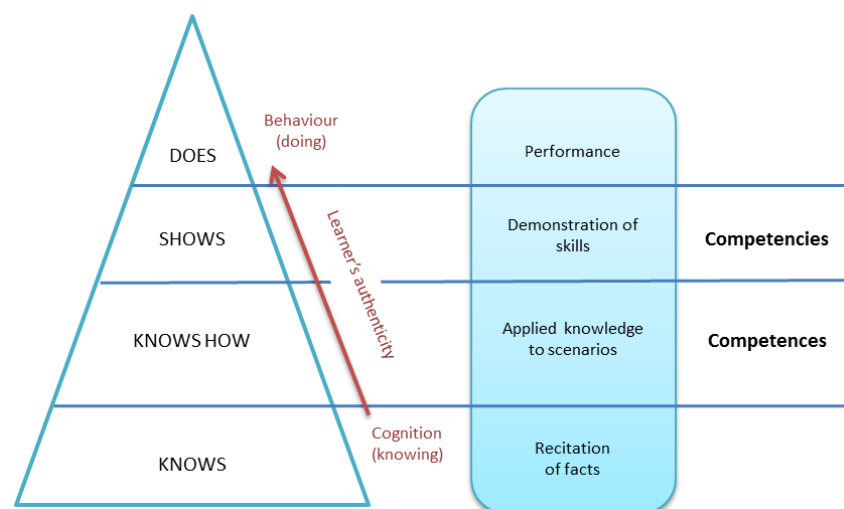
A move of the educational reforms towards a systems-based and competency-drive approach in healthcare professional education (previous section 1.4.2) concurs with the paradigm shift in the definition of excellence in learning, which describes an expectation and goal of student’s achievement (Phillips, 2008; Frenk *et al.*, 2010; Brusoni *et al.*, 2014). In traditional education models, the major concept of learning excellence was located at the bottom of the triangle, focusing on what the learner should ‘KNOW’ as learning objectives (Gruppen *et al.*, 2012). However, the level of

learning excellence moves towards the second top of the triangle, aiming to perform ('DOES' in the triangle) professional expectations representative of the competencies (Gruppen *et al.*, 2012; Phillips, 2008).

In addition, Gruppen, Mangrulkar, and Kolars (2012), the members of the Lancet commissions, used Albanese *et al.*'s (2008) five characteristics to define a competency: (1) *a competency focuses on the performance of the end product or goal state of instruction*, (2) *a competency reflects expectations that are external to the immediate instructional programme*, (3) *a competency is expressible in terms of measurable behaviour*, (4) *a competency uses a standard for judging competence that is not dependent upon the performance of other learners*, and (5) *a competency informs learners, as well as other stakeholders, about what is expected of them*. Throughout identifying these criteria, Albanese and colleagues (2008) discuss that a competency focuses on educational goals whereas traditional education focuses on the teaching process and programme.

Due to the shift towards professional competencies in a new educational generation, HEIs of IPPE have to adequately prepare their graduates with specified professional competencies.

Figure 1.5: Millar's triangle and concepts of competences & competencies (adapted from Millar, 1990 and Gruppen *et al.*, 2012)



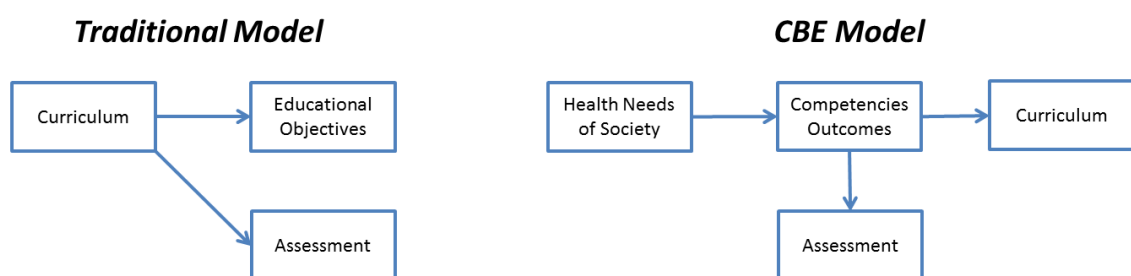
1.4.4 Competency-based education

Competency-based education (CBE) is an alternative approach for optimising the preparation of health professional graduates (Gruppen *et al.*, 2012). According to Gruppen and colleagues (2012), CBE refers to '*a framework for designing and implementing education that focuses on the desired performance characteristics of healthcare professionals*'. The CBE is established from clear

educational goals by designing observable and measurable professional performance standards, which healthcare practitioners must acquire to be considered as capable professionals (Gruppen *et al.*, 2012).

Gruppen and colleagues (2012) illustrate the comparison between traditional model and the CBE in Figure 1.6. The traditional model is often considered as ‘curriculum-driven’ educational model and emphasises memorisation and recall (Gruppen *et al.*, 2012; Rice, 2011; Lueddeke, 2012: 71). A curriculum in the traditional model is often an aggregate of the traditions, priorities and values of the faculty in the school. Learning objectives in the traditional curriculum are usually what the faculty wants to teach or consider important in many cases. This approach to defining educational objectives often fails to be consistent with population needs of the profession (Gruppen *et al.*, 2012). Traditionally, medical education was constructed as systems- and content-based curricula, which separated the basic and clinical sciences (Prideaux, 2003). The traditional curricula had two sections; content that was determined by lecturers and examinations that designate whether students had learned the determined content (Phillips, 2008).

Figure 1.6: Comparing traditional and CBE models (adapted from Gruppen *et al.*, 2012)



Compared to the traditional ‘curriculum driven’ educational model, the CBE sets the curriculum as an “*end product*” of health needs assessment, which determines necessary competencies to provide safe and effective health services for context-specific health issues in the community (Gruppen *et al.*, 2012). To establish a CBE-approached curriculum, the first step is to define the given health needs of the community. Then, the requisite competencies that graduates are expected to attain for the specific health system is identified from assessed health needs. The CBE utilises these expectations to develop and implement the curriculum to produce the required knowledge, skills, attitudes, and behaviours in the learners to accomplish a set of competencies. The CBE develops critical assessment schemes from the same set of competencies standards to examine the level which the learners reached (Gruppen *et al.*, 2012; Lueddeke, 2012: 71).

The reflection from health needs of society on developing a set of competencies towards the

curriculum development in the CBE model is a distinguished aspect from the traditional model. In addition, learning objectives in the traditional model often focus on what the learner should 'know' while the CBE model focuses on what the learner should be able 'to do' (Gruppen *et al.*, 2012). Furthermore, the CBE emphasises the end products rather than processes so that learners would have opportunities to explore a variety of learning activities and methods to achieve the requisite competencies in variable periods. The CBE *per se* is individualised learning whereas traditional education is a one-size-fits-all curriculum (Frenk *et al.*, 2010).

1.4.5 Local-global contexts in the CBE

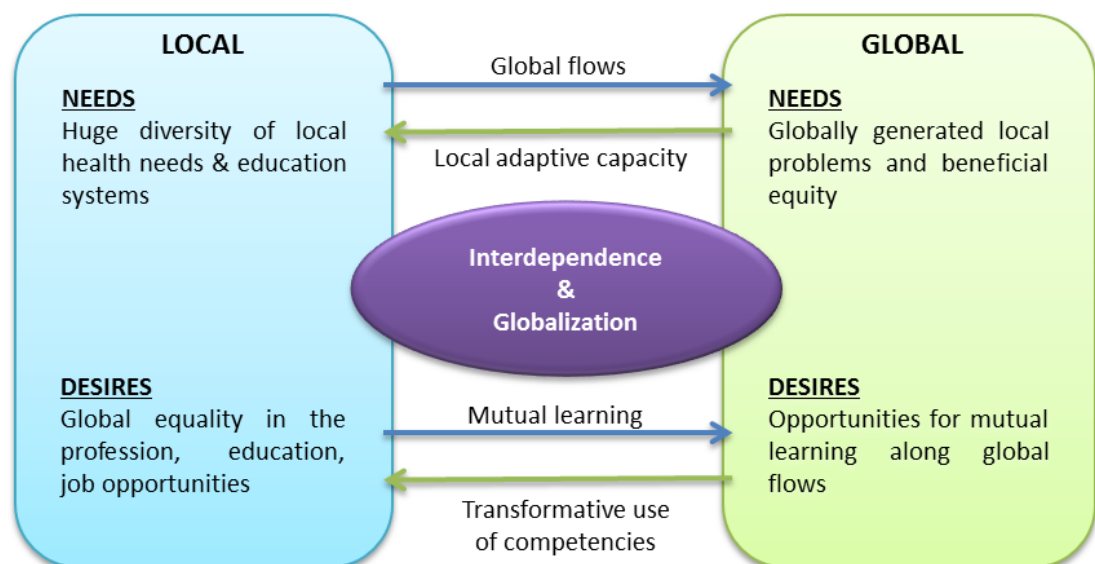
Local health needs have a firm relationship with a global perspective, which needs to be taken into account in the instructional model of the CBE as Figure 1.4 shows (Frenk *et al.*, 2010; Gruppen *et al.*, 2012). The relationship between local and global contexts has been established bi-directionally through interdependence and globalisation in health (Figure 1.7). Differences in social, cultural, and economic conditions induce a variety of local specific health needs and health professional education systems between countries. These local related health issues go across national boundaries through global flows and mutual learning, which can be accelerated by the extent of interdependence and globalisation in health (Frenk *et al.*, 2010).

A number of local problems are generalised to a global level. For example, infectious-disease transmission can be a threat to global population due to global flows and changes in epidemiological patterns of the diseases (Lee, 1998; Frenk *et al.*, 2010). Local specific health issues can also be imperatives for global health improvement and equity. Health professional workforce issues (i.e, the shortage and/or maldistribution of healthcare professionals and their inappropriate skill-mix to serve local health needs) are part of locally context-specific problems, which global cooperation and perspectives can enhance the supply of competent healthcare professionals. Mutual learning between local and global contexts contributes to this issue: policy makers and educators learn other local experiences in healthcare professional development and improve the understanding of global diversity of health issues, whilst the understanding of the causes and solutions to locally specific problems and the local adaptive capability can be improved (Frenk *et al.*, 2010).

In addition, to ensure appropriate preparation of graduates possessing local specific competencies, an educational model incorporating actual local population needs is essential. However, people also desire global equality in the profession, education, and job opportunities. Consequently, globally standardised competency frameworks or curricula are needed (Anderson *et al.*, 2012; Frenk *et al.*, 2010). Considering the variation in health needs and practices in the profession, a standardised

curriculum is not a feasible or desired goal (Anderson *et al.*, 2012). However, throughout mutual learning, transformative use of competencies can be seen objectively as a basis for the role definition of healthcare professions (Frenk *et al.*, 2010). By a thorough examination of the profession or refocusing on the role of the profession, approaching curricula with the transformative use of standardised competencies can be very helpful in supporting both local and large-scale educational model developments (Lueddeke, 2012). Frenk and colleagues (2010) suggest that the strategy for strengthening professional education through local-global relationship is to focus on local problem solving while harnessing the benefits of global flows of knowledge and resources.

Figure 1.7: Relationship between local and global contexts



1.4.6 Social accountability, quality assurance, and accreditation

The position of health professionals is dependent on the trust from the public because of a special blend of professional competencies, ethical commitment and social accountability, and the delivery of healthcare services based on the population health needs (Lindgren & Karle, 2011; Frenk *et al.*, 2010). The health professionals and their education institutions must be socially accountable to society by showing the proof of the minimum achievement and the transparent processes and managements of the preparation of graduates to meet population and societal needs (Lueddeke, 2012; Boelen & Woollard, 2011).

Social accountability closely links with the regulations of the healthcare professions and their education. Regulations regarding the healthcare professions and professional educations define

minimum requirements for the healthcare professional qualifications to allow them practice, which protect populations from possible harm against poorly qualified or unqualified healthcare providers. Healthcare professional education also needs to be under the umbrella of the regulation regarding the healthcare professionals, which facilitate the quality of healthcare professional education to meet the health needs of the population (WHO, 2013a). Licensure and accreditation of the education are the regulatory mechanisms that typically relate to the pre-service education and training for healthcare professionals.

1.4.7 Medical education

In the healthcare field, medical education was reformed recently, led by the advancement of medical sciences and the development of learning theories (Phillips, 2008). Along the development of learning theories, medical education shifted to student-centred learning with patient-centred, problem-based approach in which assessment emphasises achieving *competencies, communication skills, cultural awareness, and professionalism* (Phillips, 2008). A historical step for medical education reform was taken by the McMaster University in Canada with the implementation of PBL as part of their curricula (Frenk *et al.*, 2010). PBL shifts medical education away from detailed contents to essential knowledge for understanding the contexts of patients' lives, which does not involve the change of the whole process of delivery of education, but involve a move from didactic to problem-solving style (Phillips, 2008).

PBL is a starting point for educational reform. However, the effectiveness of PBL to develop knowledge, skills, attitudes is not described clearly (Phillips, 2008). In addition, a shortage of academic human resources can be one barrier to moving to the PBL approach in poorly resourced countries because the large commitment of human resources are necessary to deliver the PBL sessions in small group learning (Colliver, 2000). For achieving better healthcare outcomes, more effective education, outcome- or competency-based education model, and enhancement of the quality of global medical education are demanded (Frenk *et al.*, 2010; Gruppen *et al.*, 2012).

The World Federation for Medical Education (WFME) has taken an initiative for improving medical education aiming for better healthcare globally. Agreed by the WFME Working Party which states that the structures, processes, and products of medical schools all over the world share many common attributes (WFME Working Party, 2000), Cohen (2000) expresses the importance of global acceptance of a set of international standards for basic medical education in order to improve the quality of healthcare worldwide. According to Cohen (2000), the standards of education are considered as '*the principles governing construction, implementation, and evaluation of educational programme*' and support the fundamental obligation of the professions.

In order to improve the quality of medical education globally, a common set of standards of education can be used for accreditation to ensure that HEIs meet the purpose. The accreditation standards are determined by several organisations; the WFME (WFME Working Party, 2000) and the institute for International Medical Education (Core Committee IIME, 2002) globally. These international accreditation standards were developed not to interfere with local sensitivities such as culture and social uniqueness while meeting the international standards. Phillip (2008) argues that defining standards and using the defined standards for accreditation are deemed to lead to the global improvement of the quality of medical education.

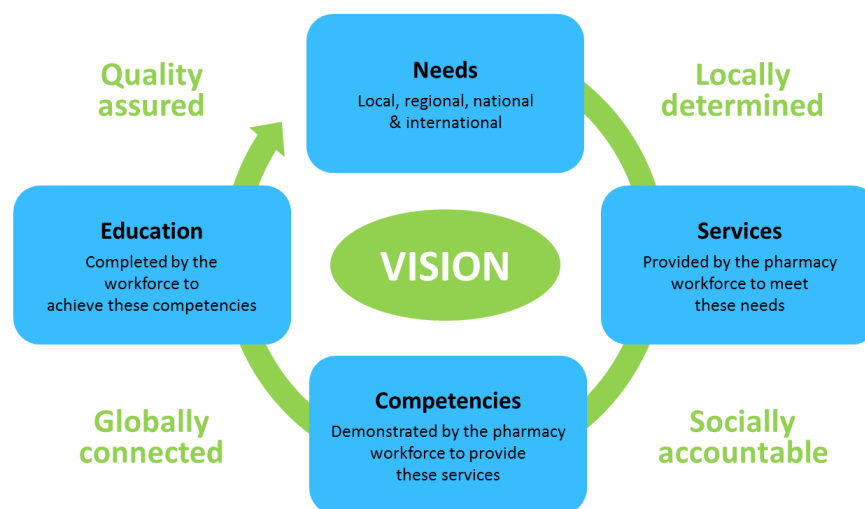
1.4.8 Pharmacy Education

In global pharmacy education, the call for curricular reform has been raised; however, the requests for the educational reform vary among different settings worldwide. In developed countries, pharmacists pursue the curricula preparing students for a future specialised field of pharmacy. On the other hand, in developing countries, patient-centred curricula and public health pharmacy are being sought to tackle their ever-changing health environments (Anderson *et al.*, 2012). In addition, in the specific settings where IPPE has not been established previously, there may be particular needs for pharmacy educational models (Rennie *et al.*, 2011). Furthermore, the status of pharmacists varies all over the world due to simply the number of pharmacists or an unawareness of pharmacists as a healthcare team member; thus, the perceived status of pharmacists would be well below than that of their medical colleagues (Lim *et al.*, 2012). As a wide range of needs and desires to pharmacy emerges across the globe, pharmacy curricula should better reflect a variety of pharmacy career directions that future graduates will take on globally and locally, and varying and challenging health systems where health needs are mirrored (DiPiro, 2011).

There seem to be some particular barriers towards the transformation in IPPE compared to the other global health professional educations. One of the challenges for implementing the CBE would be the nature of traditional academic environments which prefer focusing on scientific fields of expertise with a fondness for a subject-based curriculum. In addition, non-collaboration between individual faculty members as well as isolated improvements in educational institutions leads to a lack of harmonisation between population and national health needs and learning outcomes. Furthermore, the ignorance of liaison with stakeholders for decision-making in the professional pharmacy education would result in a mismatch of the graduates' expectations towards their professional careers after the completion of their curriculum (Anderson *et al.*, 2012; FIPEd Steering Committee, 2012; WHO, 2011).

Despite these challenges, transformation in IPPE needs to progress towards achieving better quality IPPE globally in order to enhance global health and public health delivery. Establishing the appropriate links between the IPPE curriculum, the educational outcomes influencing the population, and national needs have been a clear global agenda of governments globally and international health authorities, with the growing emphasis on providing a greater access to medicines and medicine expertise, and improving responsible medication use (FIPEd Steering Committee, 2012). The FIP now advocates the use of the needs-based approach to education (Figure 1.8) along with the global agenda (Anderson *et al.*, 2012; Anderson *et al.*, 2011b). The emphasis on the link between the pharmacy education and population and national health needs are illustrated in this cycle combining the CBE.

Figure 1.8: Needs-Based Education Model by WHO-UNESCO-FIP Education Initiative (FIPEd) Development Team (adapted from FIPEd, 2013)



WHO-UNESCO-FIP Education Initiative Development Team

An increasing attention to the social accountability is no exception in pharmacy as well as the other health professions. For underlining the population and national health priorities and ensuring the HEIs are socially accountable, the professional competencies of pharmacy practitioners based on the given health needs have to be presented clearly. Due to the diverse health systems worldwide, the professional competencies for pharmacy workforce also vary; however, there are still necessary practitioner competencies in common globally. The FIP Pharmacy Education Taskforce has developed a *Global Competency Framework* which represents a global consensus on the capability competencies of foundation level of pharmacy practitioners, and can be adapted to local needs to support practitioner development (FIPEd, 2012; FIPEd Steering Committee, 2012). As a result of the

prior assessments and establishments of professional competencies in the specific context, professional pharmacy CBE can be developed in the process of the adaptation of the competency framework. The quality of the developed education must be assured to meet the given health needs. From this clearly described cycle (Figure 1.8), it is visibly understood that pharmacy education has to be needs-assessed, socially accountable, competency-based, and quality-assured.

The last part of the needs-based education model (Figure 1.8) is the quality assurance (QA) of the CBE for pharmacy linking the developed education with local, regional, national and international health needs. Many countries have established a QA system for HEIs, including internal and external processes and self-assessment (FIP, 2009). There is also an increasing trend of a QA system using the external independent accreditation systems (FIP PET, 2008). However, its prevalence is not often for specific pharmacy education considering desired learning outcomes. The FIP, WHO, and United Nations Educational, Scientific and Cultural Organization (UNESCO) have recognised a need of initiatives on the capacity and expertise towards the higher and equitable quality of pharmacy education worldwide. Aiming at the QA systems that are nationally or regionally adaptable, ensuring that the curricula are competency-based, reflect a vision for needs-based pharmacy practice, and are of high quality and appropriate, the FIP developed the *Global Framework for Quality Assurance of Pharmacy Education* to identify the core principles and elements that are deemed as fundamentals for effective approach to the QA of pharmacy education (FIP, 2009; FIP PET, 2008), and now a second version is available (FIP, 2014). This FIP framework can be adapted and built on national and population needs, and local health systems (FIP, 2009; FIP, 2014).

IPPE has been recognised as the foundation of the overall professions in pharmacy. The IPPE must be reflective of a vision for pharmacy practice which is global, national and local health needs-based, socially accountable, competency-based through prior assessments, and quality assured. The global consensus recognises that the quality-assured education, based on well-structured standards, will prepare graduates to meet social expectations of them and meet a wide range of future pharmacy careers appropriately (FIPed Steering Committee, 2012).

The quality and standards of IPPE is now receiving much attention from multiple stakeholders due to the global consensus mentioned above as well as considerably extended role of pharmacists, growing awareness as healthcare providers, and needs of pharmaceutical scientists to the further advancement of science and technology (FIPed Steering Committee, 2012; FIP, 2009). Literature so far has failed to capture a comprehensive educational practice of IPPE in a global context. Literature and evidence regarding pharmacy education are more lacking compared to the other healthcare professions (WHO, 2006). Multi-dimensional and comprehensive evidence in a global context is

required to identify gaps, challenges and cooperation opportunities which will assist developing evidence-based global pharmacy education policy recommendations.

1.5 Key factors for quality pharmacy education

High quality IPPE refers to the IPPE which sustainably supplies a capable and competent pharmacy workforce who are able to provide pharmaceutical services at a graduate level to a wide range of patients and the public, and meet health demands of the population that they will serve. To achieve this, the WHO (2013a) and Lancet Commissions group (Frenk *et al.*, 2010) argue that all healthcare professional education need to prepare professionals to (1) work in a healthcare team, (2) adapt to changes and new practice environments, (3) enable the introduction of changes where needed while adopting their competencies, and (4) learn and further develop their own competencies in a self-directing and continuous process. These four essential capabilities should be set as definite qualitative learning outcomes of IPPE, and the IPPE globally needs to be designed to supply pharmacy workforce who achieve such qualitative learning outcomes.

The desired high quality learning outcomes of students are affected and interrelated by many factors (Kostrzewski & Dhillon, 1997). Trigwell and Prosser (1991) identified the factors that affect and interrelate with the learning outcomes of students, such as the institutional environment, teaching strategies, subject matter, student's perception of the educational environment, and their approaches to learning. The FIP (2014) also identified that achieving the desired outcomes of IPPE is supported by the establishment of maintainable educational structure and process in a specific context that the education is provided.

The factors influencing the quality of IPPE can be used as proxy indicators to explore current IPPE conditions in order to enhance the IPPE quality. Therefore, personal and institutional factors that are likely to affect the quality IPPE will be discussed below.

1.5.1 Student's personal factors

Some models emphasising the quality in education address the importance of students' learning experiences and learning processes and the interrelated personal factors. The *Transformative Model* proposed by Harvey and Knight (1996) emphasises the student's experience in terms of the quality of higher education. In their student's learning-oriented approach to quality, the identified key factors to affect the outcomes are the integration of learning experiences and the transparent process towards the attainment of learning by the student. These include the openness about the aims, processes, and methods of achieving the learning (Harvey & Knight, 1996; Srikanthan &

Dalrymple, 2002).

Another model focusing on the learning experiences for students in terms of the quality of higher education is the *Engagement Model of Programme Quality* (Haworth & Conrad, 1997). In this model, student's learning experience which has positive effect on his/her development is a clear focus in high quality programme, and the engagement of student, academics, and administrative members in teaching and learning is a key factor to achieve the desired student's learning experience (Haworth & Conrad, 1997; Srikanthan & Dalrymple, 2002).

Bowden and Ference (1998) emphasise the student's learning process in order to achieve the desired outcome in their *University of Learning Model*. The authors argue that the desired outcome of higher education is that the students attain an ability to stretch the range of prospects in the given phenomenon, and determine the most relevant possibility within the situation. To facilitate the desired outcomes through a dynamic learning process, an active collaboration and interdependent between programme team, academics, and administrators is identified as a key factor (Bowden & Ference, 1998; Srikanthan & Dalrymple, 2002).

Many studies and researchers identified the learning experiences and learning processes of students as important factors in order for students to achieve desired educational outcomes, supporting the quality of higher education. In addition, there are many affected and interrelated structures and process of education with these desired outcomes.

1.5.1.1 Learning processes of students

1.5.1.1.1 Students' approaches to learning

The student's approach to learning (SAL) is how students go about their learning and is conceptualised as learning processes that students use during their learning. Measuring the SAL highlights the quality of the teaching environment and how well the general education system is working like the barometer readings (Biggs, 2001). Many studies have revealed the influence on the levels of the SAL by contextual factors (e.g., course design, teaching methods, and modes of assessment) and personological factors (e.g., students' gender, age, and prior experiences), which means that ideal learning environments promotes the desired level of the SAL (Sadlo & Richardson, 2003; Zeegers, 2001).

The SAL theory is created from the '*bottom up*' from the perspective of the students' learning experiences, not from researchers (Biggs, 1993). The start of the SAL theory was in a '*micro-context*', students approaching a text, in the interview-based study by Marton and Säljö (1976a, b). The early

work by them identifies two levels of learning; *deep* and *surface*, depending on how students approached and interpreted the task of reading passage, based on the notion called *phenomenography* that students act according to a situation rather than to a learning objective (Marton & Säljö, 1976a, b; Watkins, 2001a; Prat-Sala & Redford, 2010; Cano & Berbén, 2009).

There is a certain variety in the view among the most representative SAL researchers about how many dimensions and subscales should be included (Cano & Berbén, 2009). Taylor (1984) reveals seven factors altogether. Entwistle and Ramsden (1983), Entwistle, McCune, and Walker (2001) and Biggs (1987b) identify three dimensions, including the deep, surface, achieving approaches to learning. Entwistle, Hanley, and Hounsell (1979) and Watkins (1983) additionally find fourth dimension: *disorganised and dilatory* as well as the main three factors. Richardson (2000) suggests only two dimensions (deep and surface) can be deemed valid by his review on two of the SAL instruments (the *Study Process Questionnaire (SPQ)* and *Approaches to Study Inventory (ASI)*).

Despite many different points of view, there is a consensus on two approaches to learning of students; deep and surface approaches. The *deep approach* is based on intrinsic interest in the subject matter and the focus is to understand underlying meanings. The *surface approach* is based on extrinsic intention to the task and the focus is to complete task requirements within minimal time and effort. The students in a surface approach often use rote-learning without understanding the real purpose or meanings of the work (Trigwell & Prosser, 1991; Biggs, 1993; Hattie & Watkins, 1981).

A third approach has often been criticised about whether it exists and refers to a *strategic approach* (Hattie & Watkins, 1981) or an *achieving approach* (Biggs, 1987b), representing something of a mixture of deep and surface (Eley, 1992). The characteristic is based on the intent to maximise performance and obtain highest possible grades and the focus is to organise study time and distribute efforts to greatest outcomes (Hattie & Watkins, 1981; Biggs, 1987b). Strategies used with the third approach adopt the deep or surface approaches according to the task (Eley, 1992). There is a difference between first two (surface and deep) and third approach. The strategies in the first two approaches (surface and deep) describes how students engage the actual content of the task while those in the third one describe how students organise the time and effort in which the task is performed (Biggs, 1985).

There are also views of how many subscales in each approach are needed. Tait, Entwistle, and McCune (1998) define 13 subscales in three dimensions of the SAL in the representative SAL inventory, the *Approaches and Study Skills Inventory for Students (ASSIST)*; for example, *deep*

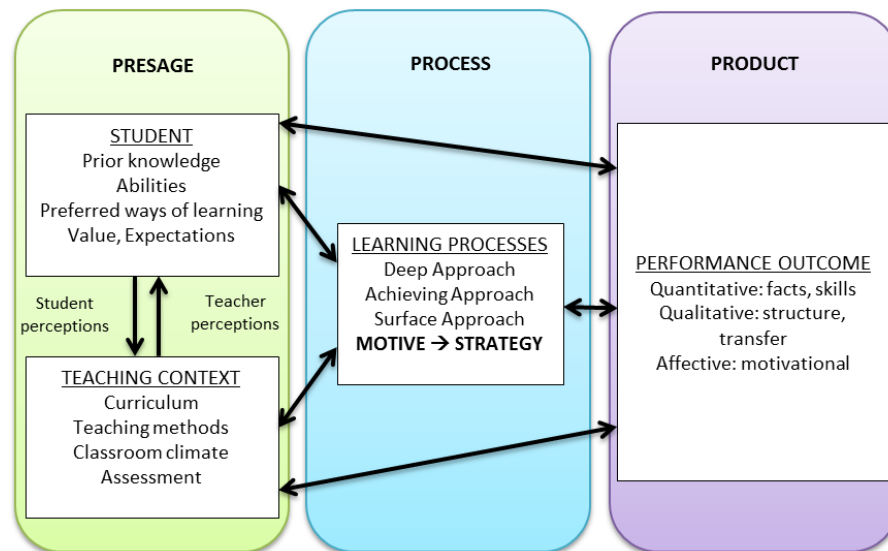
approach is defined by subscales including seeking meaning, relating ideas, use of evidence, interest in ideas, and collaboration. For other authors such as Biggs (1987b) and Biggs, Kember, and Leung (2001) determines only two subscales in each approach (motive and strategy), defining as a *congruent motive-strategy package*.

The student's learning process has been described as multidimensional as Biggs has always described, delineated that the associated motivation with the specific context defines its cognate strategy (Cano & Berbén, 2009). The motive-strategy package was identified during the second order factor analysis in order to reduce the SAL instrument items by Biggs (1987). Each of three higher order factors in the second factor analysis fell into two groups – affective and cognitive – which formulated congruent combinations of motive-strategy, like current process theories of metacognitive strategy use, such as *will and skill* theory (O'Neil & Child, 1984). In addition, the correlation between any motive and its related strategy is significantly higher than that between the motive and any non-congruent strategy (Christensen *et al.*, 1991; Biggs & Rihn, 1984; Biggs, 1985). Thus, currently the SAL theory can be considered as "*a process of students devising learning strategies to solve the challenges their motives have defined for them*" (Wilson & Fowler, 2005).

1.5.1.1.2 3P model

The learning process of a student in the SAL theory can be part of the *presage-process-product (3P) model*, which is a metacognitive process to conceptualise the relationship between the student and learning environment (presage), SAL (process), and learning outcome (product) (Biggs, 1993) as found in Figure 1.9. The 3P model is developed originally for conceptualising the context of classroom teaching to that of student learning at the beginning by Dunkin and Biddle (1974), and Biggs adapts the concept to the SAL theory to form the metacognitive processes in student learning (Biggs, 1993; Kember & Gow, 1990).

Figure 1.9: The 3P model (adapted from Biggs, 1993, 2001)



Presage factors include two kinds of components: (i) *student presage factors*, which are considered as relatively stable and learning-related characteristics of the student, such as prior knowledge, abilities, values and expectations concerning achievement, and preferred way of learning as predispositions to engage in academic activities; and (ii) *teaching presage factors*, which are considered as the teaching contexts, including the sets of teaching and institutional structure, such as teaching course structure, curriculum contents, methods of teaching and assessment, and classroom climate. The two sets of components in the presage factors interact; teacher perception of student motivations or abilities influence their teaching decision, while student perceptions of the teaching context directly affect their motivations and predispositions, and their immediate decisions for action (Biggs, 1993).

Process factors refer to the learning process complex, which is formulated by approaches to learning of students, and each of them comprises a motive and an associated congruent strategy (Biggs, 1985). The process factors (i.e., students' approaches to learning) can be illustrated in the relationships with the predispositions of the student and the learning environment.

Product factors refer to the performance by the student, which is defined by the presage factors, both personal and situational, and is affected by the student's learning approach by determined from presage factors (Biggs, 1985). The nature of performance outcomes can be identified in complex ways, such as quantitative lists of facts and skills, qualitative transformative self-information construction, affective feelings about learning experiences or further motivations towards lifelong learning (Biggs, 2001, 1993).

From the conceptual map of student's learning in this 3P model, the SAL is meaningful only in the specific learning situations related to the student's perceptions of learning environments (Biggs, 1987b; Watkins & Akande, 1992; Byrne *et al.*, 2004).

1.5.1.1.3 *Influence to the SAL*

As the 3P model illustrates, the SAL is affected by many factors. Many researchers have investigated the influence of the educational design on the SAL adopted. Of these studies which examine the link between the course design and SAL, a number of researchers identify that students' active learning, including PBL and peer-consulting, is likely to increase the level of the deep approach to learning (Sivan *et al.*, 2000; Newble & Clarke, 1986; De Volder & De Grave, 1989; Sobral, 1995; Lizzio & Wilson, 2004a; Wilson & Fowler, 2005).

The educational designs above, however, may not be a direct effect on the SAL. An important point in the SAL is how the student perceives the educational design and questions their reasons and intentions for learning processes. Gordon and Debus (2002) found that emphasising students' self-monitoring and goal-setting in the course context made a shift of the level of the SAL from the surface to deep approaches. This can describe the importance of the metalearning – the awareness of the motivation and intention for their own learning – for adopting the deep approach to learning. Biggs (1987a) explains the key link between the metalearning and SAL; the deeper approach involves more metalearning while the surface approach likely occurs when there is a lack of metalearning.

Recently, Prat-Sala and colleagues (2010) identified the relationship between students' approaches to learning and their stable trait-oriented motivation using the Work Preference Inventory (Amabile *et al.*, 1994) with the theory that adults' motivation orientations could be sub-classified in meaningful ways.

All types of motivations can be broadly divided into two orientations, intrinsic and extrinsic motivations. These motivation orientations were identified in the early 1970s (Deci, 1971). The intrinsic motivation refers to engagement in a task because of interesting, appealing and satisfying tasks without any apparent rewards other than the enjoyment throughout doing the tasks. On the other hand, the extrinsic motivation refers to engagement in a task because performing the tasks leads to a separate outcome or reward that they might gain (Prat-Sala & Redford, 2010; Ryan & Deci, 2000). Classically, these two motivation orientations were considered as opposite bipolar constructs. In this sense, compared to the fact that the intrinsic motivation leads to a deeper level of learning

and creativity, the extrinsic motivation has been considered as a pale and limited form of motivation that is likely to decrease their intrinsic motivation (Ryan & Deci, 2000).

However, the new directions of the extrinsic motivations were suggested in the Self-determination Theory (SDT; Deci & Ryan, 1985). The SDT proposed various types of extrinsic motivation according to the extent of autonomy, including *external regulation*, *introjection*, *identification*, and *integration* (Deci & Ryan, 1985). In this theory, the intrinsic and the extrinsic motivations are characterised as less opposite bipolar constructs, but more as a continuum from the extrinsic to more intrinsic motivation (Prat-Sala & Redford, 2010).

The *external regulation* is the least autonomous form of the extrinsic motivation and leads activities towards the tasks to satisfy an external demand or obtain extrinsic rewards. A second least autonomous form of the extrinsic motivation is the *introjected regulation*, which describes internal autonomy controlled by ego enhancement focussing on approval from self/others. A more autonomous form of the extrinsic motivation is the *identification*. The control through this category is performed by identifying the value of activities and self-endorsement of goals. Finally, the *integrated regulation* is the most autonomous form of the extrinsic motivation. This form resulted from bringing some presumed instrumental value into congruence with one's other values and needs through examination and volition by self. Many attributes are shared with the intrinsic motivation in the *integrated regulation*, such as being autonomous and synthesised. However, the cause of motivation occurs extrinsically in this form (Ryan & Deci, 2000).

Prat-Sala and Redford (2010) found that both intrinsic and extrinsic motivations correlated with students' approaches to learning, and the subscales of the intrinsic and the extrinsic motivations contributed to providing better evidence to illustrate the correlation of these variables. The intrinsic motivation is likely associated with a deeper approach to learning, focusing on underlying meaning, main ideas, themes, and principles (Prat-Sala & Redford, 2010; Biggs, 2001). Sub-classified forms of the extrinsic motivation are associated with surface and achieving approaches to learning (Prat-Sala & Redford, 2010). Moreover, the relationship between an achieving approach to learning and extrinsic, competitive achievement motivations was identified (Prat-Sala & Redford, 2010; Biggs, 2001).

Consequently, motivation categories with the idea of the well-established motivational construct in the SDT could presumably describe correlation with students' approaches to learning in this project.

1.5.1.1.4 *Link with the desired qualitative learning outcomes*

The adoption of a deeper approach to learning leads to higher quality learning outcomes of students that IPPE desires: structured and transferable generic skills, and self-directed lifelong learning.

Biggs (1987a) describes that applying the deeper approach to learning is likely to increase the structural aspect of learning in contrast to a factual aspect. During the deep-level learning, the structural interrelationship between the components of the tasks progressively increased in which the details of the facts are embedded. This assists students developing capability to apply knowledge and skills obtained from learning into real professional works. On the other hand, with the surface approach, the student tends to focus on the reproduction of correct facts without structuring the components, which can be a problem when the student faces unfamiliar situations. This notion was proved by Lizzio *et al.* (2002), showing significant positive correlations between the score of the deep approach to learning and academic achievement as well as the self-reported development of generic skills.

The deep approach to learning also links with the positive motivation for further self-directed learning. Satisfaction and further intrinsic motivation induced by the deep approach to learning tend to affect next learning (Biggs, 1987a). Higher involvement of metalearning in the deep approach is likely to assist the development of self-directedness in their learning because of the frequent questioning their learning situation and the high level of understanding. Candy (1991) also describes the positive correlation between the deep-level approach and self-directedness for lifelong learning. The development of self-directed lifelong learning feature is essential for pharmacy professional practice; therefore, fostering the deeper approach to learning is an essential step to improve the quality of IPPE.

1.5.1.1.5 *Evidence in pharmacy education*

There is limited literature available which examined the SAL in pharmacy programmes. These studies were conducted in either pre-service or post-graduate courses of pharmacy at a single university level.

Kostrzewski and Dhillon (1997) investigated approaches to learning of hospital pharmacists in a postgraduate programme in pharmacy practice at a single university in the United Kingdom (UK), using the Approaches to Study Inventory (Entwistle & Ramsden, 1983). With three different year cohorts, the study shows that the postgraduate programme induced the higher levels of the deep and achieving approaches to learning as opposed to the lower surface approach.

Another study in the UK was conducted to examine the SAL in IPPE programme at a single university, using the Approaches to Study Inventory (Entwistle & Ramsden, 1983) for three different year cohorts (Aggarwal & Bates, 2000). The dichotomy structure of deep/surface approaches to learning was not fully validated in this particular pharmacy undergraduate sample with this instrument. In conjunction with the qualitative interview, the study concluded that the lifelong learning can be induced by the course design focusing on critical thinking, but the deep approach may not be necessary for that aspect.

A single Australian university also investigated the SAL in IPPE programme, using the Inventory of Learning Styles (Vermunt, 1996) for first to fourth-year students in a 4-year programme (Smith *et al.*, 2007). The study found significantly lower preferences in Meaning Directed scale (equally considered as a deep approach to learning) in all year groups. The finding raised a concern for future professionals who definitely need structured and transformative skills with self-directed lifelong learning.

As a follow-up study to the Australian study above, the same research group compared the SAL longitudinally in both undergraduate and graduate entry pharmacy programme (Smith *et al.*, 2010). This study also shows the similar results with the previous study, illustrating a weaker preference for Meaning Directed approach in students of both programmes. However, the study found the greater application of the Meaning Directed approach in the later year compared to the early year, which can suggest the academic programme induce the ability to adopt a deeper level of approach in learning. Graduate entry students had a similar pattern of the approaches with the undergraduate cohort; however, the study found the extent of the application of meaning-directed approach was greater in later years.

There is no evidence available in pharmacy education to provide information of the SAL in a global context, nor to illustrate a multi-country pattern of the SAL, in light of measuring proxy indicators of educational quality. Examining the current SAL position can be an essential step to clarify a basis to further improve or develop IPPE globally.

1.5.1.2 Learning experiences of students

1.5.1.2.1 Students' learning experiences

Learning experience is about how a student experiences and perceives the institutional and learning environments, teaching activities and course design. Learning experience of the student is an important element in terms of the quality of higher education because the effectiveness of the

teaching contexts or learning environments is almost impossible to be identified without the evaluation of students' perception of the institutional contexts.

Hartnett and Centra (1977) conducted the study to assess the departmental effectiveness of American universities with the criterion measures achieving tests. They attempted to find correlations between the identified effectiveness and various departmental characteristics (e.g., size, staff-student ratio, self-ratings of staff interest in teaching, salaries, and students' pre-entry levels of achievement); however, there is no factor that significantly correlates with the curricular effectiveness, although it found large differences in the students' achievement tests examined even in the same discipline. They concluded that the perceptions of students to the teaching contexts may be more important in the explanation of the educational effectiveness (Wong *et al.*, 1996; Entwistle & Ramsden, 1983; Hartnett & Centra, 1977).

1.5.1.2.2 *Common factors of students' learning experiences*

Following the Hartnett and Centra's (1977) findings, early studies revealed many similarities in the factors that students use to evaluate the perceived quality of teaching (Entwistle & Ramsden, 1983). Kulik and McKeachie (1975) identified a significant overlap in the factors that students' ratings of lectures by factor analysis. The common factors are; teaching skills as a teacher, lecturer's rapport with students, amount of course contents, and workload that students were expected to deal with. In addition, a number of studies (e.g., Payne & Hobbs, 1979; Entwistle & Percy, 1971; Brennan & Percy, 1977; Amir & Krausz, 1974) have identified more common components that students use in the evaluation of teaching effectiveness; lecturer's concern for student learning, amount of available choice over teaching methods, social relationships between students, and clear procedures of grading.

Furthermore, a review conducted by Marsh (1987) identified that some particular attributes of effective teaching; workload, teachers' clear and enthusiastic explanations, empathy and interest in students, openness, and quality of assessment procedures. Other researchers from diverse areas (e.g., Rogers, 1969; Whitehead, 1929; Veblen, 1918; Pattison, 1876) have also argued that rigid systems of assessments, poor relationships between students and staff, and a lack of choice over learning methods and contents have a damage on the quality of students' learning experiences and teaching effectiveness, while commitment to teaching among staff and freedom in learning facilitate students understanding (Entwistle & Ramsden, 1983).

From previous findings regarding factors influencing student's perceptions on teaching, Entwistle and Ramsden (1983) conclude that students evaluate teaching and courses broadly in similar ways

even in different countries and disciplines, and indicate that the possibilities of the conceptualisation of institutional contexts in terms of students' evaluations of the quality of the learning environment. The Course Perceptions Questionnaire was subsequently developed to identify situational aspects of the academic courses (Entwistle & Ramsden, 1983).

Ramsden (1991) also developed the Course Experience Questionnaire (CEQ) to discern the quality of degree programmes as a whole for using students' evaluations of teaching effectiveness as a performance indicator. The CEQ was eventually updated and a total of six factors were included, namely: the *Good Teaching*; *Clear Goals and Standards*; *Appropriate Assessment*; *Appropriate Workload*; *Emphasis on Independence*; and *Generic Skills* (Wilson et al., 1997). The scale definitions are presented in Table 1.2.

Table 1.2: Six CEQ scale definitions

CEQ scale	Characteristic	Defining item in the CEQ
Good Teaching	Measuring respondents' perceptions of teaching practices, focusing on teachers' feedback, skill in explaining concepts at the students' level, enthusiasm, motivation, attention, understanding of students' problems	Teaching staff here normally give helpful feedback on how you are going.
Clear Goals and Standards	Measuring respondents' perceptions of the extent of the clarity of academic standards and programme goals required from students	You usually have a clear idea of where you're going and what's expected of you.
Appropriate Assessment	Measuring respondents' perceptions of the extent to which assessment emphasizes the intellectual skills for successful academic performance rather than the recall of factual information	Staff seem more interested in testing what you've memorised than what you've understood (negative).
Appropriate Workload	Measuring respondents' perceptions of the appropriateness of the course workload for truly engaging with and understanding of the contents	The sheer volume of work to be got through in this course means you can't comprehend it all thoroughly (negative).
Emphasis on Independence	Measuring respondents' perceptions of the extent which the freedom and independence are encouraged in their learning	Students here are given a lot of choice in the work they have to do.
Generic Skills	Measuring respondents' perceptions of their generic skill developments (e.g., problem solving, analytic, team working, transformative, communications, and planning)	This course has helped me to develop my problem-solving skills.

1.5.1.2.3 Link with the SAL and desired qualitative learning outcomes

The robust relations between students' perceptions and evaluations of the learning environment and their approaches to learning have been shown in various studies (Gibbs, 1992). The relationship between the students' perceptions of the teaching context and SAL is also illustrated in the 3P model (Biggs, 1993). For example, good teaching, freedom in learning, and an avoidance of

overloading are all related to positive attitudes to learning, deeper approach, intrinsic motivation, and academic progress (Entwistle & Ramsden, 1983). Gibbs (1992) also states a number of factors fostering the deep approach to learning of students from study reviews, which includes relatively low class contact hours, freedom in learning, and perceived good teaching.

The Course Perceptions Questionnaire was designed to identify the aspects of course related to the SAL (Entwistle & Ramsden, 1983; Gibbs, 1992). The concept is also embedded in the CEQ to identify students' perceptions of situational factors related to the SAL to investigate the quality of degree programmes.

Examining the learning experiences together with the SAL can express which learning experience aspects foster the deep approach to learning in specific academic context, which, in turn, develop high quality learning outcomes through the particular educational conditions (Entwistle & Ramsden, 1983).

1.5.1.2.4 Evidence in pharmacy education

Learning experiences of students in pharmacy have been investigated in several projects. Australia used the CEQ or part of the CEQ to investigate the quality of institutional performance nationally (including pharmacy faculties) at the graduation time (GCA, 2015). In the UK, students' learning experiences were examined nationally for postgraduate clinical pharmacy programmes (Quinn *et al.*, 2000a, b). Further, the global variances of learning experiences of students in initial pharmacy education were also explored (Goh *et al.*, 2007; Bruno, 2011). However, there is no evidence available that especially looks at the learning experiences together with the SAL in IPPE both at national and global levels.

Comprehensive information about the relationship between the SAL and learning experiences in IPPE can provide evidence of which situational factors foster the deep approach to learning specifically in IPPE and training. The global view of the SAL and learning experiences can provide key markers of the quality of current initial pharmacy educational practice and assist further development and improvement of the practices in any institution and country.

1.5.2 Institutional and teaching factors

Institutional structures and processes are core quality elements for supporting the achievement of the desired educational outcomes (FIP PET, 2008). Some particular domains or elements of institutional capacity, educational provision, and relevant regulation for quality assurance were identified as keys to high quality IPPE so as to sustainably supply capable and competent pharmacy

workforce who enables better service provision to the population.

1.5.2.1 Capacity

1.5.2.1.1 Stewardship and infrastructure of educational institutions

It is important to have a sufficient number of IPPE institutions in the country to supply the appropriate number of pharmacy workforce to respond to any population health needs in a sustainable manner. However, data on pharmacy education institutions is scarce in a global context, or if available, these are not gathered in a comprehensive strategy for developing global pharmacy workforce.

WHO (2006) and Tulenko *et al.* (2009) indicate that it is first essential to evaluate the current capacity and output of healthcare professional education institutions to produce health workforce to implement any actions in order to respond to shortages or surpluses of the health workforce. Due to a lack of comprehensive data on pharmacy education institutions across nations, obtaining and analysing the current infrastructure and output of pharmacy education institutions in a global perspective is indeed an essential step to move forward towards establishing global improvement of IPPE.

Furthermore, Frenk *et al.* (2010) assert the importance of the educational structure for undertaking the programmes of instruction, by addressing the value of not only the individual institutions but also the part of an intra-related set of organisations to carry out a variety of functions of the educational system. Tierney (1998) also argues the importance of internal and external relationships in the higher education structure, in introducing the *responsive university model* in which social accountability of universities was put in the centre. The model addresses the university structure needs to be based on a service orientation, described to be student-centred in programmes, community-centred in outreach, and nation-centred in research.

Developing and maintaining the training sites including special laboratories and other field sites as well as obtaining learning materials are fundamental requirements to retain the quality of healthcare professional education capacity (WHO, 2006). For effective teaching and learning in initial education and training, innovative ways to access to quality teaching materials need to be found. For global pharmacy educators, the *SABER* was first developed to connect and share educational materials in collaboration with the FIP and Monash University, Australia. The *SABER* has now become one part of the *PharmAcademy* which includes two other components; the *Pharmacy Education* journal online and a networking community designed to connect worldwide pharmacy educators. The innovative system which allows sharing teaching resources globally enables the

developed and improved access to quality teaching materials for initial pharmacy education and training even in developing settings in a costless way.

1.5.2.1.2 *Financing*

Financing is one of the key components for the quality of healthcare professional education. WHO (2006) expresses the significant association between the financing of the healthcare professional education and the number of the healthcare workforce. In general, the more training costs spent, the more healthcare workforce supplied.

Furthermore, the way to distribute and utilise the funds injected to the development of healthcare professional education also affect the quality of the education and training. The appropriate use of funds will improve the quality of students' learning and learning environments by enhanced infrastructure of education institutions and using better quality learning materials with highly motivated educators (WHO, 2006).

The source of financial resources depends on the national economic status. It usually divides into two parts: public and private funds. The public funds typically involve public revenues generated by taxes, external aids in case the country economics is still developing, and efficiency gains by increasing utilisation of the current educational system to enhance its productivity, for example. On the other hand, the private funds are usually direct tuition fees paid by students. The source of financial resources can be combined with these two public and private funds (WHO, 2013a).

Although it is clear that the level of financing and the way to distribute the funds have an impact on the number and skills of the health workforce, no standardised guidelines are available for the appropriate financing of healthcare professional education worldwide. Evidence on this issue is also scarce, and if available, not gathered comprehensively (WHO, 2006). The situation is similar in IPPE. There is some scattered evidence available, but not analysed in a comprehensive way in a global context (for example, Cain *et al.*, 2014).

1.5.2.2 Provision

1.5.2.2.1 *Curriculum*

The organisation and delivery of the healthcare professional education curricula have a huge impact on the healthcare practice as the professional knowledge and skills of the health workforce are usually determined by what and how they learn (WHO, 2006). Thus, the development and maintenance of the healthcare professional curricula need careful attention; the curricula prepare the health workforce to respond to the given health needs of the specific population.

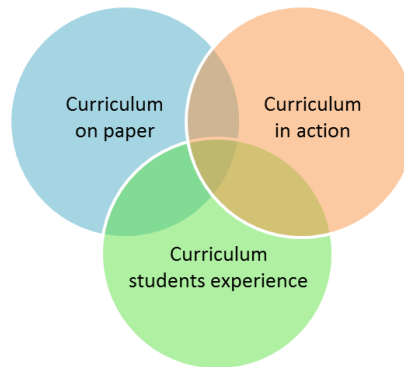
A one-size-fits-all worldwide curriculum is not appropriate to respond to the specific health needs of the population in the country. However, some off-shore campuses from developed countries have been established in developing countries offering the same curricula even though the practice settings and population health needs differ. For example, the discrepancy between the curricula and particular health needs occur in the African region, as one study found that over 50% of all sampled in-service healthcare training institutions had no or inadequate immunisation training programme despite the limited national immunisation coverage rates in the region (Mutabaruka *et al.*, 2005).

In the healthcare professional curricular development, several challenges were identified (WHO, 2006). The changes in the curriculum may have an impact on the professional boundaries and responsibilities, in turn, possibly causing the change in patient services. To establish needs-based professional education, all relevant stakeholders need to be involved, which consume time, costs and efforts. Furthermore, the established curricula already packed with contents, which made it difficult to add any emerging contents. Because of accumulating and advancing necessary knowledge and skills for healthcare practice, it is impossible for students to know all the knowledge; the curricula needs to be designed to prepare students to 'know how' to learn by themselves further.

According to Coles and Grant (1985), the curriculum refers to a dynamic entity which fundamentally involves greater considerations with desired outcomes. The considerations involve three more or less overlapping circles: *the curriculum on paper*, *the curriculum in action*, and *the curriculum students experience* (Coles & Grant, 1985) (Figure 1.10). The curriculum on paper includes documents and prospectuses on the educational programme, committee minutes, course descriptions, examination papers, materials used in the programme. The curriculum in action is composed of timetabled events, lectures, seminars, tutorials, practicals, visits, and ward rounds. This part is affected by the perceptions in the course of the staff and faculty members. Finally, the curriculum students experience is about students' activities, studying approaches, expectations towards provided education, actual learning and its outcomes (Coles & Grant, 1985).

The curriculum in action is particularly relevant to the quality of healthcare professional education. The actual educational delivery which reflects on the instructional design is identified as a key quality component in the Lancet Commissions report (Frenk *et al.*, 2010).

Figure 1.10: A descriptive curriculum model (adapted from Coles & Grant, 1985)



There is no literature available regarding the current curricular orientation and tendency of IPPE in a global context, focusing on the curriculum in action. In a regional context, the PHARMINE (PHARMacy education IN Europe; Pharmine, 2011) compared the IPPE curricula between twenty six European countries aiming to ensure the education throughout European countries is harmonized in line with the mutual recognition of pharmacy programmes (Atkinson, 2014). The PHARMINE study revealed the variability in pharmacy programmes among the sample countries, and the shift in curricular orientation from chemical sciences to medicinal sciences, emphasising a greater recognition of a clinical role for pharmacists (Atkinson, 2014).

1.5.2.2.2 *Contact/Learning hours*

Contact hours refer to time-scheduled teaching-hours contacting with teaching staff in various forms (i.e., virtual or face-to-face, a lecture-style or a laboratory practice) depending on its intended purpose. The amount of contact time with staff members of a course depends on the actual educational delivery and varies in disciplines or educational institutions (Brennan *et al.*, 2009). Typically, the courses in the subjects underlining the development of practical skills tend to offer the higher amount of contact hours; but, a major variance in the contact hours often occurs due to differences in approaches to teaching/learning and assessments depending on its intended purposes (QAA, 2011).

Contact hours are often used to quantify subjects, courses, or modules in higher education settings. Where contact hours were not applied, academic credits are usually employed. An academic credit is defined as a unit to value or to give weight to a subject/course/module in a variety of contexts or at different period of time (QAA, 2009). The values of credit often differ in each country or university, and can be divided mainly into two ways to value: one is based on time-scheduled teaching contact hours, and the other is based on total student workload expected to require for achieving specific learning outcomes in the course. The latter one uses '*a notional learning hour*'

(QAA, 2011) or similar idea that is expected study time to be spent including both in and out of the classroom by a student. Notional learning hours are not able to separate into contact hours and self-study hours like the other kinds of academic credits. The notional learning hours are now typically denoted by the volume of credit or unit attached to the course or module of study, though this is especially evident in European cases (QAA, 2011) and the concept of academic credit and unit vary in each country.

There is no evidence available to support that contact hours with staff members can alone be a meaningful measurement of the educational quality (QAA, 2011); rather, the form of interaction between students and staff during the session is more important for students' learning (Gibbs, 2010). Gibbs (2010) also addresses the importance of the total number of hours students devoted both in and out of class (i.e., notional learning hours) more than class contact hours. The amount of learning hours devoted by students varies according to the subject and the institutions attended as well as the individual student's circumstances or background and their motivations (Brennan *et al.*, 2009). Although the relationship between total learning hours and academic outcomes is not particularly strong, a stronger relationship between total learning hours and career preparation/personal development is described as benefits of higher education in twelve European countries (Brennan *et al.*, 2009).

1.5.2.3 Regulations for quality assurance

Regulations are a necessary factor in any strategy to improve the healthcare system performance. WHO (2013a) suggests three aspects to be regulated instead of leaving them open to the market, regarding the initial healthcare professional education, which are (1) licensure, (2) quality of professional education and its curricula, and (3) access to education institutions.

1.5.2.3.1 Licensure

Licensure of pharmacists is an important process to guarantee the minimum ability of pharmacists at service entry-level, to provide pharmaceutical services to patients and the public (CCP, 2014). The licensure regulates the access to practice and expresses the professional scope of the task that the pharmacist can perform.

Little evidence is available to establish the positive influence of the licensure system on the improvement of the quality of care (Sutherland & Leatherman, 2006). However, the importance of licensure of healthcare professionals is clear. Patients and the general public are usually unable to judge whether the healthcare professionals have or maintain adequate competencies or not. Thus, regulations on the licensure play an important role to ensure that the professional have minimum

competencies to practice by meeting the requirements for the qualification (Greiner & Knebel, 2003).

If the regulation regarding the licensure of healthcare professionals appropriately reflects on the necessary competencies and healthcare delivery responding to the health needs of the population, the licensure system is an essential component to enhance the healthcare system performance.

1.5.2.3.2 *Accreditation*

Accreditation is an evaluation process, which is often considered as a QA system, aiming to ensure that quality of graduates are prepared appropriately enough to meet given health needs by directing the education and relevant activities towards the national, regional and local priority health concerns using the predefined quality standards and criteria (Frenk *et al.*, 2010; FIP, 2014). There are diverse accreditation models across nations and all of them have some advantages and disadvantages (FIP, 2014). The accreditation model needs to be implemented to fit for the purpose of the country settings.

One of the key factors in the accreditation is to involve all stakeholders in the development and advancement of the quality of pharmacy education. It avoids unnecessary political influence in the profession advancement and enables the adoption of a profession-wide vision in the education, which in turn contributes to the wellbeing of the public.

There is a growing tendency for developing and adopting independent external accreditation agency globally. It is because of the emphasis on the autonomous decision making and operation processes in the evaluation. However, the decisions need to be made in appropriate processes and operations to remove any conflicts of interest between stakeholders (FIP, 2014).

Accreditation systems for healthcare professional educations are not implemented evenly worldwide (WHO, 2013a). In medical education, accreditation programmes are implemented less in developing settings, for example in Mediterranean, South-East Asian, and African countries (WHO-WFME Task Force on Accreditation, 2005). No evidence is available to express the current accreditation practices in IPPE in a global context.

1.5.2.3.3 *Admission policy for recruitment and selection of students*

Managing and monitoring admissions of students to IPPE is also one of key quality elements (WHO, 2006, 2013a). This element can be enhanced at two points: the improvement of secondary education and admission approaches.

An access to most initial healthcare professional education requires a graduation from a secondary education (WHO, 2006). However, especially in developing settings, high drop-out rates of and low enrolment in secondary education have been seen, which needs more adequate financing and policy.

The ways to recruit and select students vary worldwide, but these should reflect the diversity of national profiles including geographical, social, linguistic, and ethnic issues, responding to the importance of these issues in providing care due to growing diversity of patient populations (WHO, 2013a). Culturally and linguistically appropriate tools are essential for effective care by the complicated health system. Culturally appropriate healthcare workforce and strategies supporting patients and families to understand all treatment options and to make decisions with their values and preferences are key to better patient-centredness in healthcare (AHRQ, 2011). For example, in the USA, the Agency for Health Research and Quality (2011) and Cohen *et al.* (2002) identified that a lack of diversity in healthcare professionals needs to be tackled for greater and to high quality health care.

Geographically, rural areas have a problem on the health workforce development and retention. Efforts on recruitment from rural areas to the healthcare professional education enhance developing and maintaining the number of the health workforce in rural areas (De Vries & Reid, 2003; Rourke, 2005). Furthermore, establishing specialised programmes for underrepresented students in secondary education can also have an impact on increasing the diversity of workforce (Fincher *et al.*, 2002). In addition, several new admission criteria were introduced including interviews, teamwork ability, and independent learning skills (Howe *et al.*, 2004).

There is no comprehensive evidence to illustrate the admission procedures in IPPE in a global context, which can be a basis for further development to enhance the diversity in the pharmacy profession.

1.6 Summary of Chapter 1

This chapter has provided the background of this research project, an overview of adult learning theories, current trends of pre-service education in healthcare professions including pharmacy workforce, as well as the importance of and relevant factors of the quality of IPPE.

In order to improve therapeutic outcomes, patients' quality of life, advancement of science and

firm public health, a foundation of healthcare professional education is a key factor (Frenk *et al.*, 2010); it indeed applies to pharmacy, too. IPPE globally continues to have many issues on challenging the quality of teaching and learning especially where there are limited resources to challenge these issues (FIP, 2012). For the worldwide achievement of higher and equitable quality of IPPE, evidence-based global education policy recommendations are demanded.

This chapter has revealed some students' personal and institutional factors associated with enhancing the quality of IPPE globally. Personal factors include students' learning processes and experiences together with students' characteristics; and institutional factors include organisational and educational capacity, provision and regulations. These key factors affecting the quality of IPPE is summarised in Table 1.3.

Investigating the key factors across nations will provide evidence to develop an understanding of the current practices of IPPE at global and regional contexts, as well as assisting policy-makers and educators in pharmacy to identify gaps and challenges, and to provide a strategy for delivering higher and globally equitable quality IPPE across the globe.

Thus, this research project will explore the quality attributes of IPPE globally to enhance pharmacy workforce development for contributing the improvement of global health.

Table 1.3: Summary of key factors for quality pharmacy education

Factors		Definition	Influence	State of knowledge
Personal factors	Student's Approach to Learning (SAL)	<ul style="list-style-type: none"> Learning processes that students use during their learning, which can be measured by three levels of approaches including deep, surface, and achieving approaches to learning (Biggs, 1987b; Biggs, 2001). Each approach has two subscales of motive and strategy (Biggs, 1987b). 	<ul style="list-style-type: none"> The adoption of a deeper approach to learning leads to higher quality learning outcomes of students that IPPE desires: structured knowledge, transferable generic skills, and self-directed lifelong learning (Biggs, 1987a; Lizzio <i>et al.</i>, 2002; Candy, 1991). Student's perception of contextual factors and their learning-related personal factors can affect the level of SAL that student applies to their learning (Sadlo & Richardson, 2003; Zeegers, 2001). 	<ul style="list-style-type: none"> There is no literature investigating a global pattern of the SAL in IPPE in light of measuring proxy indicators of educational quality. Literature available examining the SAL related to pharmacy was conducted at a single university level in either pre-service (Smith <i>et al.</i>, 2007; Smith <i>et al.</i>, 2010) or post-graduate courses (Kostrzewski & Dhillon, 1997; Aggarwal & Bates, 2000) of pharmacy.
	Student's Learning Experiences	<ul style="list-style-type: none"> How a student experiences and perceives the institutional and learning environments, teaching activities and course design. Student's learning experiences can be conceptualised by six factors, which can be used to measure the quality of degree programme as a performance indicator (Ramsden, 1991; Wilson <i>et al.</i>, 1997). 	<ul style="list-style-type: none"> Student's learning experiences affect the level of SAL, which in turn, influence the level of the achievement of the student (Gibbs, 1992; Biggs, 1993; Entwistle & Ramsden, 1983). 	<ul style="list-style-type: none"> Students' learning experiences were measured nationally both at an undergraduate level (GCA, 2015) and a postgraduate level (Quinn <i>et al.</i>, 2000a, b) as well as globally at an undergraduate level (Goh <i>et al.</i>, 2007; Bruno, 2011). There is no comprehensive information about which situational

				factors foster a deeper approach to learning in IPPE in a global context measuring students' learning experiences and SAL together.
Institutional & teaching factors	Capacity			
	Stewardship and infrastructure of educational institutions	<ul style="list-style-type: none"> Educational structure of HEIs including the capacity to supply pharmacy workforce and providing a variety of functions of the educational system, and the development and maintenance of education and training sites and materials. 	<ul style="list-style-type: none"> Evaluating the current capacity and output of healthcare professional education institutions is an essential first step towards responding to shortages or surpluses of the health workforce (WHO, 2006; Tulenko <i>et al.</i>, 2009). The internal and external relationships in the higher education structure are important to address the value of the education institutions (Frenk <i>et al.</i>, 2010; Tierney, 1998). Developing and maintaining the training sites for the programme as well as obtaining learning materials are fundamental requirements to retain the quality of healthcare professional education capacity (WHO, 2006). 	<ul style="list-style-type: none"> Data on pharmacy education institutions is scarce in a global context, or if available, they are not comprehensively constructed.
	Financing	<ul style="list-style-type: none"> Financing resources for pharmacy 	<ul style="list-style-type: none"> The financing of the healthcare 	<ul style="list-style-type: none"> No standardised guidelines for the

		education including public and private funds	professional education has a significant relationship with the number of the healthcare workforce in the country (WHO, 2006).	appropriate financing of health professional education worldwide. <ul style="list-style-type: none"> Evidence on this issue is also scarce, and if available, not gathered in a comprehensive way (WHO, 2006; Cain <i>et al.</i>, 2014)
Provision				
Curriculum and Contact / Learning hours	<ul style="list-style-type: none"> Curriculum refers to a dynamic entity which fundamentally involves greater considerations with desired outcomes (Coles & Grant, 1985). Contact hours refer to time-scheduled teaching hours contacting with teaching staff in various forms depending on its intended purpose (QAA, 2011). Study hours refer to notional learning hours which is composed of contact hours and self-study hours out of the classroom by a student (QAA, 2011). 	<ul style="list-style-type: none"> The organisation and delivery of the healthcare professional education curricula have a huge impact on the healthcare practice as the professional knowledge and skills of the health workforce are usually determined by what and how they learn (WHO, 2006). The curriculum in action (i.e., timetabled events, lectures, seminars, tutorials, practicals, visits, and ward rounds) is particularly relevant to the quality of healthcare professional education together with total study hours (Coles & Grant, 1985; Frenk <i>et al.</i>, 2010; Brennan <i>et al.</i>, 2009) 	<ul style="list-style-type: none"> There is no literature available comparing the curricula in IPPE in a global context. In a regional context, a single study compared multiple-country IPPE curricular contents focused on the European countries, which shows a variance between countries (Atkinson, 2014). 	
Regulations for quality assurance				

Licensure	<ul style="list-style-type: none"> A process to guarantee the minimum ability of pharmacists at service entry-level, to provide pharmaceutical services to patients and the public (CCP, 2014) 	<ul style="list-style-type: none"> Regulations on the licensure play an important role to ensure that the professional have minimum competencies to practice by meeting the requirements for the qualification on behalf of patients and the public (Greiner & Knebel, 2003). 	<ul style="list-style-type: none"> Little evidence is available to establish a positive influence of the licensure system on the improvement of the quality of care (Sutherland & Leatherman, 2006).
Accreditation	<ul style="list-style-type: none"> An evaluation process aiming to ensure the quality of graduates are appropriate enough to meet given health needs by directing the education and relevant activities towards the national, regional and local priority health concerns using the predefined quality standards and criteria (Frenk <i>et al.</i>, 2010; FIP, 2014) 	<ul style="list-style-type: none"> In line with social accountability of the profession, by evaluating the professional education with the use of the quality standards and criteria, the accreditation system facilitate the quality of healthcare professional education to meet the health needs of the population (WHO, 2013a) 	<ul style="list-style-type: none"> Accreditation systems for healthcare professional educations are not implemented evenly worldwide (WHO, 2013a). No evidence is available to express the current accreditation practices in IPPE in a global context.
Admission policy for recruitment and selection of students	<ul style="list-style-type: none"> A policy regarding the recruitment and selection of students to be admitted into pharmacy education programme. 	<ul style="list-style-type: none"> Admission policy can be enhanced by improving secondary education and admission approaches (WHO, 2013a, 2006). 	<ul style="list-style-type: none"> There is no comprehensive evidence to illustrate the admission procedures in IPPE in a global context.

Chapter 2: Research Aim & Objectives

2.1 Research Questions

2.1.1 Rationale

The quality of IPPE is receiving growing attention in the development of modern health policy as the role of pharmacists are expanded for providing more effective medicines-related health services. The global shortage of pharmacy workforce and their skill-mix imbalance that has failed to meet growing and ever-changing health needs also contribute to increasing interest in the development of sustainable IPPE to generate a skilled pharmacy workforce across nations (GHWA, 2013; FIP, 2012; Frenk *et al.*, 2010). To achieve better and equitable quality worldwide, evidence-led global recommendations are required for developing and improving a sustainable IPPE that each country enables to adopt in their own settings (Anderson *et al.*, 2010).

The expected role of pharmacists may differ within and across countries. A conceivable consensus would be that pharmacists are required to be not only technically competent and efficient equipped with factual knowledge and skills, but also workable in a team, adaptable of change, capable of introducing change where needed, and self-directed for their own learning in a continuous manner (WHO, 2011). Achieving these quality learning outcomes in IPPE is known to be affected by many factors including teaching, institutional and personal factors (Kostrzewski & Dhillon, 1997).

Literature concerning IPPE has focused on the development and evaluation of each module or course, and comparison of educations between a few countries. No literature has yet grasped the comprehensive understanding of global differences and commonalities in IPPE for both institutional and personal perspectives in regards to the attainment of these quality learning outcomes.

There is a growing need for evidence that provides insight of IPPE worldwide, which can be a global base for the development of international strategic guidelines for quality IPPE. This research project fills the gaps in the literature by developing a multi-dimensional understanding of IPPE from both institutional and personal aspects, which will assist shaping the present and future pharmacy workforce development across nations.

2.1.2 Principal Research Questions

This research project seeks to explore the multi-dimensional attributes of IPPE across nations to develop a global insight of IPPE for pharmacy workforce development. The principal research questions within the research project include following:

- i. How do initial professional pharmacy students experience current IPPE practice globally?
- ii. How do students' learning experiences and their approaches to learning in their IPPE vary across nations?
- iii. What are personal and situational factors that influence students' adoption of a deep approach to learning?
- iv. To what extent do personal and situational factors affect the deep approach adoption by pharmacy students?
- v. How do IPPE capacities vary globally?
- vi. How do the provisions of IPPE institutions differ across nations?
- vii. How different are the ways in which IPPE is quality-assured across the globe?
- viii. How do curricula of IPPE differ across nations?
- ix. Are there any relative trends and weights in IPPE curricula globally?

2.2 Aim

The overall aim of this research project was to investigate data provided to construct the first global map of the quality attributes of IPPE for assisting the global IPPE development and improvement.

2.3 Objectives

In order to answer the research questions addressed above and to fulfil the overall aim of this research project, three multi-country studies were conducted and the objectives for each study include following:

Student Learning Experience Survey:

- To survey global patterns of students' learning experiences in IPPE across nations
- To measure and map the quality of students' approaches to learning in IPPE globally
- To explore common personal and situational factors affecting student's adoption of the deep approach to learning in IPPE degree

Pharmacy Education Survey:

- To explore validated global description of IPPE and training leading to registration as licensed pharmacists in subsequent countries and territories
- To investigate the IPPE institutional data regarding capacity
- To map QA mechanisms and process in IPPE institutions across nations

Pharmacy Curricula Comparison Study:

- To compare regulated IPPE programmes across nations
- To explore relative trends and weighting of curricula in IPPE globally

2.4 Research Project Overview

An overview of research projects is summarised in Figure 2.1 together with aims and key objectives of each phase and stage.

Chapter 4 and 5 describes project details and results of the Student Learning Experience Survey which has three phases. Chapter 4 contains sections relating to the preparation of the Student Learning Experience Survey. Chapter 4 includes the selection of previously developed and validated questionnaires (phase 1), questionnaire development (phase 2) including the development of common motivation categories for studying pharmacy to be used in this survey (stage 1), and piloting the developed questionnaire for the main study (stage 2) in the following chapter.

Chapter 5 is composed of relevant sections regarding the Student Learning Experience Survey (phase 3) carried out collaboratively with the *FIPeD* and International Pharmaceutical Students' Federation (IPSF). This chapter describes methods and delivery of the study and results focusing on variances between nations or the WHO regions in pharmacy students' learning experiences and approaches to learning, and seeks factors that correlate with the declared approached to learning.

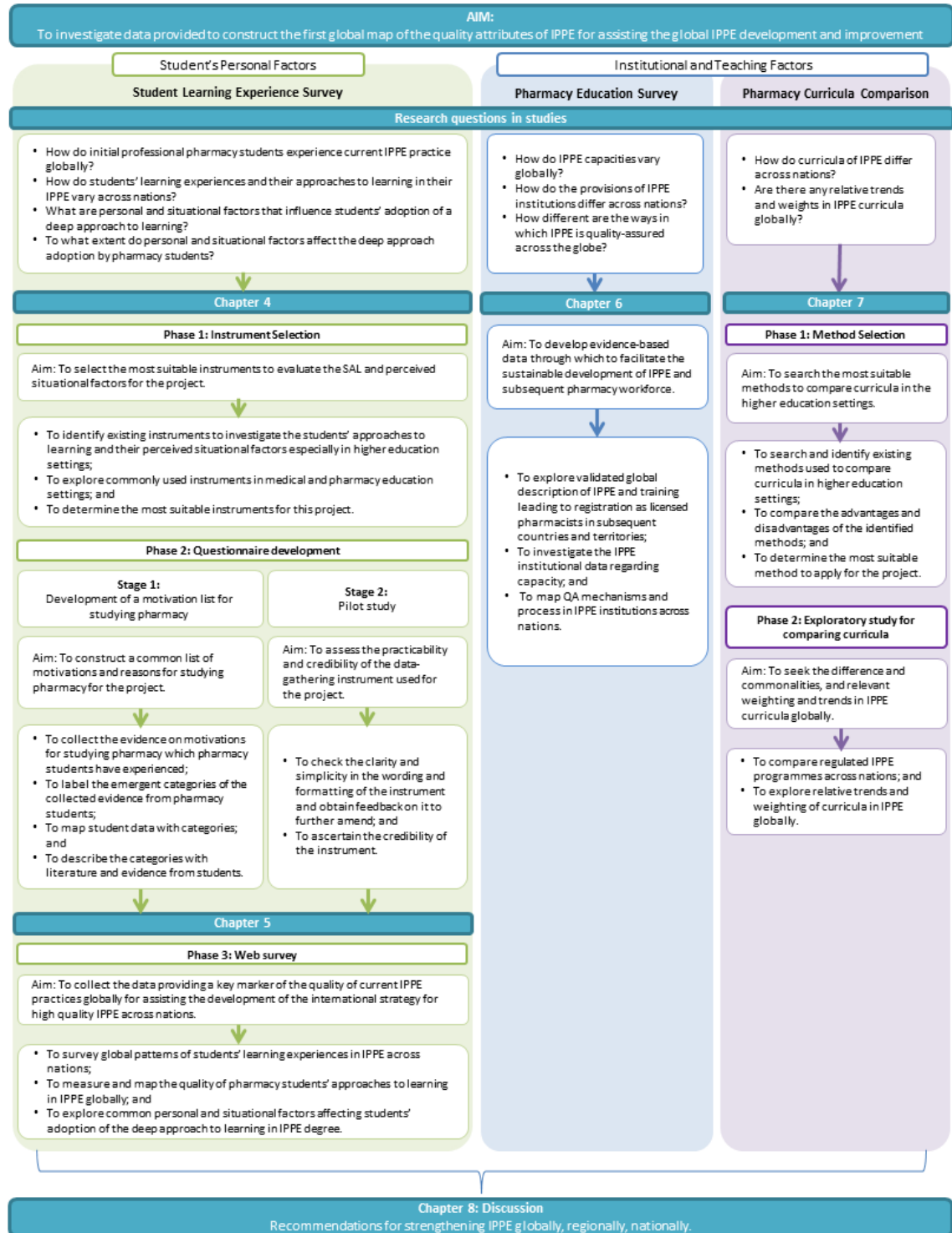
Chapter 6 consists of sections relating to the Pharmacy Education Survey conducted in collaboration with the *FIPeD* and WHO. This chapter explores diverse aspects of the IPPE all over the world, looking at the variances and trends in regulated IPPE leading to a registration as a licensed pharmacist in their countries.

Chapter 7 includes sections for the Pharmacy Curricula Comparison Study to explore differences and similarities as well as relative trends in IPPE programmes globally. This project has two phases, which begins by a literature review on the methods selection for curricula comparison (phase 1).

Then, exploratory study was conducted to compare IPPE curricula by content analysis using the previously developed curricular clusters. This part investigates the extent of weighting of different clusters of syllabus time between countries and correlations of the results.

Discussion part (chapter 8) reviews the main findings of three studies conducted for the purpose of this research project. During the process of discussion of main findings, this chapter also seeks the implications of the findings for practice towards the global improvement of IPPE.

Figure 2.1: Research project overview

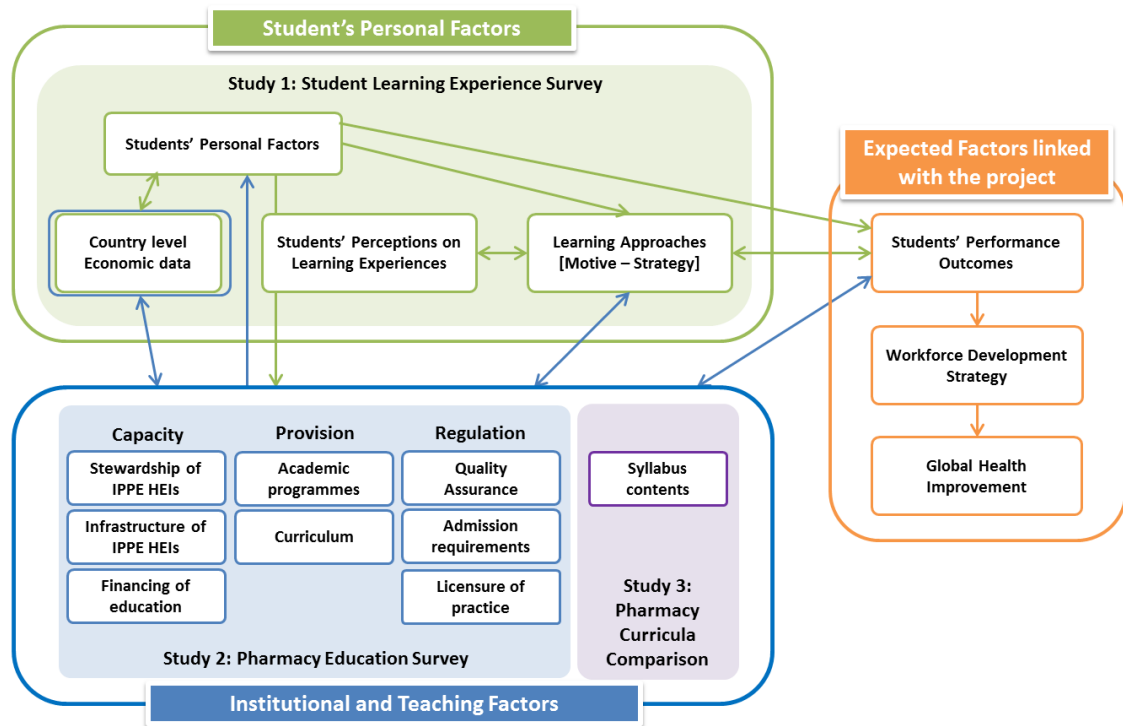


2.5 Conceptual Overview

Figure 2.2 illustrates conceptual and analytical pathways in the present research project, which also includes expected influence by the research. Expected factors linked with the project in Figure 2.2 pointed out the needs of the research as well as its impact. For the global health improvement, developing sound pharmacy workforce strategy is required (Anderson *et al.*, 2010; WHO, 2013b). By adapting the workforce strategy, pharmacy workforce who supplied through IPPE should be able to meet the given health needs of the population that they will serve. To achieve this, pharmacy workforce is required to obtain the capability to work in a healthcare team, to adapt to changes, to introduce changes where needed, to learn in a self-directed and continuous way (WHO, 2011). IPPE in any country should prepare pharmacy workforce to have such capabilities, which are to be set as students' performance outcomes through their learning.

Literature review in chapter 1 revealed that students' personal factors and institutional and teaching factors were found to influence the achievement of the desired performance outcomes of students. Personal factors included the SAL, students' perceptions on learning experiences and their personal characteristics, which were explored in the Student Learning Experience Survey (chapter 4 & 5). Institutional factors related to educational capacity (i.e., stewardship and infrastructure of IPPE HEIs, and financing), provision (i.e., programme and curriculum), and regulation mechanism for quality assurance (i.e., licensure, quality assurance/accreditation, and admission requirements) were explored in the Pharmacy Education Survey (chapter 6). Furthermore, the time-scheduled syllabus contents were explored as part of the institutional and teaching factors in order to investigate the actual delivery of the IPPE programme over the globe (chapter 7). Between the personal and institutional factors, there seems interrelationship influencing each other. However, the practical associations were not sought by the research or within the scope.

Figure 2.2: Summary of conceptual pathways



Chapter 3: Research Methodology

3.1 Introduction to the chapter

This chapter provides an overview of the research methods and analytical techniques explored and employed throughout the present research.

3.2 Research process

Scientific research is “*the systematic and rigorous process of enquiry*”, consequently aiming to contribute a scientific body of knowledge through describing phenomena and developing or testing concepts and theories (Bowling, 2009). In social research, which focuses on people and real phenomena in a social setting, there are various ways of looking at and interpreting social realities; not only sharing the rigorousness of natural science aiming to develop universal laws of phenomena, but also emphasising individual differences according to differing perspectives (Cohen *et al.*, 2011; Robson, 2011). Robson (2011) noted, regardless of the kind of science, that the research should be conducted *systematically, sceptically and ethically* (p.15).

The research starts by choosing a topic of the study and research question(s), which is followed by selecting research designs including two kinds of approaches (*quantitative and qualitative methods*) or a combination of them (*mixed methods*), providing specific direction for procedures in the research according to the required types of data, analysis, and interpretation (Creswell, 2014: 12, 16, 25). Creswell (2014) argues that the decisions on these strategies and designs for the research depend on *the research problems, the personal experiences of the researcher, and the audience(s)* of the report (p.20).

For the present research project, a combination of both quantitative and qualitative methods approaches was used to answer the research questions at the various stages of the research process and to conduct pragmatically according to restraints with the project. The present research design comprises three studies with varying stages (chapter 2).

3.3 Literature Review

Literature reviews should be comprehensive, conducted systematically, which should be presented and appraised critically (Bowling, 2009). A literature review synthesises different kinds of materials

related to the area of interest into an ongoing, accumulating argument which enable to address all aspects of research, including the field, particular topic, credibility and legitimacy of the projects, methodology, data analysis, and implications for further research (Cohen *et al.*, 2011).

3.3.1 Literature review in the present study

The literature searches carried out in this research project focused on the quality of initial pharmacy and healthcare professional education. Published research articles, reviews, books, and reports related to the quality of initial healthcare professional education, and adult learning from 1950 to 2013 were included in the current literature reviews.

The key words used in the electronic searches included combinations of: adult learning, learning theory, higher education, pharmacy education, pharmacist, motivation, choice of programme, choice of major, approach to learning, learning experience, and curriculum comparison, at different phases. The electronic databases searched include the PubMed, EMBASE, PsycINFO, International Pharmaceutical Abstracts and Web of Science. In this review, there were no language restrictions. After the literature searched electronically, additional literature was identified manually by reviewing the reference lists of retrieved literature via the electronic search. Furthermore, the websites for relevant journals such as *Pharmacy Education*, and *Pharmaceutical Journal* were also searched for articles. Literature obtained by the search above was read for relevance and all of the relevant materials were entered into the EndNote Windows Version X4 to avoid duplications.

The websites of the following organisations were consulted periodically to locate relevant literature and to keep up-to-date with policies:

- The World Health Organization;
- The United Nations Educational, Scientific and Cultural Organization; and
- The International Pharmaceutical Federation.

3.4 Quantitative approach

3.4.1 Introduction to quantitative research

This section illustrates the most commonly used quantitative research methods and methodologies, focusing on the social sciences, especially health services and education. The methods used in the current research are defended here; the practical aspects of the methods employed in this project are described in the subsequent chapters.

The quantitative studies presented in this research project consist of two cross-sectional surveys;

the one is the online questionnaire-based global survey for exploring variances of pharmacy and pharmaceutical students' learning processes and experiences (chapter 4), and the other is the electronically administered, questionnaire-based, global survey for exploring the attributes of pharmacy and pharmaceutical education, workforce and relevant regulations (chapter 5).

Quantitative research deals with quantities which are objectively gathered in numerical form. The quantitative approach is normally applied to identify relationships, patterns and processes between and among variables, aiming to test hypotheses where there is pre-existing knowledge and striving for general laws and theories linking to positivism (Bowling, 2009; Robson, 2011). The quantitative research process involves collection and examination of structured data which are tightly controlled through design or statistical analysis (Robson, 2011; Creswell, 2014).

Quantitative data can be categorical/discrete or continuous (Field, 2009). The variables, which can be measured and observed characteristics or attributes of people/organisations in the study, can take many different forms and always fall into the two categories of being either categorical/discrete or continuous as Table 3.1 shows (Field, 2009; Creswell, 2014).

A categorical/discrete variable is composed of distinct categories and has different levels of measurements: a *binary variable*, a *nominal variable*, and an *ordinal variable* (Field, 2009: 8-9). A binary variable (some methodologists called as a *dichotomous variable*) contains data which have only two categories (e.g., gender). When the categories become more than two possibilities, the variable is considered to be a nominal variable. Furthermore, when the categories are rank ordered but the distances between values are not equal, the variable is known as an ordinal variable (Field, 2009; Bryman, 2012).

An *interval variable* and a *ratio variable* are categorised into a continuous variable (Field, 2009: 9). An interval variable can vary in quantity and has equal distances in the property being measured (e.g., age, money, number of employees). A ratio variable has a true and meaningful zero point as well as meeting all the criteria of an interval variable (Field, 2009).

Table 3.1: different forms of qualitative variables (adapted from Field, 2009)

Categorical	Binary variable	There are only two categories
	Nominal variable	There are more than two categories
	Ordinal variable	There are more than two categories which are rank ordered
Continuous	Interval variable	There are equal distances in the entity which can vary in quantity
	Ratio variable	The same as interval variable and has a meaningful zero point

These different forms of qualitative variables are categorised mainly into two types: *independent variables* and *dependent variables*, which are used to form theories or to make hypotheses (Creswell, 2014: 52). An independent variable is considered as the cause of some effects or outcomes, which may be modified under experimental or other conditions to affect an outcome. A dependent variable is known as an outcome variable which is caused by the input, independent variable (Creswell, 2014; Field, 2009).

3.4.2 Research strategies for data collection in quantitative studies

This chapter presents common research strategies for data collection in quantitative studies.

3.4.2.1 Surveys

Survey is a common and useful method for data collection to provide a quantitative or numeric data on certain phenomena (e.g., events, beliefs, behaviour, attitudes, and experiences) in a sample of the population of interest, and to investigate causal associations between variables (Bowling, 2009; Cohen *et al.*, 2011).

Surveys can be descriptive or analytic depending on the intention of a study (Cohen *et al.*, 2011). A descriptive survey describes the phenomenon of interest and observed associations to estimate certain parameters of a sample of interest (Bowling, 2009). They are also known as cross-sectional because the data are collected at a single point in time (Bowling, 2009). The collected data were analysed to detect patterns of correlations, which will tell what mechanisms are operating in which contexts (Robson, 2011).

An analytic survey is known as a longitudinal survey conducted at more than one point in time so that the results are comparable, aiming to analyse cause and effect relationships (Bowling, 2009). This type of survey is operated by hypothesised predictor or explanatory variables which can be tested for their influence on other variables (Cohen *et al.*, 2011).

Responses are usually sought from individuals, although an individual might be responding on behalf of a group or organisation depending on the sampling unit (Robson, 2011). There are several data-gathering techniques in the survey, which each has different attractions and weaknesses. The attractions should be counterbalanced by the time, resources, complexity and sensitivity of questionnaire and questions, and probability of inducing errors and biases (Cohen *et al.*, 2011; Robson, 2011). The approach for data collection needs to be selected considering the survey situations. Common techniques used for data collection in the survey are personal interviews

(face-to-face or telephone), self-completion questionnaire methods (postal or internet survey), standardised tests of attainment or performance, and attitude scales (Cohen *et al.*, 2011).

3.4.2.1.1 *Internet surveys*

The use of the Internet to carry out surveys has been a considerable grows in social science (Cohen *et al.*, 2011). There are two main forms of the Internet surveys: *email surveys* and *Web surveys* (Bryman, 2012: 670).

Regarding email surveys, *embedded* or *attached* email questionnaire surveys are commonly used (Bryman, 2012: 670). With embedded email questionnaire surveys, the questions are found in a part of the body of an email. With attached email questionnaire surveys, participants find the questionnaire as an attachment of the email which introduces it in the email (Bryman, 2012). In web surveys, prospective respondents are directed to visit a website in order to answer a questionnaire and complete the questionnaire online (Bryman, 2012).

In comparison of traditional postal questionnaire surveys, several advantages and disadvantages of online surveys are addressed by some researchers as follows (Bryman, 2012: 676-7):

Advantages

- *Low cost*: Internet surveys may only need the start-up costs associated with the software for questionnaire production and cost for the Internet connection while postal surveys need the cost of postage, paper, envelopes, and time for stuffing cover letters and questionnaire into envelopes.
- *Faster response*: Responses in online surveys tend to be quicker than those in postal surveys.
- *Attractive formats*: With Internet surveys, there are more opportunities to use a much wider variety of embellishments of the questionnaire (e.g., colour, formatting, and response styles) compared to postal surveys.
- *Unrestricted compass*: Internet surveys tend to have fewer constraints regarding geographical coverage than postal surveys.
- *Fewer missing data*: Internet surveys tend to be completed with less missing data than postal surveys. Furthermore, open questions in online surveys tend to be answered and detailed compared to postal surveys.
- *Better data accuracy*: In case using web surveys, data entry can be automated when programmes, in which errors in data entry are mostly avoided with no manual data entry.

Disadvantages

- *Low response rate:* Internet surveys tend to have lower response rates than postal surveys. Prospective respondents are also restricted to the people who have an internet access. However, Fricker and Schonlau (2002) found that online surveys investigating a sample who are entirely computer literate and comfortable with electronic communication (e.g., university-based populations) achieved higher response rates than postal surveys.
- *Requires motivation:* Motivations may be required to go through the questionnaire online while using the cost for the Internet connection.
- *Confidentiality and anonymity issues:* With email surveys, respondents may find uncomfortable to respond by their emails even though the confidentiality and anonymity are assured in the questionnaire.
- *Multiple replies:* With web surveys, there is a risk that some people may complete the questionnaire more than once.

3.4.2.2 Data collection methods in the present quantitative studies

Two approaches for data collection in the quantitative studies in this research project were both online surveys: the web survey, and attached email questionnaire survey.

3.4.2.2.1 Student Learning Experience Survey (Chapter 5)

The web survey was used for the Student Learning Experience Survey (chapter 5), aiming to measure and map the pharmacy students' approaches to learning and learning experiences globally. The web survey was chosen as the most appropriate method for data collection in this study because of the time and resources available, the geographical coverage, capability of web survey format downloading the data directly into the database, the nature of sample character who are mostly computer literate. More detailed description of the actual approach of the study can be found in chapter 5.

3.4.2.2.2 Pharmacy Education Survey (Chapter 6)

The attached email questionnaire survey was used for the Pharmacy Education Survey (chapter 6), seeking a validated description of IPPE and training leading to registration as licensed pharmacists. This method was the most appropriate taking into account the geographic coverage of surveys aiming to look at the global data and the contents of the questionnaire which the respondent needs to spend some time to collect information at a country level as well as the project running time and the resources available. More details on the description of the survey technique used in the Pharmacy Education Survey can be found in chapter 6.

3.4.3 Questionnaire development

Designing and developing a questionnaire is an important phase because a good questionnaire not only provides a valid measure of the research questions but also helps the researcher obtain the elicited cooperation of and accurate information from respondents (Robson, 2011). Careful considerations are needed for questionnaire design; Bowling (2009) emphasises the simplicity of the questionnaire and following the general rules of questionnaire design which all affect the responses obtained and minimise these influences and the subsequent biases in the results.

3.4.3.1 **Piloting questionnaire**

While developing a questionnaire, piloting a questionnaire is an important phase not only for questions operating well but also for data-gathering instruments functioning well (Bryman, 2012). A pilot has several functions; mainly to increase the reliability, validity and practicability of the instrument (Cohen *et al.*, 2011: 402). This phase involves two types of piloting: one focuses on wording, formatting and gaining feedback from a limited number of respondents and experts about clarity, simplicity, and length of the questionnaire. The other is to confirm the contents of the questionnaire through feedback from some representatives of the population of interest and statistical analyses for *reliability*, *collinearity*, *multiple regression*, and *factor analysis*, which all may result in reducing some items from the questionnaire (Cohen *et al.*, 2011: 402).

3.4.3.2 **Questionnaire development in the present quantitative studies**

3.4.3.2.1 *Student Learning Experience Survey (Chapter 5)*

Piloting the instrument focused on wording and formatting of some questions that were developed for the project as well as re-worded in order to make it suitable for an IPPE setting. This was done by experts and postgraduate students who used to be in IPPE programme in their home countries, which allowed the researcher to identify cultural differences to make wording neutral to be translated into different languages, and to make the instrument suitable for an IPPE setting all over the world.

The contents of the questionnaire were also confirmed by piloting the draft questionnaire in current IPPE students globally. This mainly focused on confirming the reliability and the preliminary analysis of the approaches to learning and learning experiences of IPPE students. This step of the piloting did not include confirming construct validity using factor analysis, for example. It is because the questionnaires measuring the SAL and learning experiences were previously validated: the Course Experience Questionnaire (CEQ) was validated in health sciences and pharmacy (Wilson *et al.*, 1997; Quinn *et al.*, 2000a), and the shortened Study Process Questionnaire in medicine (Fox *et al.*, 2001).

3.4.3.2.2 *Pharmacy Education Survey (Chapter 6)*

Piloting the instrument for the Pharmacy Education Survey focused on wording and formatting. It was conducted through discussion in collaboration with the FIP Collaborating Centre (UCL), the School of Pharmacy University of Nottingham, FIPeD and WHO Human Resources for Health staff, who have experiences and expertise in this field. The construct validity was not sought at this stage because the questionnaire focused on the fact existing already, not using objective measurements such as behaviour test.

3.4.4 Sampling

3.4.4.1 **Sampling strategy**

The suitability of the sampling strategy is one of the key factors for the quality of the research project, which is linked closely to the external validity or generalisability (Cohen *et al.*, 2011; Robson, 2011). A smaller group or subset of the total population of interest is a '*sample*' which is used to infer things about the population as a whole (Field, 2009: 34). Here the population refers to *all the case* which is not limited to the people (Robson, 2011: 270). It is important that the researcher need to identify the total population in advance to assess how representative the sample is (Cohen *et al.*, 2011).

Adequate size of the sample is necessary for obtaining statistical power which is a measure of the extent that the study is to yield a statistically significant finding (Bowling, 2009). However, there is a dilemma to predict the sample size. First of all, the researcher has to know what characteristics of the total population are for evaluating the representativeness of the sample population. Secondly, to decide the sampling strategy, the researcher should take account of some principle factors: expense, time, and accessibility (Bell, 2010; Cohen *et al.*, 2011). Finally, the researcher needs to decide the sampling strategy in such a way as much the researcher can eliminate the sampling bias as possible (Bryman, 2012).

There is a variety of sampling strategies which are usually divided into *probability samples* (where the researcher know how likely each respondent is selected as a sample) and *non-probability samples* (where the researcher does not know) (Robson, 2011).

According to Bryman (2012), there are four methods in probability samples: *simple random sample*, *systematic sample*, *stratified random sampling*, and *multi-stage cluster sampling* (p.190-3). The difference of these sampling relates to the method to randomise (not to emerging sample) (Bowling, 2009).

Non-probability sampling methods are acceptable when the statistical generalisation beyond the sample surveyed is not intended or needed: it is because the non-probability sampling methods simply represent the sample surveyed. They tend to be used where, for instance, there is no sampling frame, or the resources required are not available (Robson, 2011). According to Robson (2011), of a wide range of non-probability samples, five strategies are mainly used for the survey approach (p.274-6):

- *Quota sampling*: This method is used to represent significant characteristics of a population, usually in the relative proportions in which they can be found in the wider populations.
- *Dimensional sampling*: This is used to reduce the problem of sample size in quota sampling by identifying various factors of interest in a population and sampling, at least, one respondent of every possible combination of these factors.
- *Convenience sampling*: This method involves selecting the nearest and most convenient persons to serve as respondents and continuing the process until the researcher obtain the sample size required in the survey or those who happen to be available and accessible during the survey sampling period. Bryman (2012) argues that it is impossible to generalise the findings with this sampling approach because the researcher does not know the total population in which this sample represent.
- *Purposive sampling*: This method involves choosing the cases of persons by the researcher's judgement of their typicality or interest in order for the researcher to satisfy their specific needs in a project. Cohen *et al.* (2011) address that this method tends to be used to access those who have in-depth knowledge about particular issues where most of the random sample may be largely ignorant of the specific issues and unable to comment on them.
- *Snowball sampling*: The researcher identifies a small number of individuals from the population of interest, and then they are used as informants to identify or establish contacts with other members of the population of interest who would also be other informants to contact with other members. This method is useful when there is no accessible sampling frame for the population of interest or difficulty in creating such a sampling frame. There is a danger that the diversity of the sample is not wide enough because the sampling would be limited to members of a specific network (Ritchie *et al.*, 2003).

3.4.4.2 Response rate

Securing a sufficiently high response rate in survey research is important to display the credibility and reliability to the data because the representativeness of the achieved sample are likely to be doubted when the response rate is low (Cohen *et al.*, 2011; Bryman, 2012). Bryman (2012) argues that this problem of representativeness by low response rate tends to be an issue in probability

sampling unless the characteristics of non-respondents do not differ from those of respondents (p.235).

The response rate can be calculated from the number of eligible respondents included in the survey divided by the total number of the eligible study population. Low response rate means there is the bigger number of a sample population who have not responded and who may differ regarding population variables: these differences result in biases in the survey findings. Thus, non-response can affect the quality of research data (Bowling, 2009).

There is no agreed standard for an acceptable minimum response rate (Bowling, 2009). For a postal survey, Mangione (1995) states below 50% are not acceptable. Response rate in an Internet survey is further lower (Robson, 2011). Manfreda *et al.* (2008) conducted a meta-analysis of forty-five comparisons web and other modes of survey administration (email surveys included in the 'other survey modes' group) and shows the average 11% lower response rate in web survey mode than the other modes of survey administration.

To maximise the response rate, the translation of the questionnaire and the cover letter may need to be considered. Some of a sample member may not speak the same language, which will be a source of non-response. Although translation may result in biases, conducting a survey without translation is potentially a greater loss of sample population who may have key characteristics (Bowling, 2009).

3.4.4.3 Sampling in the present quantitative studies

3.4.4.3.1 Student Learning Experience Survey (Chapter 5)

In the questionnaire development phase, the convenience sampling was used to develop and validate the questionnaire developed for this survey. To achieve face validity of the questionnaire, samples including members of the FIP Collaborating Centre and international students of Master of Science in Clinical Pharmacy, International Practice and Policy at UCL School of Pharmacy, who have a variety of backgrounds in their home countries as licensed pharmacists were approached according to the researcher's convenience.

Survey implementation phase involves snowball sampling approach since there is no sampling frame consisting of all pharmacy students all over the world. The researcher sent an email with the link of survey website to the IPSF as the initial contact of the sample population of students in IPPE leading to registration as licensed pharmacists. Then the IPSF forwarded the email to contact persons of each national pharmaceutical students' association to member students of the

associations to guide them to participate in the web survey. The member students are encouraged to forward the email containing the web link to other pharmacy students to reach more general students all over the world. The response rate was not considered as the study used non-probability sampling approach. Details of the sampling procedure in this survey were described in chapter 4.

3.4.4.3.2 *Pharmacy Education Survey (Chapter 6)*

The purposive sampling approach was used for the Pharmacy Education Survey. Samples including the FIP member organisations, country and territory level contacts in education, individual universities, and association were contacted through FIP network to seek in-depth country and territory level knowledge and data regarding the IPPE leading the students to registration as licensed pharmacists. Due to the use of non-probability sampling approach, the response rate was not considered. The detailed sampling procedure can be found in chapter 5.

3.4.5 Quantitative data management and analysis

To answer research questions, collected information needs to be transformed into data that can be statistically analysed. The transformation process includes data coding, cleaning, analysing and interpreting in a meaningful way (Bowling, 2009; Bryman, 2012).

3.4.5.1 **Data coding**

Coding is a method to conceptualise information collected and to classify them into meaningful and relevant categories suitable for analysis (Bowling, 2009; Cohen *et al.*, 2011). Prior to the coding, Cohen *et al.* (2011) suggests that three tasks should be conducted to identify and eliminate errors made by respondents, looking at the *completeness*, *accuracy*, and *uniformity* in the questionnaire (p. 407).

Some closed-ended questions can be coded prior to administering the questionnaire. Open-ended questions and some responses categorised in 'other, please specify' in the closed-ended questions need to be coded after collecting all the responses (Bowling, 2009).

3.4.5.2 **Data cleaning**

Manually entered data must be checked for errors to control the quality of data on the database (Robson, 2011). Peachey and Huson (2000) address the tasks in this process:

- Identifying any missing critical data to ensure the efficacy and safety of the data
- Checking for consistency of responses
- Checking the completeness of dates and logical order.

With large databases, the data quality control process involves that 10% of a random sample of data is checked against the equivalent case and the number of errors found expressed as percentage error rate. The overall data quality is considered to be acceptable when no more than 10 errors in 20,000 data fields are found (Peachey & Huson, 2000).

3.4.5.3 Data analysis

Statistical analysis can be divided broadly into two types: *descriptive statistics* and *inferential statistics* (Cohen *et al.*, 2011: 606). Descriptive statistics describe and present what has been found from the observed data without any attempt at inferences or predictions about the sample (e.g., frequency, percentage, mode, median, and mean). On the other hand, inferential statistics seek to infer or predict the wider population based on the gathered data from the sample (e.g., analysis of variance, correlation, and regression) (Cohen *et al.*, 2011).

The choice of statistics used is affected by the type of data (nominal, ordinal, or interval/ratio), the sample population distribution (normal or non-normal), the number of groups intended to compare (two groups or more than two groups), and whether the analysed groups are related each other (i.e., related groups might be the same group voting on two or more variables or the same group voting at two different points in time) (Cohen *et al.*, 2011; Bowling, 2009).

It is also essential in the choice of statistical analysis to take it into account whether there is any assumption about population. *Parametric data* refers to those which assume the characteristics of the population (i.e., a normal distribution in reading scores) while *non-parametric data* are those which make no assumption about the population mostly due to the unknown characteristics (Cohen *et al.*, 2011: 606). Cohen *et al.* (2011) illustrate the link between the type of data and the statistical assumption by giving the practical distinction as nominal and ordinal data being non-parametric whilst interval and ratio data being parametric data. Parametric tests are only appropriate to be used when the data is interval or ratio variables and have a normal distribution as well as show homogeneity of variance (Bryman & Cramer, 2011).

Analysis approaches used in the present quantitative studies are described below.

Analysis of variance

The analysis of variance (ANOVA) is one of the statistical tests to examine differences among cases within one variable (Cohen *et al.*, 2011). This test can be used with the assumption of a normal distribution of scores. The independent variable needs to be categorical with three or more groups (e.g., the WHO regional categories) and the outcome variable is continuous (e.g., marks on a test).

The ANOVA calculates the F-ratio, which is the ratio of the average variability in the model to the average variability in its error unexplained by that same model. When the model fit better, the F-ratio becomes bigger (Field, 2009; Cohen *et al.*, 2011). F-ratio can be given as:

$$F = \frac{(\text{Between} - \text{groups variance})}{(\text{Within} - \text{groups variance})}$$

The F-ratio only expresses the overall effect of the independent variable to the dependent variable and do not provide specific information about what the effect is. Therefore, *post hoc* tests need to be conducted to examine which groups were affected. *Post hoc* tests are designed to compare all possible combinations of groups. The Bonferroni and Tukey tests are popular as the choice of *post hoc* procedures. With the use of the Tukey test, equal sample sizes in groups and similar group variances are needed (Field, 2009).

Multivariate analysis of variance (MANOVA) is the extended statistical tests of ANOVA, can be used for the situation in which there are more than one dependent (outcome) variables (Field, 2009).

Correlation statistics

Most of the educational research involves establishing interrelationships among variables, which can be investigated with the use of correlation statistics. Correlation statistics are measures of association between two variables and do not necessarily imply causal relationships between variables. The Pearson product moment correlation (parametric statistic) and Spearman's correlation coefficient (non-parametric statistic) are the two most commonly used measures (Cohen *et al.*, 2011). These correlation coefficients are standardised covariance of two variables, and can be defined by using the standard deviation of the two variables. The Pearson product moment correlation coefficient is defined by equation below (Field, 2009):

$$r = \frac{\sum(x_i - \bar{x})(y_i - \bar{y})}{(N - 1)s_x s_y}$$

*Note: \bar{x} is the mean of the sample; x_i is the i th data point of the variable (x); N is the number of observations; s_x is the standard deviation of the variable (x)

A statistical value of the correlation coefficients can range from -1.0 to +1.0. Nearer to +1.0 or -1.0 indicates stronger relationships (Field, 2009). Cut-off values of the correlation coefficients for a meaningful interpretation are not clear, but Cohen *et al.* (2011) address commonly used measures as below:

- *Coefficients from 0.20 to 0.35*: very slight relationship between variables. Only limited meaning in exploratory relationship research
- *Coefficients from 0.35 to 0.65*: medium relationship, and useful when combined in a multiple regression equation
- *Coefficients from 0.65 to 0.85*: strong relationship
- *Coefficients over 0.85*: very strong relationship, but it is rare to see this level of value in educational research

Regression statistics

Statistical parametric tests used for predicting the dependent variable from the other variable(s) are: single (linear) regression to predict one value from another measured variable; and multiple regression to predict one value from several measured variables. Concerning regression analysis for non-parametric data, ordinal regression or logistic regression can be used (Cohen *et al.*, 2011).

Regression model derived by the linear equation analysis can be defined by two components: one is the slope of the line (b_1); the other is the point of the vertical axis of the graph, where the line crosses (b_0). These b_1 and b_0 are known as the regression coefficients. The regression equation can be conceptualised together with the residual term (ϵ_i), given as below (Field, 2009):

$$Y_i = (b_0 + b_1X_i) + \epsilon_i$$

The regression coefficient (R) and R square (R^2) of the derived model explain the degree of model fit, how much variance in the dependent variable by the independent variable (Cohen *et al.*, 2011). Muijs (2004) suggests the cut-off value for examining a goodness of fit using the adjusted R square as below (p.165):

- Adjusted R square < 0.1: poor fit
- 0.11 < Adjusted R square < 0.3: modest fit
- 0.31 < Adjusted R square < 0.5: moderate fit
- Adjusted R square > 0.5: strong fit

Path analysis

Path analysis is the statistical test based on a linear equation system to examine causal relationships among variables (Olobatuyi, 2006). The results are usually represented in the path diagrams illustrating the relationships between variables. In path diagrams, a straight one-headed arrow represents a causal relationship between variables, and a curved double-headed arrow represents a correlation between variables (Kline, 1994). The variables in path diagrams are divided into two

classes: *exogenous variable* (independent variable) or *endogenous variable* (dependent variable) (Olobatuyi, 2006: 30-31). The exogenous variables are not correlated with the residuals (e), which is the unexplained variation by the independent variables in the model. The endogenous variables are determined by other variables within the causal system, which have always arrows directed towards them (Kline, 1994; Olobatuyi, 2006).

The magnitude of the effect by each exogenous variable is expressed as numerical estimates of *path coefficients* (P_{ij} ; i is the endogenous variable and j is the exogenous variable) (Olobatuyi, 2006: 41). The path coefficients are actually *standardised partial regression coefficients*, which provide information about the amount of expected changes measured in standard deviation units in the dependent variables at the tail of the arrow due to a change in the independent variable at the head of the arrow (Loehlin, 1992: 13).

It is important to clarify that the path diagrams do not confirm the causal relationships represented as a straight arrow within the system, but suggest or assume the causal effects in the variable at the tail of the arrow by a change in the variable at the head of the arrow (Loehlin, 1992).

Furthermore, the significance of the path coefficients is not enough to determine the goodness of model fit. Therefore, several model fit indices should be tested to evaluate the model fit (Olobatuyi, 2006)

3.4.5.4 Missing values

It is not avoidable that some data will be missing (Petrie & Sabin, 2009). The reasons for data missing should always be investigated: if missing data tend to be about a particular variable it may indicate that the variable is no applicable or appropriate; if missing data tend to occur in a particular subgroup of samples there is a chance that the group of individuals will never be measured and the researcher may miss gathering the different views from those who do not respond (Petrie & Sabin, 2009; Robson, 2011). Thus, if a very large proportion of the data is missing, the reliability of the findings in the research is questionable and the results may be biased.

The problem is that there is no sufficient way to deal with these missing data according to Robson (2011). Petrie and Sabin (2009) address the possibility to reduce the bias due to missing data by using appropriate statistical methods or by estimating the missing data.

3.4.5.5 Data management and analysis in the present research

For the Pharmacy Education Survey (chapter 6), coding was conducted prior to and after the survey

because the questionnaire includes both open-ended and closed-ended questions. All variables of the Student Learning Experience Survey (chapter 5) are coded beforehand.

Regarding data cleaning, in the Pharmacy Education Survey (chapter 6), missing critical data and inconsistent part was confirmed with respondents and amended before data analysis. For the Student Learning Experience Survey (chapter 5), obvious failures to enter the data online were eliminated; otherwise, all variables are coded in the process of online questionnaire development, which enables of retrieving all coded data for analysis.

Collected data were aggregated into country-level or the WHO regional category-level (the Africa, Eastern Mediterranean, Europe, Pan America, South-East Asia, and Western Pacific) in order to express the outcomes in light of global comparisons.

Descriptive statistics was applied to explain the demographics of participants in both surveys. Corrected data were investigated its distribution if normally distributed or skewed. If it is normally distributed, then parametric tests were used for further analyses. If it is skewed distributed, non-parametric tests were applied where appropriate.

Inferential statistics (e.g., ANOVA, MANOVA, correlation and regression) were used to explore associations between different variables together with certain significance tests and *post hoc* tests when possible as well as using the visual graphs for comparing means of variables. For ensuring robustness of the results, significant associations were evaluated by using a probability level of $p < 0.01$, and in the case to underline weak associations, $p < 0.05$ was used.

Details of the methodologies employed are described and explained in the subsequent chapters (chapter 5 and 6).

3.4.6 Credibility in quantitative study

Reliability and validity are important aspects in quantitative research: the issues of both reliability and validity of instruments relate to the quality of the measures covering the concepts in which the researcher is interested and eventually lead to meaningful interpretations of the findings in the research (Creswell, 2014; Bryman, 2012). It is not possible to remove all threats to validity and reliability at all. However, continuing attention to both validity and reliability throughout the research can be effective to weaken these threats (Cohen *et al.*, 2011).

3.4.6.1 Reliability

The questionnaire ought to be used with confidence enough to minimise the random error of measurement (Field, 2009). *Reliability* is one of the important properties of measures to give certainty of measurement consistency across different situations. There are three major aspects of reliability; *stability (repeatability)*, *internal consistency (internal reliability)*, or *Inter-rater reliability (inter-observer consistency)* (Bryman, 2012: 149-150; Bowling, 2009: 162).

Stability is often assessed in longitudinal research, considering whether a measure is stable over time. Internal consistency applies to multiple-item measure, testing the homogeneity, the extent to which the items relating to a particular dimension in a scale cover only this dimension and no other. Inter-rater reliability needs to be considered when more than one 'observer' (raters or interviewers) for the recording of observations or coding of data into categories, measuring the extent of agreement in the results obtained by observers for similar or the same populations (Bryman, 2012; Bowling, 2009).

3.4.6.1.1 Cronbach's alpha

For overall internal consistency in the cross-sectional survey using a multiple-indicator instrument, most researchers use a Cronbach's alpha (Cronbach, 1951). Cronbach's alpha estimates internal reliability based on all possible correlations among all the items and the number of items in the instrument, expressing values ranging from 0 (denoting no internal reliability) to 1 (denoting perfect internal reliability) (Bowling, 2009; Bryman, 2012).

There is no agreed standard to express the minimum acceptance for Cronbach's alpha on scale reliability (Bowling, 2009). Many researchers agree with that 0.8 of alpha is appropriate for the internal consistency (Field, 2009; Bryman, 2012). Kline (1999) addresses the differences in the acceptable standards of the alpha coefficient with different kinds of tests. In cognitive tests such as intelligence tests, the value of 0.8 is generally accepted as an appropriate minimum standard; however, the value of 0.7 is more suitable for ability tests as a cut-off point. Moreover, psychological construct reliability can be even below 0.7 realistically, due to the varying constructs being measured (Kline, 1999; Field, 2009).

The smaller value of alpha coefficient can be seen especially for short sub-scales instruments because Cronbach's alpha depends on the number of items on the scale, expecting higher alpha usually with the greater the number of scale items. Therefore, Bowling (2009) suggests that it is more appropriate to report the inter-item correlations as well as Cronbach's alpha in the case of dealing with shorter scales. The figure more than 0.2 (some use 0.3) of item-total correlation can be

used as a rule of thumb to satisfy internal consistency (Bowling, 2009).

3.4.6.2 Validity

Validity is another property of the measure assessing whether an instrument measures what it sets out to measure. As giving the confidence for the instrument to be used, validity is affected by reliability: an unreliable scale has low validity (Bowling, 2009; Field, 2009). For the quantitative study, at least *face validity* needs to be achieved (Bryman, 2012: 71). The face validity is the simplest and most reasonable approach towards the internal validity of the questionnaire, often refers to subjective assessments of the presentation and relevance of the questionnaire judged by experts or other people who have experiences in the field (Bowling, 2009).

In a study using a questionnaire, it is important to assess the *construct validity* of the instrument whether it gauges the underlying concept that it intends to gauge (Bowling, 2009). In the validation study of questionnaires, factor analytic approaches to constructing validity have usually been used. There can be many ways of factor analytic approaches to assess the construct validity, including principal components analysis, exploratory factor analysis, and confirmatory factor analysis.

3.4.6.3 Credibility in the present quantitative study

Credibility was ensured as much as possible. Internal consistency of the Pharmacy Education Survey was corroborated by confirming the meanings of the ambiguous answers with participants.

For the Student Learning Experience Survey (chapter 4 and 5), Cronbach's alpha was used to assess the reliability of the questionnaire. Concerning the construct validity of the two instruments used for this study, the CEQ (Wilson *et al.*, 1997) and Shortened Study Process Questionnaire (S-SPQ; Fox *et al.*, 2001), both instruments were previously developed and validated tools. The CEQ has been used to evaluate medical, nursing, psychology and pharmacy courses (Trigwell & Prosser, 1991; Richardson, 1994; Quinn *et al.*, 2000a, b; Goh *et al.*, 2007), and the S-SPQ has been validated in medical course (Fox *et al.*, 2001).

Face validity was achieved in the Pharmacy Education Survey (chapter 6), by developing and discussing the contents of the questionnaire collaborating with the experts in the field in the FIP Collaborating Centre (UCL), School of Pharmacy University of Nottingham, FIPed and WHO Human Resources for Health.

3.5 Qualitative approach

3.5.1 Introduction to qualitative research

This section describes the most commonly used methodologies for a qualitative research focusing largely on the use in social research. The selection of methods used in this research project is defended in this section and the practical application of these methods to answer the research questions raised is delineated in the subsequent chapter for the qualitative study (chapter 6). The present qualitative study comprised a content analysis of documents on time-scheduled curricula/syllabus for the IPPE for seeking the relative weighting and trends in regulated IPPE programmes globally.

Qualitative research illustrates an in-depth, complex, and detailed understanding of meaning, actions, phenomena, attitudes, intentions, and behaviours in natural settings to advantage when there is little pre-existing knowledge (Cohen *et al.*, 2011; Creswell, 2014). Qualitative research usually deal with texts and image data and analyse them with the use of *taxonomy* or *classification* often as a measurement (Pope & Mays, 2006: 3). Bryman (2012) describes the typical features of qualitative research as *inductivist* (i.e., theories are built from the bottom up by organising data), *constructionist* (i.e., the social properties are constructed by the interactions between individuals), and *interpretivist* (i.e., it aims to understand the social world by investigating the interpretation of the world by individuals), although there is no need to comply all three of them (p.380).

3.5.2 Research strategies for data collection in qualitative study

There are various approaches for data collection under the qualitative study umbrella, and its major methods used in qualitative research include interviews, observations, texts/documents analysis, and the analysis of audio-recorded/video-taped speech or behaviour (Pope & Mays, 2006). The choice of a particular method is often linked to their theoretical assumptions due to the way of understanding of their objects in their methodological focus (Flick, 2009). According to Marshall and Rossman (2011), The categorisations of theoretical assumptions differ in methodologists: (1) *society and culture* as seen in ethnography, case studies and often grounded theory; (2) *individual lived experiences* as in phenomenology; and (3) *language and communication* as in sociolinguistic approach (p.18-9).

3.5.2.1 **Textual analysis method**

A particular kind of artefact, *documents*, has been used as a data source in qualitative research (Bryman, 2012: 543). According to Robson (2011), the documents may be the written document including a book, newspaper, magazine, notice, letter or whatever, and sometimes this term

extended to cover non-written documents including films, television programmes, pictures, drawings and photographs. It should be highlighted that these documents have produced for a different purpose from the proposed social research (Bryman, 2012). This method, therefore, is considered as an *unobtrusive* approach, which is non-reactive as the document is not affected by the fact that they are used in the research (Robson, 2011: 349).

The extent of interpretation of documents needs some cautions. The representations of the underlying social reality that documents might reveal depend on the context in which they were produced (Bryman, 2012). Thus, Prior (2003) addresses that the documents should be considered in terms of fields, frames, and networks of actions. Atkinson and Coffey (2011) also highlight that texts written on the document need to be recognised as distinctive purposes, not as simply reflecting social reality.

In terms of selecting quality documents for the particular research, Scott (1990) suggests four criteria to assess the quality of documents before employing the document for the research (p.6):

- *Authenticity*. Is the evidence genuine and of unquestionable origin?
- *Credibility*. Is the evidence free from error and distortion?
- *Representativeness*. Is the evidence typical of its kind, and, if not, the extent of its untypicality known?
- *Meaning*. Is the evidence clear and comprehensible?

3.5.2.2 Data collection strategy in the present qualitative study

The qualitative research strategy used in the present project is the textual analysis method for curricula comparison study (chapter 7), aiming to explore the commonalities, weightings, and trends in IPPE programmes globally. This approach was selected due to the geographical coverage to collect the qualitative data and theoretical perspective which time-scheduled curricula/syllabuses can be seen as curricula in action which can reflect on the actual delivery of educational offerings (Coles & Grant, 1985).

3.5.3 Qualitative data management and analysis

The interpretation of data is placed at the centre of qualitative research; however, the differences in its focus can be seen between approaches (Flick, 2009). The interpretation in qualitative research usually occurs in a phase merged with data collection and analysis; in its back-and-forth process, the analytical process starts during data collection, which further shape the ongoing data collection as well as the more analysis (Pope *et al.*, 2006).

Aiming to reveal and discover statements in their context of the textual material or to reduce the original qualitative data by paraphrasing, summarising, and categorising, the interpretation of qualitative data goes through two basic phases: 1) *coding*, intending for categorisation of data and/or theory development; and 2) *sequential analysis*, aiming to reconstruct the structure of the text and the case (Flick, 2009: 306).

3.5.3.1 Data coding

Coding is a key phase in qualitative research where to represent the analytic thinking (Marshall & Rossman, 2011). A code is a *tag* or *label* given to a piece of text which contains the descriptive or inferential information (Miles & Huberman, 1994: 56). Coding refers to the translation of pieces of data to the specific categories which either developed in advance or ongoing development in response to the data being collected (Cohen *et al.*, 2011; Bowling, 2009).

Coding procedures can differ according to the analytical strategies. Flick (2009) argues that coding for the *grounded theory*, *thematic* and *global analysis* is likely to start from open coding (i.e., coding first as closely as possible to the text) to selective or focused coding (i.e., more abstractly). On the other hand, coding for the qualitative content analysis often uses the categories derived from theoretical models: the researcher can utilise the empirical model which is not necessarily developed from the original data that researcher collected.

The clarity and unambiguity of coding scheme are important to maximise the reliability of the scheme. Robson (2011) recommends that at least two persons should be involved in piloting the coding scheme to ensure the validity.

3.5.3.2 Data analysis

No single correct way to analyse qualitative data exists; the important thing is to adhere to the purpose of the research (Cohen *et al.*, 2011). Thus, the selection of the approach to analysis depends on theoretical and methodological aspects of the study and should link to the aims of the research (Pope *et al.*, 2006).

Qualitative analysis intends to describe and explain social phenomena by developing analytic categories. The analytic process is non-linear; moving backwards and forwards between the original data and the interpretation emerged by ongoing analysis. The combination of different analytical approaches may be required to understand the rich and detailed qualitative data better (Pope *et al.*, 2006). The major approaches to qualitative analysis will be described below.

3.5.3.2.1 *Content analysis*

Content analysis is viewed as “a research technique for making replicable and valid inferences from texts (of other meaningful matter) to the contexts of their use” (Krippendorff, 2013: 24). The definition by Krippendorff (2013) stresses the contents in the specific contexts, which is not only the purpose of the document but also institutional, social and cultural aspects (Robson, 2011).

Content analysis is a common approach to documentary analysis. The central idea in content analysis is that the many words or phrases of the text are classified into fewer content categories as being presumed to have similar meanings (Weber, 1990).

The steps of this analysis design are basically as follows (Krippendorff, 2013: 84-6):

- I. *Data Making*
 - i. *Unitizing*: defines and justifies the relevant units (e.g., sampling units, recording units, context units, units of measurement, units of enumeration)
 - ii. *Sampling*: determines the sampling plan and limits observation to a manageable subset of units which statistically and conceptually represent from the set of all possible units.
 - iii. *Recording/coding*: defines coding instructions to analyse the phenomena
 - iv. *Reducing data*: summarises and simplifies the data for efficient representation by establishing statistical techniques or other methods
- II. *Abductively Inferring*: points unobserved phenomena in the data by establishing analytical constructs or presumed models of the chosen context as warrants
- III. *Narrating*: answers the research question of the content analysis

The results from the whole process of the content analysis could entail making recommendations for actions – legal, practical, or for further research (Krippendorff, 2013).

3.5.3.2.2 *Thematic analysis*

The analysis proceeds first identifying themes after coding the collected data, then constructing thematic networks, followed by integration and interpretation of the data by making comparisons between different themes using tables or networks (Robson, 2011). The themes used in this approach can be predetermined from literature review or research questions of the study, or emerged from the collected data (Pope *et al.*, 2006). It can be used on descriptive or exploratory studies developing taxonomies or classifications in the data collected, or used as the basis for a wide range of theoretical frameworks developing models or diagrams to illustrate the connections between themes (Pope *et al.*, 2006; Robson, 2011).

3.5.3.2.3 Framework analysis

The process of framework analysis is similar to thematic analysis, but more deductive form of qualitative analysis (Pope *et al.*, 2006). This approach is often used for applied or policy research where the objectives of the investigations are often pre-determined (Pope *et al.*, 2006). Its analytic process is systematic and designed for transparency, and the data collection methods are usually more structured compared to the most qualitative research (Pope *et al.*, 2006). The analysis process involves identifying a thematic framework (i.e., listing both anticipated and emerging themes), then applying the thematic framework by coding each chunk of transcript, rearranging the data along with the identified thematic framework, and finally mapping and interpretation of the data by identifying patterns or structure, or synthesising the findings (Ritchie & Spencer, 1994).

3.5.3.3 Data management in the present qualitative study

The present qualitative study, the Pharmacy Curricula Comparison Study (chapter 7), employed an approach combined with the content analysis and framework analysis. Applying the framework analysis, collected data are coded into 7 clusters using a previously developed framework, the PHARMINE project guidelines (Pharmine, 2011), for standardisation. The framework analysis was used because using a framework predetermined and previously used more systematic and valid. Furthermore, for exploring the global trends and patterns of IPPE curricula worldwide, categorised subject labels were unitised using contact hours which led to quantifying the categories. It allowed the project systematic weighting and uniting the clusters. The details of applied analyses were described in chapter 7.

3.5.4 Sampling

Many different kinds of sampling approaches are used in qualitative research (Ritchie *et al.*, 2003). The common sampling strategies used in qualitative research is non-probability sampling with the use of the characteristics of the population as the basis of selection along with the aim of qualitative approach understanding complex phenomena and generating hypotheses, rather than applying the findings to a wider population (Ritchie *et al.*, 2003; Bowling, 2009). In line with these ideas, the samples are usually small in size in the qualitative research, which is nested in their context and examined in-depth, for answering the research questions (Miles & Huberman, 1994). Commonly used strategies in qualitative sampling are: purposive sampling, convenience sampling, snowball sampling (section 3.4.4.1), and theoretical sampling.

Theoretical sampling is usually associated with the development of grounded theory (Cohen *et al.*, 2011). Theoretical sampling is the cyclic process where a series of the approach to the data,

including data collection, coding, and analysis, influences what data to collect next from whom and where (Glaser & Strauss, 1967). The process is continued until *theoretical saturation* occurs when no new data would be obtained by further sampling (Glaser & Strauss, 1967; Ritchie *et al.*, 2003).

3.5.4.1 Sampling strategy in the present qualitative study

Purposive sampling scheme was employed for the Pharmacy Curricula Comparison Study (chapter 7) to collect relevant documents. This sampling method was applied because the curriculum documents are sometimes only accessible to particular people, and not open to the public, so that approaching to the people who were likely to have the access provided higher opportunities to obtain relevant documents. The details of applied methodology are described in chapter 7.

3.5.5 Credibility in qualitative research

The attention to the issues of quality in qualitative research has been growing along with the increasing use of qualitative approaches.

3.5.5.1 Validity

Validity is often described as a concept having two aspects: *internal* validity and *external* validity. The internal validity is concerned with whether the researcher is examining what the researcher claim to be examining related to the setting under the study. The external validity is concerned with the degree to which the generated findings are applicable to other groups within the population or to other contexts or settings (Lewis & Ritchie, 2003). In qualitative research, the emphasis is put more on the internal validity and less on the external validity in many cases due to the difficulty in the generalizability of qualitative findings (Cohen *et al.*, 2011). In order to address the generalisability, the qualitative research needs to provide a clear, detailed and in-depth description which will enable the other researchers to decide the degree to which the findings from a certain study is generalisable to another situation (Schofield, 1990). Other than the thick description of the process of collection, analysis, and interpretation of qualitative data, Lincoln and Guba (1985) suggest careful audit trails of evidence, member checking/respondent validation when coding or categorising the findings, peer debriefing, negative case analysis, structural corroboration/triangulation, and adequate reference to standard materials in the field in order for rigour to be achieved (Cohen *et al.*, 2011). However, Lewis and Ritchie (2003) raise cautions of the ways to validate by providing some limitations of these techniques, suggesting that the validity in qualitative research needs to be judged on the basis of the adequacy of the evidence provided in support of described phenomena under the study.

3.5.5.2 Reliability

Although reliability is considered to be less relevant to qualitative research than validity is (Mays & Pope, 2006), it is important to take into consideration with its broader sense of reliability as a key to appraising the soundness of a study (Lewis & Ritchie, 2003). This includes a fit between data recorded by the researcher and situations that actually occurs in the setting under the study (Cohen *et al.*, 2011).

Reliability also has two distinctive concepts: external and internal reliability. The external reliability is concerned with the degree to which the replication can be expected when similar studies are conducted; and the internal reliability concerns the extent to which the data collection, coding, analysing and interpretation of collected data are agreed among research team (Lewis & Ritchie, 2003). In qualitative research, the extent of the replication as the external reliability has been questioned by a number of qualitative researchers because of the complexity of the multi-layered phenomena being studied and dynamic and responsive methodologies in the qualitative research; thus, the internal reliability is given more attention. Reliability in qualitative research concerns the inter- and/or intra-rater reliability emphasising the consistency of data collection, coding, analysing, and interpretation in a process of study, and the meticulous records to be kept thoroughly to replicate the process in case of needs (Lewis & Ritchie, 2003).

3.5.5.3 Credibility in the present qualitative study

The credibility of the present qualitative study, the Pharmacy Curricula Comparison Study (chapter 7), was assured as much as possible. The reliability of used coding scheme was corroborated by applying one that the previous study developed and used so that reliability and validity were assured. Due to the budgeting of the project, data coding was conducted solely by one researcher, which can be a threat to validity. To assure the validity as much as possible, checking of data coding was carried out twice and checked by the researcher. For attempting to achieve rigour in the study, detailed, thorough description of the process of data collection, analysis, and interpretation is delineated in chapter 6. Furthermore, described data collection, analysis and interpretation were thoroughly discussed among the research team.

3.6 Mixed methods approach

3.6.1 Introduction to mixed methods research

This section portrays the mixed methods approach focusing largely on the use in social research, and describes the typical strategies for mixed methods research. The selection of strategy and methods used in this research project is defended in this section and the practical application of

these methods to answer the research question raised in chapter 2 is delineated in chapter 8. The current research project as a whole is a mixed methods research combining the quantitative studies (the Student Learning Experience Survey in chapter 5 and Pharmacy Education Survey in chapter 6) and the qualitative study (the Pharmacy Curricula Comparison Study in chapter 7) for exploring global attributes of IPPE.

The combined use of both quantitative and qualitative approaches in the same project is becoming increasingly popular over these two decades (Robson, 2011). This strategy blending both quantitative and qualitative approaches is commonly labelled as *mixed methods* (Bryman, 2012: 628).

Bryman (2006) identified a number of rationales to use the mixed methods approach by a content analysis of 232 articles in social science. It reveals that the mixed methods approach contributes the greater credibility; compensating weaknesses of both quantitative and qualitative approach; more comprehensive explanation about the phenomena while answering different research questions; and developing overarching instrument.

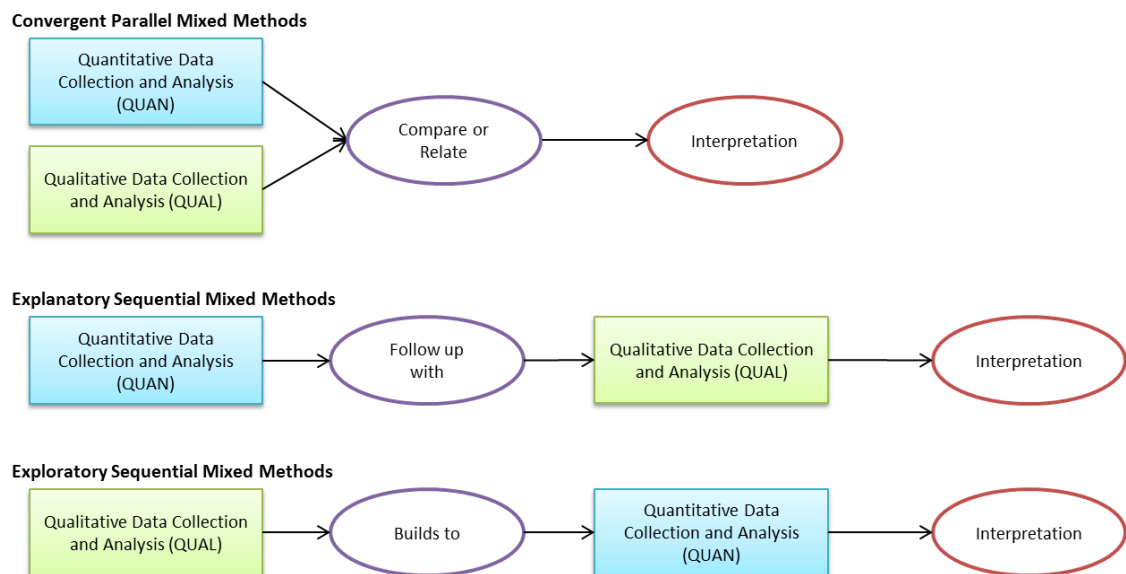
3.6.2 Research strategies for data collection in mixed methods study

There are many approaches to mixed methods research strategies. The ways to combine quantitative and qualitative approaches are often discussed based on the order or sequence of the research design components and priority given. In this section, firstly, the mixed methods designs for combining both quantitative and qualitative strategies are presented, and secondly, common mixed methods research strategies are discussed.

3.6.2.1 Mixed methods research designs

Quantitative and qualitative research strategies can be combined in many ways (Robson, 2011). As Figure 3.1 shows, Creswell (2014) presents three basic mixed methods design (*convergent parallel mixed methods, explanatory sequential mixed methods, and exploratory sequential mixed methods*) (p.220).

Figure 3.1: Basic mixed methods research designs (adapted from Creswell, 2014: 220)



3.6.2.1.1 *Convergent Parallel Mixed Methods Design*

In this design, both quantitative and qualitative data are collected and analysed separately, and then the results are compared and related to assessing their convergence. The way to actually converge or to merge the data in the analysis is challenging. In this design, discussion chapter commonly takes a role to compare or merge the quantitative and qualitative findings. (Creswell, 2014).

3.6.2.1.2 *Explanatory Sequential Mixed Methods Design*

This design involves a two-phase project: quantitative data are collected and analysed, followed by the collection and analysis of qualitative data using the results of quantitative research as a guide to planning the second phase. The priority is usually given to the quantitative data and the qualitative research phase typically assists explaining and interpreting the findings of a primary quantitative study (Robson, 2011).

3.6.2.1.3 *Exploratory Sequential Mixed Methods Design*

This design is a reversed version of explanatory sequential mixed methods design starting with a qualitative phase first followed by a quantitative phase. This design is typically used to explore a phenomenon (Creswell, 2014; Robson, 2011).

3.6.2.1.4 *Limitations on the mixed methods designs focusing on the sequence and priority*

Although the value of such patterns in mixed methods research are basically accepted by many

authors in order to help decide the type of study and how to proceed broadly by different types of approaches considering their relative dominance, this typology seems to have limitations due to the limited engagement in the actual diversity of the designs researchers have used and limited clarification on the actual functioning and interrelationship of the qualitative and quantitative phases of the strategies (Maxwell & Loomis, 2003). Robson (2011) suggests that the researcher needs to consider their research questions as the heart of the design.

3.6.2.2 Mixed methods research strategies

3.6.2.2.1 Triangulation approach

Triangulation approach is a widely used methodological strategy in the mixed methods research to enhance the rigorousness of the research project (Robson, 2011). Triangulation approach contributes to countering the threats to validity because it is considered that combining different methodological perspectives compensates the weaknesses of each other methods and ensures the comprehensiveness of a set of findings (Flick, 2009; Mays & Pope, 2006). However, there is a controversy about if this approach is considered as a genuine test of the validity of a study because of the logical differences between quantitative and qualitative researches (Mays & Pope, 2006).

3.6.2.2.2 Case studies

A case study often applies a mixed methods strategy. There are many variables operating in a single case so that it usually requires more than one approach for collecting data and many sources of evidence in order to capture the implications of these variables. In a case study, combining quantitative and qualitative data fully enables the researcher to *explain, describe, illustrate, and enlighten* dynamic and complex situations with enhancing the validation of the findings (Cohen *et al.*, 2011; Bowling, 2009). The same limitations apply to a case study as a mixed method strategy, such as the difficulty to cross-check information due to the logical differences in two forms of data, or concerns with the generalisation of findings (Bell, 2010).

3.6.2.2.3 Consensus development methods

Consensus development methods are formal approaches to decision-making in many areas including healthcare. The strategy has been developed as an explicit and transparent structured method with possibly more scientific credibility, which can eliminate the negative aspects of traditional decision-making process led by a powerful individual or someone deemed to be best equipped for the task to make the decision (Black, 2006). This strategy aims to produce quantified estimates of consensus by using a mixed methods approach involving scaling, questionnaires, and quantitative analysis (Bowling, 2009).

There are three major consensus development methods: *nominal group technique*, *Delphi technique*, and *consensus development panels* (Bowling, 2009: 437). All of three methods usually involve three steps using varying approaches: (1) identify all relevant issues in the field; (2) frame those addressed issues in the form of clear statements; and (3) obtain a view of group regarding their degrees of agreement with each statement using Likert scale (Black, 2006).

3.6.2.3 Mixed methods strategy in the present project

Convergent parallel mixed methods design was applied to the present project as a whole, using both quantitative and qualitative studies, to answer the research questions proposed in chapter 2. In order to explore the global attributes of IPPE, separately analysed findings from both quantitative and qualitative studies were discussed jointly in the discussion chapter (chapter 8). This method allows the researcher to triangulate findings towards a better understanding of the quality of IPPE in a global context while looking at different aspects of the IPPE quality.

3.7 Ethical consideration

There are no global standards over ethical issues in research, and the approaches to research ethics differ between disciplines, or specifically between contexts (Robson, 2011). Bryman (2012) argues that the main principles of the ethical considerations in research have not changed a great deal, and addressed the importance of the four key areas derived by Diener and Grandall (1978). These four areas are:

- *Harm to participants* – participants should not be harmed due to their participation in the research physically, mentally, and this extends to maintaining the confidentiality of individual identities (Bowling, 2009; Bryman, 2012).
- *Lack of informed consent* – If there is any chance of harm to respondents, the research should be conducted with the informed consent of the respondents (Bryman, 2012)
- *Invasion of privacy* – Invasion of privacy harm to the patient; giving confidentiality and anonymity to participants are essential when storing the information and reporting the findings of the research, which is expected legally in the UK's Data Protection Act (1988) (Robson, 2011).
- *Deception* – Research work should not be manipulated (Bryman, 2012).

Some issues of ethical considerations in research were addressed in addition to these major elements, such as participant's right of free withdrawal from the research (Bowling, 2009; Cohen *et al.*, 2011), and researcher's safety in the research (Robson, 2011).

Moreover, the link between ethical integrity and research quality was addressed and is being received greater attention in the UK (Bryman, 2012). Thus, ethical clearance for research likely leads to an impact on its research quality.

3.7.1 Ethical consideration in the present research

All the studies conducted in the present research did not require obtaining UCL Research Ethics Committee approval due to the nature of studies. The criteria for a project that does not require ethical approval through the UCL Research Ethics Committee are in Table 3.2.

Table 3.2: Research criteria for not requiring ethical approval through the UCL Research Ethics Committee (adapted from UCL Graduate School (2012))

(a)	Research involving the collection or study of existing data, documents or records that are publicly available
(b)	Research involving anonymised records and/or data sets that exists in the public domain
(c)	Research involving the use of educational tests, survey procedures, interview procedures or observation of public behaviour, unless information obtained is recorded in such a manner that human participants can be identified. Similarly, where any disclosure of the human participants' responses outside the research could reasonably place the participants at greater risk of criminal or civil liability, or damaging to their financial standing, employability, or reputation.
(d)	Research involving the use of educational tests, survey procedures, interview procedures or observation of public behaviour that is not exempt under paragraph (c), if the human participants are elected or appointed public officials or candidates for public office.
(e)	Taste and food quality evaluation and consumer acceptance studies, if wholesome foods without additives are consumed, or if a food is consumed that contains a food ingredient at or below the level and for use found to be safe, or agricultural, chemical or environmental contaminant at or below the level found to be safe by the appropriate government regulators.

Ethics approval for the Student Learning Experience Survey, a quantitative online questionnaire survey, was not required, considering the criteria (c) of the UCL Research Ethics Committee for not requiring ethical approval. Participants were informed of the purpose, aims, and structure of the survey, and instruction to take part in, and contact information for inquiries by the invitation letter and email (Appendix 9 and Appendix 10). Furthermore, the anonymity of participants' identity was informed on the survey website (Appendix 8).

The Pharmacy Education Survey, a quantitative questionnaire survey, also did not require the Ethic Committee approval, under the criteria (b) and (d) of UCL Research Ethics Committee for not requiring ethical approval. Participants were informed of the purpose and aim for the survey, and the contact details for any inquiries on the survey by the invitation email and letter (Appendix 17 and Appendix 18).

Curricula comparison study, a mixed methods approach textual analysis, did not require the Ethics Committee approval, either, under the criteria (a) of the UCL Research Ethics Committee for not requiring ethical approval.

3.8 Summary of Chapter 3

This chapter has sought to provide an overview of the research methods and data management techniques including analytic strategies applied throughout the present research using quantitative, qualitative, and mixed methods approaches.

The research as a whole used a mixed methods approach including two quantitative studies and one qualitative study. The quantitative studies include the Student Learning Experience Survey (chapter 5) and the Pharmacy Education Survey (chapter 6), and the qualitative study is the Pharmacy Curricula Comparison Study (chapter 7). Findings from each study were combined in the discussion part (chapter 8). This approach allows the researcher to triangulate study findings towards a better understanding of the quality of IPPE in a global context by examining different aspects of IPPE quality.

The Student Learning Experience Survey (chapter 5) used the web survey because of the time and resources available, the geographical coverage for worldwide data collection, and direct data entry from the web survey into the database, as well as the characteristics of participants who are mostly likely to be computer literate. Piloting the data-gathering instrument (chapter 4) were conducted focusing on wording and formatting in experts and postgraduates students who used to be in IPPE programme in their home countries. Further, the instrument was piloted in IPPE students worldwide focusing on confirming the reliability and the contents of the instrument. The sampling method for the main study was snowballing sampling because no sampling frame including all pharmacy students all over the world exists. Collected data were analysed in a statistical way using descriptive and inferential statistics (e.g., ANOVA, MANOVA, correlation, regression, and path analysis). Reliability and validity were assured as much as possible by examining the Cronbach's alpha and by discussing contents of the instrument attempting to establish face validity.

The Pharmacy Education Survey (chapter 6) used the attached email questionnaire survey because of the geographical coverage worldwide, the time required to collect and fill in the data in the questionnaire, project running time and budget available. The questionnaire was distributed using the purposive sampling approach in order to seek the country and territory level knowledge and data regarding the IPPE. Collected data were analysed using descriptive and inferential statistics (e.g., correlation and regression). Face validity was established by developing the questionnaire in collaboration with experts and collaborators who has experiences in the field.

The Pharmacy Curricula Comparison Study (chapter 7) used the textual analysis of the time-scheduled syllabuses/curricula contents because of the capacity of the approach in the geographical coverage. Collected data was analysed using a mixed approach of content analysis and framework analysis, allowing systematic analysis and establishing the validity of coding. The sample was collected by the purposive sampling approach because the curriculum documents are often accessible only to particular people. Coding was conducted solely by one researcher due to the budget available. However, to keep reliability, checking of coding was carried out twice by the researcher.

Ethical issues were considered in each study with the use of the criterion of the UCL Research Ethics Committee. All studies were exempt from going through ethics approval because of the nature of studies.

Chapter 4: The Development of Student Learning Experience Survey

4.1 Introduction to the chapter

This chapter will delineate the methods used for developing the questionnaire of the Student Learning Experience Survey of which the main study will be described in the following chapter (chapter 5). The Student Learning Experience Survey aimed to investigate the students' perception of learning environments and their learning processes through their IPPE as the proxy indicators of educational quality following the research questions proposed in chapter 2, 2.1.2, i, ii, iii and iv:

- i. How do initial professional pharmacy students experience current IPPE practice globally?
- ii. How do the students' learning experiences and their approaches to learning in their IPPE vary across nations?
- iii. What are personal and situational factors that influence students' adoption of a deep approach to learning?
- iv. To what extent do personal and situational factors affect the deep approach adoption by pharmacy students?

IPPE needs to prepare graduates to be workable in a healthcare team, adaptable of change, and capable of introducing change where needed. Moreover, pharmacy graduates are expected to be self-directed lifelong learners to tackle unfamiliar situations in the future within or beyond variety career paths.

The needs of IPPE match with a general consensus that the deeper approach to learning is desirable in higher education, reflecting the academic's conception of effective independent learners (Wilson & Fowler, 2005). Evidence supports the universal agreement, showing that the deep approach to learning has an association with student's better understanding of subjects (Trigwell & Sleet, 1990), with development of students' own conceptions of subjects (Prosser & Millar, 1989), and with greater development of transformative skills (Lizzio *et al.*, 2002; Lizzio & Wilson, 2004b).

The approaches to learning that students applied in practice are influenced by a various personal and situational factors (Wilson & Fowler, 2005). Research evidence suggests that general predisposition for student's approach to learning is affected by their prior knowledge, abilities,

value, expectations, and perceptions of their learning situation (Ramsden, 2003; Biggs & Tang, 2011).

Thus, the purpose of the Student Learning Experience Survey was to evaluate students' approaches to learning in pharmacy and its associated personal and situational factors in order to understand current trends in pharmacy students' learning experiences and learning processes, and to seek commonly shared factors to influence the students' adoption of the deep approach to learning so as to possibly improve their learning outcomes based on the evidence.

4.2 Study design

The Student Learning Experience Survey is described over chapter 4 and 5. Chapter 4 focuses on the development of the instrument for the survey, and chapter 5 focuses on the main study using online survey (Figure 2.1 and Figure 2.2).

This chapter, in regard to the instrument development for the Student Learning Experience Survey, includes two phases: Instrument selection and questionnaire development. Phase 1, instrument selection, involves the selection of instruments to investigate students' learning experiences and approaches to learning by conducting a literature review. Phase 2, questionnaire development, involves the development of the questionnaire used for the main survey.

Phase 2 includes two stages: (1) the development of common motivation lists for studying pharmacy, and (2) pilot study of the instrument. Stage 1 developed a set of common categories for the student's motivation to study pharmacy by conducting a workshop to gather global patterns of their motivations and literature review to comprehend all existing evidence into a set of categories. Stage 2 contains a pilot study of a first version of the questionnaire.

4.3 Phase 1: Instrument selection

A number of instruments are used to evaluate students' approaches to learning, depending on the purpose of the evaluation and the theory applied. On the other hand, there is one instrument that is broadly used to identify students' perceptions of the aspects of course which associated to the students' approaches to learning adopted during the course. However, this instrument, the CEQ (Ramsden, 1991), has several versions to fit for the purpose of different projects.

It is important to select the most suitable tools to examine pharmacy students' approaches to learning as well as situational factors affecting their learning approaches, to fit for this project.

4.3.1 Instrument of students' approaches to learning (SAL)

This section will describe detailed methods and results for the selection of the instrument for exploring the students' approaches to learning (SAL) in IPPE across nations.

4.3.1.1 **Aim and objectives**

This section aimed to select the most suitable instrument to evaluate the SAL globally for this project.

The objectives were:

- To identify existing instruments to investigate the SAL especially in higher education settings;
- To explore commonly used instruments in medical and pharmacy education settings; and
- To determine the most suitable instruments for this project.

4.3.1.2 **Methods**

A literature review was conducted to fulfil the aim and objectives raised above. The literature review was carried out focusing on articles evaluating the SAL in a medical or pharmacy education setting. It is because a large number of the SAL instruments were found in the preliminary literature search. Thus, aiming to search the most suitable instrument for using in an IPPE setting, this literature review was limited to the SAL evaluation in medical and pharmacy education.

All relevant articles were retrieved by searching EMBASE, PsycINFO, and PubMed. The search term used was 'approach to learning'. In order to identify articles relating to medical and pharmacy education, the search was restricted to four journals: namely, the *Medical Education*, *Medical Teacher*, *American Journal of Pharmaceutical Education*, and *Pharmacy Education*. 163 articles were identified from the search above. Inclusion criteria used were: (1) evaluating the SAL of medical or pharmacy students either in the undergraduate or postgraduate programme, (2) using the questionnaire instrument, and (3) development of instruments. Of the 163 articles found, 141 articles were excluded because these did not meet the inclusion criteria. A total of 22 articles were identified for the purpose of this review. In addition, additional 17 articles were retrieved by manually searching and reviewing the reference lists. In total, 39 articles were reviewed using a narrative approach in this section.

4.3.1.3 **Results**

There are many instruments applying scales parallel to the SAL theory in a higher education setting. These include: the Approaches to Study Inventory (ASI; Entwistle & Ramsden, 1983), Study Process

Questionnaire (SPQ; Biggs, 1987b), Learning and Study Strategies Inventory (LASSI; Weinstein *et al.*, 1987), Learning Style Inventory (Kolb, 1985), Motivated Strategies for Learning Questionnaire (MSLQ; Pintrich *et al.*, 1993), and Inventory of Learning Styles (ILS; Vermunt, 1996). Furthermore, many revised versions of the ASI and SPQ were reported (Tait & Entwistle, 1996; Tait *et al.*, 1998; Entwistle & Tait, 1994; Fox *et al.*, 2001; Biggs *et al.*, 2001).

4.3.1.3.1 *SAL instruments in Medical and Pharmaceutical Education*

Literature search in *Medical Education*, *Medical Teacher*, *American Journal of Pharmaceutical Education*, and *Pharmacy Education* identified 13 studies using the ASI style instruments and 5 using the SPQ style instruments in medical education, and 2 using the ASI style instrument and 2 using the ILS style instruments in pharmacy education. It seems the ASI style instruments are popular in medical education. However, none of the researchers explained the explicit reason for the selection of questionnaires among the SAL instruments and many of them tend to use according to their preferences, even though these instruments have many different theoretical perspectives. The same situation seems have occurred in pharmacy education. The ILS also seems to be popular, but it is because the three studies are a series of one research in Australia. The ILS is a 120-item self-report questionnaire (Vermunt, 1996). Compared to the other instruments, it consumes longer time to answer all questions, which is not an option in this project, because the selected SAL questionnaire will be distributed to students in combination with the other questionnaire examining students' learning experiences. The time-consuming questionnaire will eventually lead to low responses. As the extensive use of the ASI and the SPQ is reported and the validity and reliability of them have been shown from many kinds of perspectives, the ASI style and SPQ style instruments appeared to be options for this project.

4.3.1.3.2 *The purpose of questionnaires*

It is reasonable to look at the aim and design of the instruments to decide which is more suitable for this present project.

a) The Approaches to Study Inventory (ASI; Entwistle & Ramsden, 1983)

The original ASI was developed as a research instrument. It aimed to investigate the inter-relationships between students' traits of study and conceptions composing students' learning. The conceptions include deep/surface approaches to studying established by Marton and Säljö (1976) with introducing an additional category (strategic approach)(Entwistle & Ramsden, 1983), Pask's (1976) holist/serialist styles of learning and globetrotting/improvidence pathologies, and different forms of motivation (Entwistle *et al.*, 1974). The instrument was developed to represent the varying ways that students use for completing assigned tasks, and

was not designed to be widely used (Tait *et al.*, 1998).

b) The Approaches and Study Skills Inventory for Students (ASSIST; Tait *et al.*, 1998)

The ASSIST was revised from the ASI and consequently developed by Lancaster group to meet a perceived need for an instrument enabling teaching staff to use to identify students with a risk of failure during course (especially during first year) and to investigate the ways of influence to students' learning through their teaching (Tait *et al.*, 1998). The ASSIST includes additional scales in order to broaden the description of students' learning and reactions to teaching especially for identifying students who are experiencing difficulty with their study (Entwistle *et al.*, 2001).

c) The Study Process Questionnaire (SPQ; Biggs, 1987b)

The SPQ was developed by Biggs in Australia through his work of the Study Behaviour Questionnaire. It aimed in research use to identify students' typical approaches to learning and to characterise groups of students in a specific context (Biggs, 1987b). The SPQ is based on a motive-strategy model of learning. Biggs conceptualised the approaches to learning in terms of this motive-strategy combination. Biggs fell motive-strategy learning process complex into a model of teaching established by Dunkin and Biddle (1974) to illustrate correlation between characteristics of the students and situational context (*presage*), students' approaches to learning in the specific context (*process*), and learning outcomes (*product*) in his 3P model of learning (Watkins, 2001b).

Considering the most suitable option for the present project, the SPQ seems to be most appropriate, because the SPQ focuses on the students as a group identifying motive-strategy learning approaches in the specific context, while the ASI and ASSIST focus on individual students using mixed concepts for learning to identify the students with weak learning skills.

4.3.1.3.3 *Revised versions of SPQ*

Two revised versions of the SPQ were identified through literature search; the shortened SPQ (S-SPQ; Fox *et al.*, 2001) and revised two-factor SPQ (R-SPQ-2F; Biggs *et al.*, 2001).

The 42-item full version of the SPQ was shortened to 18 items for the S-SPQ development. The 18-item S-SPQ still retains 3 dimensions (deep/surface/achieving approaches), and each approach has the associated motive and strategy. It was modified for easier administration to students as part of a large questionnaire containing multiple other scales and to make it suitable to assess especially students in long courses such as medicine by re-wording questions (Fox *et al.*, 2001).

In terms of the development of the R-SPQ-2F, it focused only on deep/surface factors because the role of the achieving-related scale is not as evident as those of deep/surface scales in using the SPQ as a means of monitoring teaching/learning environment generally (Biggs *et al.*, 2001). It has 20 items divided into 2 dimensions (deep/surface approaches). This revised version made it easier for teachers to evaluate the learning environment in their own classrooms in a quick way.

4.3.1.4 Conclusion

There are a number of the SAL instruments to date. It is impossible to show which one is the best to identify the SAL. The ASI style instruments are popular in medical education, while the ASI and ILS were used in pharmacy education although there are only limited studies in pharmacy education that examine the SAL. However, none of the studies above explained the reason for the selection of the questionnaire used in the study. Regarding the aim and background of the SAL instruments, the SPQ style questionnaires seem the most appropriate to this project. Considering the easiness of administration with the other questionnaire (the CEQ and demographics), the S-SPQ is found the most suitable to present study.

Furthermore, previous study surveying pharmacists' quality of learning with the ASI identified that higher levels of achieving orientation and meaning orientation compared to the lower level of reproducing orientation (Kostrzewski & Dhillon, 1997). Considering present project on pharmacy students, achieving approach could be high as gaining pharmacy degree is to be successful for students as the previous study showed. Therefore, the three-dimension S-SPQ seems to be the most appropriate SAL instrument to present project.

4.3.2 Instrument of students' learning experiences

This section will describe the detailed methods and results for the selection of an instrument to evaluate students' learning experiences in IPPE in a global context.

4.3.2.1 Aim and objectives

This section aimed to select the most suitable instrument to evaluate learning experiences of IPPE students globally for this project.

The objectives were:

- To identify existing instruments to investigate students' learning experience factors especially in higher education settings;
- To explore commonly used instruments in medical and pharmacy education settings; and

- To determine the most suitable instruments for this project.

4.3.2.2 Methods

A literature review was carried out to fulfil the aim and objectives addressed above. Regarding the instrument to evaluate how students experienced the specific educational situation, literature was searched using electronic databases including PsycINFO, EMBASE, and PubMed, using the term “Course Experience Questionnaire”. The literature was selected for the review in the development processes, the theory applied, and the structures of the specific instrument, the CEQ. Five articles were identified for this review. Identified literature was reviewed using a narrative approach.

4.3.2.3 Results

Learning experiences perceived by students can be examined by the Course Experience Questionnaire (CEQ; Ramsden, 1991), which is a validated tool to measure the quality of teaching at the level of whole course or degree in higher education. The CEQ has been built on the Course Perceptions Questionnaire (Entwistle & Ramsden, 1983) which was developed to identify the students’ perceptions of the learning environment as a whole course in relation to the approaches to learning which students adopted during the course (Gibbs, 1992; Wilson *et al.*, 1997).

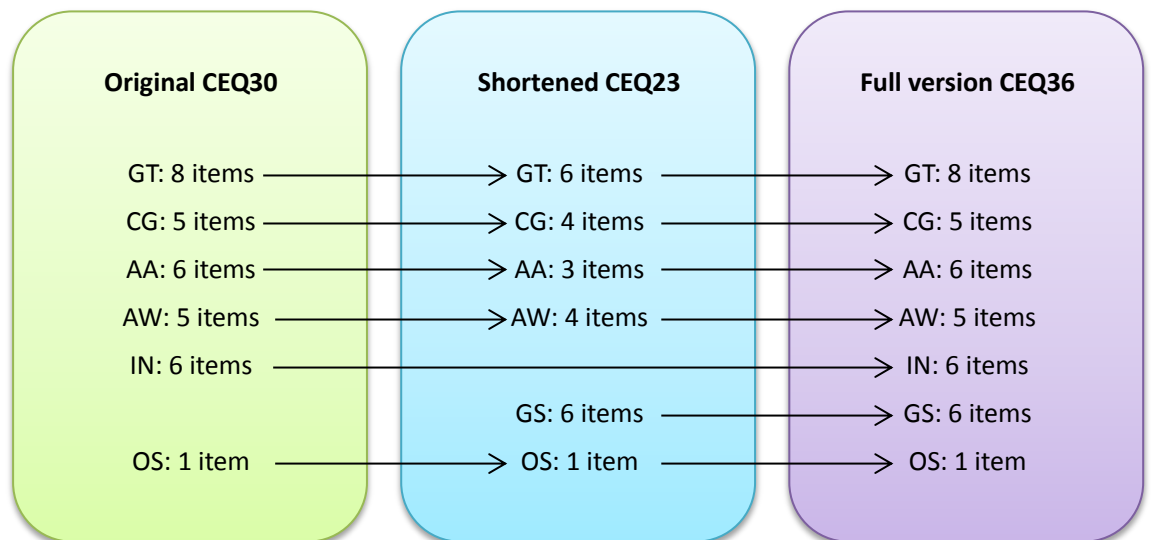
The development of the CEQ was supported by many studies which identified that there are real differences in teaching quality which can be measured. What these studies show as key factors defining “good teaching” on which students are able to comment validly are: *“concern for and availability to students; enthusiasm and interest of teachers; clear organisation and goals; feedback on learning; the encouragement of student independence and active learning; an appropriate workload and relevant assessment methods; the provision of a suitably challenging academic environment”* (Ramsden, 1991). Then, the original CEQ was elaborated in order to cover all these essential aspects of the quality of learning environment which students can form accurate judgements, to present results at several levels of aggregation with a high degree of validity and freedom from manipulation without difficulty of production and administration, and to apply for all higher education courses generally (Ramsden, 1991). Now the application of the CEQ has been extended across many different disciplines including pharmacy worldwide.

4.3.2.3.1 Original, Shortened, and Full version of CEQ

The original CEQ includes 30 items grouped into five categories; the Good Teaching (GT), Clear Goals and Standards (CG), Appropriate Assessment (AA), Appropriate Workload (AW), and Emphasis on Independence (IN). The administration of a shortened and adapted version of the CEQ containing 23 items has carried out annually to all new graduates from universities in Australia

(Sadlo & Richardson, 2003). The shortened CEQ lacks the IN scales which seems important in problem-based curricula and key factors to facilitate students to be independent learners with a deeper approach to learning (Sadlo & Richardson, 2003; Gibbs, 1992; Ramsden, 1991). In addition to the exclusion of IN scales, new scales called the Generic Skills (GS) were added in the shortened CEQ. The additional scale was developed to reflect the growing awareness and acceptance of the needs to produce the graduates who are not only competent in their field of study but also able to apply the knowledge and skills to their work or everyday life or able to be lifelong learners (Wilson *et al.*, 1997). The GS scale was designed to assess the extent which students perceive the course develop or improve their generic skills and abilities including “*problem-solving, analytic skills, teamwork, confidence in tackling unfamiliar situations, ability to plan work and written communication skills*” (Wilson *et al.*, 1997). Wilson, Lizzio, and Ramsden (1997) showed the validation of both the shortened CEQ and the long version of CEQ using all 37 items including the GS scales. The transition from the original version to the long version of CEQ can be found in Figure 4.1.

Figure 4.1: The transition of CEQ versions



* Note: *GT = Good Teaching scale; CG = Clear Goals and Standards scale; AA = Appropriate Assessment scale; AW = Appropriate Workload scale; IN = Emphasis on Independence scale; GS = Generic Skills scale; OS = Overall Satisfaction scale*

Sadlo and Richardson (2003) criticised the difference of the characteristics of the GS scale from the other scales, mentioning that the GS scale evaluates the skills that students personally have obtained from their degree, rather than the quality of the degree itself. However, the GS scale attempts to evaluate the perception of students' assessment of the course which develops or

improves these skills and whether the course provides the curriculum for students to gain these skills. Therefore, the GS scale can be considered as the factor to evaluate the quality of learning environment.

4.3.2.4 Conclusion

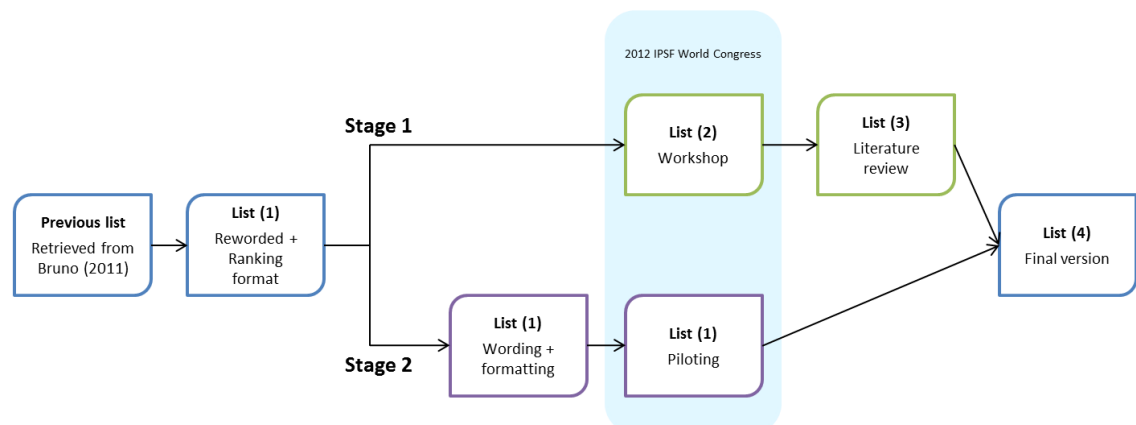
The additional GS scale is indeed consistent with what future pharmacist must obtain during their professional degree. Considering the pharmacy field where have to prepare students to be lifelong learners and to be competent and capable with these generic skills, having the GS scale in the instrument is beneficial. In addition, the IN scale is important to evaluate the degree of students' perceptions of the learning environment whether it helps become independent learners. Thus, the full version of the CEQ36 seems the best version of inventory to assess the quality of learning environment in relation to students' approaches to learning in the present project.

4.4 Phase 2: Questionnaire development

This phase will describe the detailed methods used for developing the questionnaire for the main web survey. This phase includes two stages which are (1) the development of a motivation list for studying pharmacy, and (2) pilot study (

Figure 2.1). As these two stages were carried out concurrently due to the timing of the piloting opportunities, the time scheme and transition of motivational lists used in different points were delineated in Figure 4.2. This global survey is supported by the FIPeD Development Team and IPSF. Present questionnaire in this project was titled as "2013/14 FIPeD-IPSF Student Learning Experience Questionnaire" (SLEQ). Detailed information about the process of questionnaire development will be described in following sections.

Figure 4.2: Time scheme of project stages and transition of motivational lists



4.4.1 Stage 1: Common motivation categories for studying pharmacy

In the SLEQ, the demographic part consists of a question asking what motivated students to study pharmacy before entering the IPPE programme. Developing a list of motivation categories that pharmacy students commonly have, associated with its description, can ease analysis and reduce the time to answer the questionnaire.

4.4.1.1 **Background**

Several previous studies identified that students' motivation for the education was one of the key factors that can influence their qualities of learning in higher education. The majority of research on students' motivation hypothesised that motivation orientation is changeable in a specific contexts or tasks (Prat-Sala & Redford, 2010). This hypothesis has been used in motive-strategy congruence package theory by Biggs in the SPQ (Biggs, 1985). However, motivations often are persistent and work as *stable predictors* (Cline *et al.*, 1999). Especially motivations for choosing pharmacy as their majors have remained comparatively steady for a year (Roller, 1993). Even as stable personal traits, students' motivation orientations are found to be factors that influence their approaches to learning (Prat-Sala & Redford, 2010).

Students' motivations for choosing studying pharmacy are also likely to be an important determinant to identify the relationship of the process of '*recruitment – education – output*' (Jesson *et al.*, 2010). Therefore, identifying students' motivation orientation to study pharmacy together with students' approaches to learning and their learning experiences is presumed to provide a clear description of their relationship for a global map of the quality of IPPE.

Furthermore, as the motivation orientations (i.e., intrinsic or extrinsic motivations) associate with its congruent strategy in the SAL theory (Biggs, 1985), it can also be hypothesised that the level of autonomy of the motivation for studying pharmacy may relate to the level of the SAL. Thus, in order to define the level of autonomy of motivation categories the SDT theory (section 1.5.1.1.3) was used.

Thus, in order to compare students' motivations for studying pharmacy globally and to obtain a large number of responses, there is a need to construct a common category list of motivations to study pharmacy.

4.4.1.2 **Aim and objectives**

This section aimed to construct a common list of motivations and reasons for studying pharmacy for the project

The objectives were:

- To collect the evidence on the motivations for studying pharmacy which pharmacy students have experienced;
- To label the emergent categories of the collected evidence from pharmacy students;
- To map student evidence with the categories; and
- To describe the categories with literature and evidence from students

4.4.1.3 Methods

A combination of methods was used to collect the evidence on the motivations for studying pharmacy: (i) retrieving the replies and coding schemes from a previous study conducted in the FIP Collaborating Centre (Bruno, 2011) (ii) conducting a workshop at the 58th IPSF World Congress; and (iii) literature review.

The first phase of data collection in this stage of the study was to retrieve the data and applied coding schemes from the previous Student Learning Experience Questionnaire conducted online from 2010 to 2011 in collaboration with the FIP and IPSF (Bruno, 2011).

The second phase of data collection in this stage of the study was to conduct a workshop to obtain motivations to study pharmacy that pharmacy students have actually had experienced at the 58th IPSF World Congress in Egypt, where enable of accessing pharmacy students who have worldwide backgrounds.

Finally, a literature review was conducted to gain further evidence to construct a comprehensive set of motivation categories to study pharmacy which can be applied globally.

Collected data were collated in the Microsoft Office Excel 2010 spreadsheet and thematically analysed to develop motivation categories. The emerged categories were applied to the SDT (Deci & Ryan, 1985) to confirm the degree of autonomy for further analysis and interpretation. The neutralised description of each category was developed based on the collected evidence and finalised in the FIP Collaborating Centre research team.

4.4.1.4 Results

4.4.1.4.1 Evidence from the Student Learning Experience Questionnaire (Bruno, 2011)

In a previous Student Learning Experience Questionnaire conducted online from June 2010 to May 2011 in collaboration with the FIP and IPSF (Bruno, 2011), 836 pharmacy students globally

responded. Responses to one of the demographic questions “*list your top three motivations for wanting to be a pharmacist*”, was collated into the Table 4.1 together with developed categories at the time for analysis.

Table 4.1: previous categories for the motivation of pharmacy students for becoming a pharmacist (adapted from Bruno, 2011)

Category	Definition from the replies given
Healthcare Profession	Interest in improving public health; to health and serve patients/others; teamwork with other health professionals; communication with patients; healthcare profession; to contribute to the healthcare system.
Areas of Work within Pharmacy	Working in a hospital; working in industry; working in community pharmacy; advance in medicine; interest in research and develop new medicines; new opportunities; working in different areas of pharmacy.
Personal Development	Profession is competitive; acceptance/respect; independence; enjoyment; CPD; achievement; rewarding; previous experience; job satisfaction; prestige.
General Interest in the Degree	General interest in knowledge chemistry, pharmacology, pharmacotherapy; length of the degree; interest in science to understand the medicines and diseases; interdisciplinary; mechanism of action of the drugs in the body.
Financial aspects	Financial security; stability; interest in business, management, and sales; self-employment; possibility to open a pharmacy.
Personal Motivators	Encouragement from family, friends, teachers etc.; Personal experiences that may have influenced choice (e.g. suffering or death from chronic illness); past or current work experience in a pharmacy; migration possibilities; mobility within countries; flexibility.
Others	Flexible hours; good hours; regular hours; puzzles; woman; got a scholarship; less danger.

Based on the previous results (Bruno, 2011), first draft version of the motivation list was developed as the motivation list (1). Towards developing the list (1), the category labels in Table 4.1 were reworded so as to make the categories more neutral. The ‘others’ category was also omitted from the list (1) and re-coded into the other six categories. These amendments were conducted through discussion with members in the FIP Collaborating Centre at the UCL, who are experts in the field. The developed motivation list (1) was summarised in Table 4.2.

The developed motivation list (1) was formatted as a ranking question according to their experiences. The question requested that a participant choose three motivations that are the most suitable for their experiences and rank them from first to third accordingly. The question was integrated into the draft questionnaire as part of the demographic questions, which were piloted in stage 2 (section 4.4.2).

Table 4.2: Motivation list (1)

Category	Definition from the replies given
Work in health care field	Interest in improving public health; to help and serve patients/others; teamwork with other health professionals; communication with patients; healthcare profession; to contribute to the healthcare system.
Having a professional / vocational career	Working in a hospital; working in industry; working in community pharmacy; advance in medicine; interest in research and develop new medicines; new opportunities; working in different areas of pharmacy.
Personal Development	Profession is competitive; acceptance/respect; independence; enjoyment; continuing professional development; achievement; rewarding; previous experience; job satisfaction; prestige.
Interest in science	General interest in knowledge; chemistry; pharmacology; pharmacotherapy; length of the degree; interest in science; to understand the medicines and diseases; interdisciplinary; mechanism of action of the drugs in the body.
Financial aspects	Financial security; stability; salary rewards; interest in business, management and sales; self-employment; possibility to open a pharmacy.
Socio-economic aspects	Encouragement from family, friends, teachers etc.; Personal experiences having influenced choices (suffering or death from chronic illness); past or current work experience in a pharmacy; migration possibilities; mobility within countries; flexibility.

4.4.1.4.2 Workshop at the 58th IPSF World Congress

Aiming to construct a global common category list of all relevant motivation experienced by students who have chosen to study pharmacy at a university across nations, a workshop to develop a common motivation list was conducted at the 58th IPSF World Congress in Egypt in 2012. The workshop proposal can be found in Appendix 1.

Following the presentation on the FIPeD works and the background of the SLEQ, students were asked to make a small group and answer the question “what motivations did you have to study pharmacy?”, and list these responses within a group. Although two questions were proposed in Appendix 1, due to the problems occurred at the venue, the workshop focused on collecting the motivation that students experienced for studying pharmacy till the data saturation. All groups were reconvened and motivations that students experienced were presented and collected until the data saturation was achieved. Additional answers were collected via papers which attendees voluntarily handed into facilitators.

a) Demographic data

Eligible pharmacy students in this project were the pharmacy student participants of the 58th IPSF World Congress in Egypt on 4th August 2012, where pharmacy students attended from all over the world. The demographic data of participants were provided by the IPSF General Assembly member. 508 pharmacy students from 49 different countries and territories participated in this workshop. The demographic details and the numbers of students can be found in Table 4.3.

Table 4.3: Demographic data and numbers of participants at country and WHO regional level

WHO region	Country	No. of students	Total no. of students in the WHO region
1. Africa	Algeria	10	46
	Ghana	26	
	Kenya	5	
	Rwanda	1	
	South Africa	2	
	Zimbabwe	2	
2. Eastern Mediterranean	Egypt	30	89
	Jordan	4	
	Kuwait	2	
	Palestinian Territory	9	
	Qatar	11	
	Sudan	13	
	Tunisia	20	
3. Europe	Croatia	9	176
	Czech Republic	3	
	Denmark	19	
	Finland	6	
	France	21	
	Germany	5	
	Greece	3	
	Hungary	2	
	Lithuania	4	
	Poland	3	
	Portugal	16	
	Romania	13	
	Serbia	6	
	Slovakia	2	
	Slovenia	23	
	Sweden	5	
	Switzerland	2	
	Netherlands	22	
	Turkey	4	
	Ukraine	1	
United Kingdom	7		
4. Pan America	Brazil	5	73
	Canada	8	
	Colombia	14	
	Mexico	2	
	United States	44	
5. South East Asia	Bangladesh	2	21
	India	1	
	Indonesia	13	
	Nepal	1	
	Thailand	4	
6. Western Pacific	Australia	13	103
	Japan	41	
	Republic of Korea	13	
	New Zealand	4	
	Taiwan (China)	32	
Total	49 Countries	508	508

b) Group consensus (each group)

With 508 students, 48 groups were set up in the workshop for group discussion to produce group consensus about the following questions: “what motivations did you have to study pharmacy?” For developing groups for the workshop, each table was set up for ten to eleven participants. When participants came into the workshop room, they were guided to make groups for discussion. The participants were not grouped by the researcher, but voluntarily by themselves.

Participants’ participations were voluntary. Collected data did not include any identifiable personal information. The purpose of the workshop and the use of results in the following survey were explained at the beginning of the workshop. Continuing attendance throughout the workshop until the end was considered as the consent to the participation in the project.

Presenting the group consensus was voluntary. The group number stated in Table 4.4 describes the order of the voluntary presentation from students. The data saturation was achieved when a representative from the sixth group presented their consensus as it was confirmed if there was no more different answer to present. After the workshop, five groups voluntarily submitted the group consensus via paper and included the answers to construct a global common motivation category to study pharmacy. All collected answers can be found in Table 4.4.

Table 4.4: Collected answers at the 58th IPSF World Congress about the motivation to study pharmacy

Presentation in workshop		
	1	Diverse opportunities in pharmacy field
	2	To help people to improve the world
	3	To change the idea of pharmacy [Perceptions and awareness of public towards pharmacy]
	4	Influence from family members - role models
	5	High status as a pharmacy, prestige
	6	Financial aspect
Answers submitted via paper after the workshop		
G1	1	Always a dream, difficult to find a way, by speaking to people, why body is working
	2	Chemistry + Pharmacy students
	3	Interesting how P
	4	Family, Biology, Future
	5	Not first choice, To assist/take care of family, Solid career
	6	First one in family
	7	Last on the list, Never thought in high school
	8	In medicine field, pharmacy is easier
	9	Economics first but not what interested in, not too much hard-core sciences in depth, general science
G2	1	How does medicine work
	2	Good knowledge mix
	3	Interact with people
	4	Family background
G3	1	Like life sciences
	2	Like helping people
	3	Like research
	4	Good money
	5	Prestige
G4	1	Like Chemistry
	2	Economic status/Salary of pharmacist
	3	Interested in health care providing but not medicine
	4	Interested in doing pharmaceutical research
G5	1	Higher education
	2	Financial stability
	3	Practice and expand in more areas
	4	Cleaner profession yet respectable

c) *Motivation categories*

Seven motivation categories emerged from collected answers at the workshop, which were “Interest in science”, “Contribution to healthcare”, “Personal and family influences”, “Personal development and fulfilment”, “Future career opportunities”, “Professional and vocational career”, and “Financial and economic aspects”, which are labelled as the motivation list (2) in Figure 4.2. Collected answers were mapped in the emerged categories, which can be found in Table 4.5. From the collected answers, each category was also described in Table 4.5.

Table 4.5: Motivation list (2) - emerged category list of students' motivations for studying pharmacy

Category	Descriptions	Collected answer
1. Interest in science	Interest in, and like of science	Why body is working
		Chemistry + Pharmacy students
		Biology
		Not too much hard-core sciences in depth, general science
		How does medicine work
		Good knowledge mix
		Like life sciences
		Like research
		Like Chemistry
2. Contribution to healthcare	Desire to help people; and interest in healthcare and working with people	Interested in doing pharmaceutical research
		To help people to improve the world
		Interact with people
		Like helping people
		By speaking to people
3. Personal and family influences	Influences from family	Interested in health care providing but not medicine
		To assist/take care of family
		Family background
		First one in family
		Influence from family members - role models
4. Personal development and fulfilment	Achievement in life and fulfilment to enter higher education	Family
		To change the idea of pharmacy [Perceptions and awareness of public towards pharmacy]
		Last on the list, Never thought in high school
		In medicine field, pharmacy is easier
5. Future Career opportunities	Job security and career opportunities	Higher education
		Future
		Solid career
		Practice and expand in more areas
6. Professional and vocational career	Social prestige and respected profession	Diverse opportunities in pharmacy field
		High status as a pharmacy, prestige
		Prestige
7. Financial and economic aspects	Desire to earn a high salary and expectation of economic security	Cleaner profession yet respectable
		Financial aspect
		Economic first but not what interested in
		Good money
		Economic status/Salary of pharmacist
		Financial stability

d) Discussion for further work to develop a set of global common categories

From collected answers at the workshop in the 58th IPSF World Congress, seven motivation categories emerged, which are “interest in science”, “contribution to healthcare”, “personal and family influences”, “personal development and fulfilment”, “future career opportunities”, “professional and vocational career”, and “financial and economic aspects”.

The number of the collected answers was small, but when it comes to the demographic details of participants, the background of them varied all over the world. In addition, considering the method

of presentation of their group consensus (presentation of different answers, in turn, to avoid the time consuming and to obtain more different answers), a small number of collected answers can be interpreted as students have the similar experiences to choose pharmacy as their major globally.

However, considering the limitation of the time in the workshop and difficulty of expression in the group for those students who are not fluent in English, collected evidence would not be enough to construct a global common category list of motivations to study pharmacy for the use globally in the SLEQ. Moreover, those who attend the world congress or regional symposium are relatively more motivated than the others, so their expressed motivation may differ slightly from those of the others. Thus, literature reviews for the collection of more evidence are needed.

4.4.1.4.3 *Literature review*

A literature search was conducted for developing a comprehensive set of motivation categories to study in pharmacy globally. All relevant articles were retrieved by searching PubMed, EMBASE, PsycINFO, and International Pharmaceutical Abstracts. The search terms used were: “motivation*”, “choice of programme”, and “choice of major”. In EMBASE, PsycINFO, and IPA, “motivation*” was crossed with both “choice of programme” and “choice of major”. Only with PubMed, after “motivation*” was crossed with “choice of major” and “choice of programme”, “pharmacy education” was further crossed with the results because a large number of articles identified from the prior strategy. 22 articles were retrieved by the search above. Of 22 articles searched, 20 were excluded because it was not related to the motivations and factors that influenced students’ decision to study pharmacy. Articles that are not related to the pharmacy undergraduate programme were also excluded to focus on the initial professional pharmacy education. A total of 2 articles were identified for the purpose of this report. Moreover, additional 17 studies were identified by manually searching and reviewing the reference lists.

Table 4.6 shows the summary of collected evidence and emergent categories. From this literature search, identified factors were categorised into eight categories, including “interest in science”, “contribution to healthcare”, “personal and family influences”, “personal development and fulfilment”, “work-life balance expectation”, “future career opportunities”, “professional and vocational career”, and “financial and economic aspects”. A set of these eight motivation categories was labelled as the motivation list (3) in Figure 4.2.

Table 4.6: Motivation list (3) - summary of students' motivations for studying pharmacy

Label	Factors from literature	Articles	Responses from 2010/11 Students Learning Experience Questionnaire	Responses in the workshop in the 58 th IPSF World Congress
1. Interest in science	An interest in chemistry	(Burlage, 1963)	General interest in knowledge	Why body is working
	Native interests and aptitudes of pharmacy field	(Pratt, 1956)	Chemistry	Chemistry + Pharmacy students
	Liked biology/chemistry	(Rascati, 1989)	Pharmacology	Biology
	Interest in human biology Interest in applying science to everyday life Interest in learning new technology	(Capstic <i>et al.</i> , 2007)	Pharmacotherapy	Not too much hardcore sciences in depth, general science
	Interested in science Like chemistry Did well in math School work is interesting	(Keshishian <i>et al.</i> , 2010)	Interest in science	How does medicine work
	Liking for/being good at science Do a science based course	(Jesson <i>et al.</i> , 2010)	To understand the medicines and diseases	Good knowledge mix
	Intellectual course	(Ferguson <i>et al.</i> , 1986)	Interdisciplinary	Like life sciences
	Science-based course	(Willis <i>et al.</i> , 2006)	Mechanism of action of the drugs in the body	Like research
	Like of/aptitude for science Do a science based course Intellectually satisfying Study medicine/dentistry or another medically related subject	(Wilson <i>et al.</i> , 2006)	Advance in medicine	Like Chemistry
	Interest in medicine, drugs, science, chemistry, biology, intellectual course, human body, and drug abuse	(Smith <i>et al.</i> , 1974)		Interested in doing pharmaceutical research
	Wanting to find a cure for chronic diseases	(Keshishian, 2010)		
I like science Intellectually satisfying	(Roller, 1993)			
2. Contribution to healthcare	A desire to help humanity	(Burlage, 1963)	Interest in improving public health	To help people to improve the world
	Meet many other people	(Pratt, 1956)	To contribute to healthcare system	Interact with people
	Desire to help people	(Rascati, 1989)	To help and serve patients/others	Like helping people

	Interacting with people Caring for/helping people Desire to work in community	(Capstic <i>et al.</i> , 2007)	Communication with patients	By speaking to people		
	Helping or serving others Enjoy interacting with other people	(Keshishian <i>et al.</i> , 2010)	Teamwork with other health professionals	Interested in health care providing but not medicine		
	Work with patients Socially useful	(Jesson <i>et al.</i> , 2010)				
	Nature of work	(Booth <i>et al.</i> , 1985)				
	A job that helps and meets people	(Rees, 1985)				
	Socially useful	(Ferguson <i>et al.</i> , 1986)				
	Personal qualities, experiences, intentions, and values, such as wanting to help people	(Willis <i>et al.</i> , 2006)				
	Socially useful Work with patients	(Wilson <i>et al.</i> , 2006)				
	Desire to make a contribution to health care	(Davy <i>et al.</i> , 2006)				
	Chance to advise people about their health Chance to take care of people when they are sick Opportunity for service to people, helping my race Association with other professionals & new people	(Smith <i>et al.</i> , 1974)				
	Love helping others	(Keshishian, 2010)				
	I like people Desire to be socially useful	(Roller, 1993)				
3. Personal and family influences	Local pharmacists, friends and family influences Previous working experience in retail pharmacies	(Burlage, 1963)			Previous experience	To assist/take care of family
	Influence of person actively engaged in pharmacy, a particular teacher or class in school, a relative, a close friend, and parents Vocation guidance by a professionally trained counsellor or special tests Previous experience or training in an occupation closely related to your expected career	(Pratt, 1956)			Encouragement from family, friends, teachers etc.	Family background
	Influence from the pharmacists, parents, other relatives and personal friends	(Rascati, 1989)	Personal experiences having influenced choices (suffering or death from chronic illness)	First one in family		
	Family tradition Influence of a certain person	(Lobb <i>et al.</i> , 2004)	Past or current work experience in a pharmacy	Influence from family members - role models		

	Previous higher education			
	Influences by a family member, pharmacist or pharmacy student, college instructor/advisor, or high school counsellor, or other healthcare professional	(Anderson <i>et al.</i> , 2008)		Family
	Work/volunteer experience in a healthcare setting			
	Friends studying in the health sciences	(Capstic <i>et al.</i> , 2007)		
	Family tradition			
	Encouragement from parents			
	Inspire from a health practitioner			
	Parental influence	(Keshishian <i>et al.</i> , 2010)		
	Personal experience			
	Previous job experience			
	Parents encouraging them to study	(Jesson <i>et al.</i> , 2010)		
	Influence of friends and a family member owning a pharmacy			
	Influence of pharmacy work experience			
	Family, acquaintances, career advisers	(Booth <i>et al.</i> , 1985)		
	Visit/work in a pharmacy			
	Parents, friends and teachers encouraging them to study pharmacy	(Rees, 1985)		
	Parental pressure	(Ferguson <i>et al.</i> , 1986)		
	Pharmacy friends			
	Influences of pharmacy practitioners as role models	(Chisholm & Pritchard, 1995)		
	Work experience, teachers and counsellors			
	Influence of family	(Willis <i>et al.</i> , 2006)		
	Influence of a teacher, a careers fair, university open days, prospectus, literature, radio/TV, family, a pharmacist as a role models, friends, work experiences	(Wilson <i>et al.</i> , 2006)		
	Desire to overlap between previous education and the pharmacy programme	(Davy <i>et al.</i> , 2006)		
	Recognition of prior learning			
	An impression from book, pamphlet, career day, movies, TV, and/or radio	(Smith <i>et al.</i> , 1974)		
	Influence of a particular vocational guidance counsellor, teacher, class, family, a person actively engaged in pharmacy			
	Previous experience in an occupation			
	Family pressures	(Roller, 1993)		
4. Personal	Close relationship of pharmacy to another vocation which	(Pratt, 1956)	Profession is competitive	To change the idea of pharmacy

development and fulfilment	could not be attained for some reason			[Perceptions and awareness of public towards pharmacy]
	Good preparation for graduate/medical school Unable to be admitted to the professional school of my choice	(Rascati, 1989)	Independence	Last on the list, Never thought in high school
	Entry requirements	(Lobb <i>et al.</i> , 2004)	Enjoyment	In medicine field, pharmacy is easier
	Having high grades but not knowing what else to do Study with high achievers	(Capstic <i>et al.</i> , 2007)	Continuing professional Development	
	Enjoy reading and writing	(Keshishian <i>et al.</i> , 2010)	Achievement	Higher education
	A-level subjects studied	(Booth <i>et al.</i> , 1985)	Job satisfaction	
	Studied the required "A" level subjects at school but didn't want to do pure science	(Rees, 1985)		
	Course access	(Ferguson <i>et al.</i> , 1986)		
	Offered major The abilities required of this major I will be able to assume a great deal of responsibility in my daily work Aptitude and interest tests Closest I could get to medicine Opportunity for advancement	(Smith <i>et al.</i> , 1974)		
	An entry-level of doctoral degree Perceiving a better chance of being accepted into pharmacy school than medical school Not wanting to pursue a post-graduate degree	(Keshishian, 2010)		
5. Work-life balance expectation	Work part-time Less long duration of school than doctor's	(Burlage, 1963)	Length of the degree	
	Desirable working conditions and hours Limited financial resources or time for schooling	(Pratt, 1956)	Migration possibilities	
	Ability to work part-time	(Rascati, 1989)	Mobility within countries	
	Flexibility of schedule, location Size of programme Difficulty of course work Length of programme (time to graduation/employment) Programme options (multiple tracks/majors)	(Lobb <i>et al.</i> , 2004)	Flexibility	

	Flexibility of curriculum			
	Graduating in a short period of time Having a flexible work schedule Flexible work hours Balancing personal life with a career Having opportunities for family/children Having time for leisure Less memorizing Less writing Course requirements	(Keshishian <i>et al.</i> , 2010)		
	Work flexible hours and the opportunity to work part time	(Jesson <i>et al.</i> , 2010)		
	Future part-time work	(Ferguson <i>et al.</i> , 1986)		
	Opportunity for part-time work Flexible working hours	(Wilson <i>et al.</i> , 2006)		
	Child care facility availability Workload in the pharmacy programme Option to study part-time in the pharmacy degree	(Davy <i>et al.</i> , 2006)		
	Chance to avoid or delay some less desirable experience No overwork after work Ease of varying hours and/or days More time with family than doctors Length of work Availability of part-time work Working conditions	(Smith <i>et al.</i> , 1974)		
	Opportunity for part-time work	(Roller, 1993)		
6. Future career opportunities	Job security	(Burlage, 1963)	Stability	Future
	Various career opportunities in pharmacy			
	Job security	(Rascati, 1989)	New opportunities	Solid career
	Wide variety of job opportunities			
	Availability of jobs Flexibility of career	(Lobb <i>et al.</i> , 2004)	Interest in business, management and sales	Practice and expand in more areas
	The desire to own their own business	(Capstic <i>et al.</i> , 2007)	Self-employment	Diverse opportunities in pharmacy field
	Running my own business Job security Current job market Having an engaging career	(Keshishian <i>et al.</i> , 2010)	Possibility to open a pharmacy	

	Good career opportunities Own their own business, wanting the opportunity self-employment Profession where you can always get a job	(Jesson <i>et al.</i> , 2010)		
	Employment prospects	(Booth <i>et al.</i> , 1985)		
	Career opportunities and job prospects Low unemployment in pharmacy	(Rees, 1985)		
	Future self-employment Security	(Ferguson <i>et al.</i> , 1986)		
	Variety of career options Job security	(Chisholm & Pritchard, 1995)		
	Opportunities to open a business	(Willis <i>et al.</i> , 2006)		
	Good career opportunities Own my own business Opportunity for self-employment Profession where you can always get a job	(Wilson <i>et al.</i> , 2006)		
	Future employment prospects Desire to own their own business	(Davy <i>et al.</i> , 2006)		
	Opportunity to do research Job availability Opportunity to own my own business Less discrimination in jobs Manage to get a good job Security of employment	(Smith <i>et al.</i> , 1974)		
	Many career opportunities	(Keshishian, 2010)		
	Opportunity for self-employment Meal ticket/security	(Roller, 1993)		
7. Professional and vocational career	Respect profession Being a part of medical profession	(Berger, 1988)	Working in a hospital	High status as a pharmacy, prestige
	Expectation of advancement in position and social prestige, or responsibility	(Pratt, 1956)	Working in industry	Prestige
	Respected occupation Desire a career in the health field	(Rascati, 1989)	Working in community pharmacy	Cleaner profession yet respectable
	Fringe benefits Career prestige Quality of faculty Reputation of programme	(Lobb <i>et al.</i> , 2004)	Working in different areas of pharmacy	

	Career in research High status University publicity	(Capstic <i>et al.</i> , 2007)	Interest in research and develop new medicines	
	Having a high reputation career Quality of instruction Reputation of major at school	(Keshishian <i>et al.</i> , 2010)	Prestige	
	Well respected profession Medical related profession and employment	(Jesson <i>et al.</i> , 2010)	Acceptance/respect	
	Profession allied to medicine	(Booth <i>et al.</i> , 1985)	Healthcare profession	
	Vocation preparation Status	(Ferguson <i>et al.</i> , 1986)		
	Reputation of the profession Respected profession	(Willis <i>et al.</i> , 2006)		
	Well respected profession Work with medicine or in the medical profession	(Wilson <i>et al.</i> , 2006)		
	The status of pharmacy degree Desire to work in the pharmaceutical industry Desire to work in a rural pharmacy Desire to work in a clinical setting	(Davy <i>et al.</i> , 2006)		
	Prestige Being a professional person Outstanding in community Being liked by people in community Prestige title of degree Preparation for specialisation	(Smith <i>et al.</i> , 1974)		
	Status Preparation for a vocation	(Roller, 1993)		
8. Financial and economic aspects	A desire to earn a high salary	(Burlage, 1963)	Salary rewards	Financial aspect
	Expectation of a substantial financial income and economic security Opportunity to fulfil one's financial needs immediately An agreeable opportunity which materialised unexpectedly	(Pratt, 1956)	Financial security	Economic first but not what interested in
	Opportunity to earn a high salary	(Rascati, 1989)		Good money
	Earning potential Financial aid	(Lobb <i>et al.</i> , 2004)		Economic status/Salary of pharmacist
	Receiving a high salary	(Capstic <i>et al.</i> , 2007)		Financial stability
	Making lots of money	(Keshishian <i>et al.</i> ,		

	Satisfying my material goals (own a home, nice cars, etc.)	2010)		
	Projected earnings			
	Salaries attainable	(Booth <i>et al.</i> , 1985)		
	Financial rewards	(Ferguson <i>et al.</i> , 1986)		
	Salary	(Chisholm & Pritchard, 1995)		
	Materialism	(Cline <i>et al.</i> , 1999)		
	Economic opportunity			
	Financial reward	(Willis <i>et al.</i> , 2006)		
	Financial rewards	(Wilson <i>et al.</i> , 2006)		
	The cost of studying	(Davy <i>et al.</i> , 2006)		
	Affords to continue higher education	(Smith <i>et al.</i> , 1974)		
	Limited financial resources for education			
	Potential income			
	Financial security			
	Financial rewards	(Roller, 1993)		

Furthermore, these eight categories were applied to the SDT with the extent of autonomy. Table 4.7 shows motivation styles from SDT and the emerged motivation categories in this report. The intrinsic motivation factor includes “interest in science” and “contribution to healthcare”. The rest of six categories were included in the extrinsic motivation. According to the extent of autonomy, they were allocated to four classes of the extrinsic motivations. The integrated regulation (the most autonomous form) is composed of “personal and family influences” and “personal development and fulfilment”. “Work-life balance expectation” and “future career opportunities” are categorised in the identification (the second most autonomous form). The injection (the second least autonomous form) includes “professional and vocational career”. Finally, the external regulation (the least autonomous form) includes “financial and economic aspects”.

Table 4.7: Motivation styles in self-determination theory and emerged motivation categories (adapted from Ryan and Deci, 2000)

Motivation Styles		Associated processes	Perceived locus of causality	Allocated motivation categories
Intrinsic motivation		Interest/Enjoyment Inherent satisfaction	Internal	1. Interest in science 2. Contribution to healthcare
Extrinsic motivation	Integration	Hierarchical synthesis of goals Congruence	Internal	3. Personal and family influences 4. Personal development and fulfilment
	Identification	Conscious valuing of activity Self-endorsement of goals	Somewhat internal	5. Work-life balance expectation 6. Future career opportunities
	Introjection	Ego involvement Focus on approval from self or others	Somewhat external	7. Professional and vocational career
	External regulation	Salience of extrinsic rewards or punishments Compliance/Reactance	External	8. Financial and economic aspects

Regarding the description in the common category list of the current SLEQ, it is important that the descriptions are neutralised to avoid bias or trying to get a good image from the others. The similar concern was expressed for the survey development by Pratt (1956). Hence, it is important to have a statement to encourage participants to answer honestly and to ensure the confidentiality of responses. For this project, the sample is much larger and is examined in a global context; therefore, the description was neutralised in the present questionnaire.

1. Interest in science

The “interest in science” factor has always been one of the main motivations of students to

choose pharmacy as their major, particularly in Asians (Keshishian *et al.*, 2010; Burlage, 1963; Pratt, 1956; Rascati, 1989; Capstic *et al.*, 2007; Jesson *et al.*, 2010; Ferguson *et al.*, 1986; Willis *et al.*, 2006; Wilson *et al.*, 2006; Smith *et al.*, 1974; Keshishian, 2010; Roller, 1993). The “interest in science” is categorised in the intrinsic motivation and described as the interest in, like of, and aptitude for science, biology, and math, for example. Students who had this motivation category are interested in, and appealed to pharmacy as a course of study or a subject area being intellectually satisfying.

The intrinsic motivation is one of the important determinants to lead students to a deep approach to learning according to Prat-Sala (2010). In addition, the deep approach to learning is likely to be a key skill to become a lifelong learner (Candy, 1991). However, while the interest in science is important for pharmacy students because it comprised a major part of pharmacy education curriculum (Keshishian *et al.*, 2010), Willis and colleagues (2006) discuss that a mismatch between career expectations in pharmacy and pharmacy professional practices might occur. It is because a social science understanding for patient-centred care is required in the realities of pharmacy practice as the focus of pharmacy workforce shifting away from product-oriented (i.e., pure science based) to patient-oriented (i.e, social science based) (Willis *et al.*, 2006).

2. Contribution to healthcare

The other intrinsic motivation is the “contribution to healthcare”. This category refers to a desire to help people, an interest in improving healthcare, and teamwork with other health professionals. A desire to help others as well as being socially useful have been highly endorsed as a motivation by pharmacy students in many studies (Burlage, 1963; Rascati, 1989; Capstic *et al.*, 2007; Keshishian *et al.*, 2010; Willis *et al.*, 2006; Smith *et al.*, 1974; Davy *et al.*, 2006; Keshishian, 2010; Rees, 1985; Jesson *et al.*, 2010; Ferguson *et al.*, 1986; Wilson *et al.*, 2006; Roller, 1993), and by students participants in the SLEQ 2010/11 and attendees in the IPSF workshop. These motivations were found stronger in female students than in male students in previous studies (Rascati, 1989; Capstic *et al.*, 2007; Keshishian, 2010).

3. Personal and family influence

The “personal and family influence” factor is categorised in the integrated regulation of the extrinsic motivation as the most autonomous form of the extrinsic motivation because the decision was made by a congruence with own goals with other people’s values and needs after their self-examination (Ryan & Deci, 2000). As a result of the literature search, previous survey and the workshop, this factor was described as influence from family, other relatives, personal

friends, college instructor/advisor, high school counsellor, role models pharmacists, or other healthcare professionals, personal experiences, and previous job experiences.

Several earlier researches report that the influences by certain people also affect their decisions to consider pharmacy as their major (Burlage, 1963; Pratt, 1956; Rascati, 1989; Lobb *et al.*, 2004; Capstic *et al.*, 2007; Anderson *et al.*, 2008; Keshishian *et al.*, 2010; Jesson *et al.*, 2010; Booth *et al.*, 1985; Rees, 1985; Ferguson *et al.*, 1986; Chisholm & Pritchard, 1995; Willis *et al.*, 2006; Wilson *et al.*, 2006; Davy *et al.*, 2006; Smith *et al.*, 1974; Roller, 1993). According to the UK study by Willis and colleagues (2006), this category, particularly the influence by family, affected ethnic minority females' decision to study pharmacy with 7.7% of them compared with 1.7% of white females. Another UK study by Booth and colleagues (1984) pointed out the importance of influences by pharmacy practitioners as role models with the evidence that 73% of candidates had consulted a pharmacy practitioner mainly in the community sector. According to Wilson *et al.* (2006), this role model pharmacist is likely to have a certain influence more on Asian students than on white students (Chi, p , at least, <0.01).

In addition, studies above also found that previous work experiences influence students to choose pharmacy as their major. When it comes to a comparison between pharmacy and non-pharmacy students, a significant difference in their previous work experience in pharmacy was found ($p < 0.05$, 30.7% of pharmacy students and 0.9% of non-pharmacy students)(Lobb *et al.*, 2004). Influences from previous work experiences in pharmacy are likely to relate to those from role model pharmacy practitioner mentioned above. During their work at a pharmacy, students have seen pharmacy practitioners and probably perceived its value of the role of pharmacy practitioners embodying pharmaceutical care concepts.

As well as influences from certain people and previous work experiences, earlier survey (SLEQ 2010/11) and researches identified that previous higher education and personal experiences affected students to select pharmacy (Lobb *et al.*, 2004; Keshishian *et al.*, 2010; Davy *et al.*, 2006). The surveys conducted by Lobb and colleagues (2004) in the USA identified the greater number of pharmacy students had a previous higher education (either two- or four-year) compared to non-pharmacy students (64.9% of pharmacy students and 21.6% of non-pharmacy students). Previous survey (SLEQ 2010/11) found that personal experiences such as suffering or death from chronic illness had influenced their choice to study pharmacy.

4. Personal development and fulfilment

The “personal development and fulfilment” is another factor of the integrated regulation in the extrinsic motivation. This categorisation is because their major was decided by this factor for its presumed helpful value with a certain degree of some separate outcomes as personal development and fulfilment (Ryan & Deci, 2000). In this project, this factor refers to being independent, continuing professional development, job satisfaction, achievement in life, and fulfilment to enter higher education.

Previous studies identified that many students choose pharmacy to study because of entry requirements of school (e.g., A-level subjects studied, entry-level doctoral degree, offered major, better chance to be admitted than medical schools), or because pharmacy is close to another vocation which could not be achieved for some reason (Pratt, 1956; Rascati, 1989; Lobb *et al.*, 2004; Capstic *et al.*, 2007; Booth *et al.*, 1985; Rees, 1985; Ferguson *et al.*, 1986; Smith *et al.*, 1974; Keshishian, 2010).

The USA study conducted by Keshishian (2010) identified the difference in ethnicity for the choice of pharmacy as their major, finding that Caucasian/white students tended to choose pharmacy practically because it is entry-level doctoral degree. Hypothetically, the similar difference might be seen in this project at a country level.

In addition, students’ responses from previous SLEQ survey 2010/11 were incorporated into this category, which are a competitive profession, independence, enjoyment, continuing professional development, achievement, rewarding, and job satisfaction. This is probably affected by the characteristics of students who attended the congress or global pharmaceutical students’ events. The previous survey was also distributed through the IPSF and advertised mostly at the IPSF congress or events. The workshop was also conducted at the IPSF world congress. Those students who joined these activities are likely to desire their own development and fulfilment. Further, continuing professional development in the additional category is one of the most important aspects of competencies in pharmacy practice. This category will be a crucial indicator to compare with their learning experiences and approaches to learning.

5. Work-life balance expectation

The “work-life balance expectation” is categorised in the identification of the extrinsic motivation in the SDT. Students decided to choose pharmacy as their major motivated by this factor through own identification of the importance of the balance between work and personal life and accepted its regulation as their own (Ryan & Deci, 2000). This factor in this project was described as balancing a personal and family life with a career, flexibility of work

situations in pharmacy, and workload expectation in pharmacy school. These determinants in this factor were found in previous SLEQ survey 2010/11 and several studies (Burlage, 1963; Pratt, 1956; Rascati, 1989; Lobb *et al.*, 2004; Keshishian *et al.*, 2010; Jesson *et al.*, 2010; Ferguson *et al.*, 1986; Wilson *et al.*, 2006; Davy *et al.*, 2006; Smith *et al.*, 1974; Roller, 1993).

This category has been particularly chosen by more female students than by male students, focusing on balancing a personal and family life with their career (Jesson *et al.*, 2010; Willis *et al.*, 2006; Wilson *et al.*, 2006). This finding probably needs to be considered with pharmacy workforce issue. Some countries have faced feminisation in pharmacy workforce (Rascati, 1989; Wilson *et al.*, 2006). This phenomenon influenced the career patterns and manpower estimates because female students tend to choose pharmacy where they manage to balance career with family responsibility.

In addition, the expected workload in pharmacy school is also included in this factor because those students choose this factor to study pharmacy inclined to make a good balance of personal and student life. Further, previous SLEQ survey 2010/11 identified that students have an idea of migration between countries and mobility within countries. These relate to the flexibility of working situation.

6. Future career opportunities

The “future career opportunities” is categorised in the identification of the extrinsic motivation as well as the “work-life balance expectation”. Like the “work-life balance expectation”, students who choose this factor identified the importance of opportunities for pharmacy career in the future and regulated its value as their own (Ryan & Deci, 2000). This factor in this project refers to job security, a variety of career opportunities, and desire to own their own business.

Several studies reported that future career opportunities was a decision driver to choose pharmacy as their major (Pratt, 1956; Rascati, 1989; Lobb *et al.*, 2004; Ferguson *et al.*, 1986; Smith *et al.*, 1974; Cline *et al.*, 1999; Burlage, 1963; Capstic *et al.*, 2007; Keshishian *et al.*, 2010; Jesson *et al.*, 2010; Booth *et al.*, 1985; Rees, 1985; Chisholm & Pritchard, 1995; Willis *et al.*, 2006; Wilson *et al.*, 2006; Davy *et al.*, 2006; Keshishian, 2010; Roller, 1993), particularly among Caucasian/white in the USA study (Keshishian, 2010). Similar findings were seen in previous SLEQ survey 2010/11 and the IPSF workshop. Davy *et al.* (2006) identified students who have already undertaken a previous degree in higher education inclined to choose pharmacy to study with this motivation.

Although their prospect of low unemployment in pharmacy has been a major reason for their choice of pharmacy to study, some issues on their decisions might arise when the job market is saturated in their countries. There could be an interesting relationship between the workforce strategies, perceived learning experiences and this motivation factor to examine.

In addition, owning their own business, wanting the opportunity for self-employment is included in this category as one of career opportunities in their future. This desire to own their own business influenced a large proportion of male students in the UK, Canada, USA, and Australia (Jesson *et al.*, 2010; Ferguson *et al.*, 1986; Wilson *et al.*, 2006). However, a similar question might arise like future job prospects above. There is a decrease in a traditional entrepreneurial facet of community pharmacy; thus, students choose pharmacy with this factor could have dissatisfaction over the future potential source of a career in pharmacy field (Willis *et al.*, 2006; Ferguson *et al.*, 1986).

7. Professional and vocational career

This “professional and vocational career” factor is grouped into the second less autonomous form of the extrinsic motivation, the introjected regulation in the STD (Ryan & Deci, 2000). Action motivated by this type of regulation is for attaining ego-enhancements or pride through regulation controlled by self-esteem (Ryan & Deci, 2000). This factor in this project was described as social prestige, respected profession, and professional status.

The factor having a professional and vocational career is concerning career characteristics including status of the career and qualification and had a certain influence on pharmacy students for the choice of major (Lobb *et al.*, 2004; Burlage, 1963; Pratt, 1956; Rascati, 1989; Capstic *et al.*, 2007; Keshishian *et al.*, 2010; Jesson *et al.*, 2010; Booth *et al.*, 1985; Ferguson *et al.*, 1986; Willis *et al.*, 2006; Wilson *et al.*, 2006; Davy *et al.*, 2006; Smith *et al.*, 1974; Roller, 1993). More ethnic minority males were influenced by this category, such as respected profession (Willis *et al.*, 2006).

8. Financial and economic aspects

The “financial and economic aspects” is a factor categorised into the least form of the extrinsic motivation, the external regulation. Students who selected this motivation factor chose pharmacy as their major in order to fulfil an external demand or to attain possible reward externally (Ryan & Deci, 2000). This factor in this project refers to opportunities for earning a good salary and material rewards.

Many pharmacy students decided to study pharmacy because they presumed that it would bring them financial and material success (Burlage, 1963; Pratt, 1956; Rascati, 1989; Keshishian *et al.*, 2010; Capstic *et al.*, 2007; Lobb *et al.*, 2004; Ferguson *et al.*, 1986; Booth *et al.*, 1985; Wilson *et al.*, 2006; Willis *et al.*, 2006; Davy *et al.*, 2006; Cline *et al.*, 1999; Chisholm & Pritchard, 1995; Roller, 1993; Smith *et al.*, 1974). Previous SLEQ survey 2010/11 and the IPSF workshop identified similar findings. A study conducted between Australia, Canada, and USA by Ferguson and colleagues (1986) reported no gender differences in this factor.

Cline *et al.* (1999) and Keshishian (2010) argue almost the same point about understandings of pharmacy students on patient-centred philosophy and pharmaceutical care. They consider that pharmacy students should place the welfare of patients before financial and material incentives.

Throughout results from the IPSF workshop, previous SLEQ survey 2010/11, and the literature review, the neutralised description of categories for the current research project was decided (Table 4.8). This final version of the motivation list was labelled as the motivation list (4) in Figure 4.2, which was embedded in a demographic part of the main survey, asking three motivations that are the most suitable for the respondent.

Table 4.8: Motivation list (4) – final version of a common category list and description for the FIPed–IPSF SLEQ

Category	Description
1. Interest in science	Interest in, like of, and aptitude for science, biology, and math, for example
2. Contribution to healthcare	Desire to help people; and interest in healthcare and in teamwork with other health professionals
3. Personal and family influences	Influence from family, other relatives, personal friends, college instructor/advisor, high school counsellor, role models pharmacists, or other healthcare professionals; personal experiences; and previous job experiences
4. Personal development and fulfilment	Being independent; continuing professional development; job satisfaction; achievement in life; and fulfilment to enter higher education
5. Work-life balance expectation	Balancing a personal and family life with a career; flexibility of work situations in pharmacy; and workload expectation in pharmacy school
6. Future career opportunities	Job security; variety of career opportunities; and a desire to own their own business
7. Professional and vocational career	Social prestige; respected profession; and professional status
8. Financial and economic aspects	Opportunities for earning a good salary and material rewards

4.4.1.5 Main outcomes

From the literature search, evidence from the previous global SLEQ survey 2010/11 and the workshop at the IPSF world congress, eight common categories emerged, named as “interest in science”, “contribution to healthcare”, “personal and family influences”, “personal development and fulfilment”, “work-life balance expectation”, “future career opportunities”, “professional and vocational career”, and “financial and economic aspects”.

These eight categories can be divided into two broad dimensions, which are the intrinsic and the extrinsic motivations. Furthermore, the extrinsic motivations were divided into four sub-classes according to the SDT (Deci & Ryan, 1985) considering these categories as a continuum process from the extrinsic to the intrinsic motivation. Finally, the eight emerged categories were classified as in Table 4.8.

Many studies found that there are significant relationships between ethnicity/gender and these motivations as mentioned in the result part above. Prat-Sala and Redford (2010) reported the relationship between motivations and students’ approaches to learning. From the previous evidence, it is hypothesised that a certain relationship could exist between ethnicity, gender, motivations, students’ learning experiences, and their learning quality. Therefore, it is presumed that these motivation categories classified with the SDT will help to identify better evidence of relationship among motivations, students learning experiences and approaches to learning in IPPE.

4.4.1.6 Biases and limitations

Sampling representation can be limited in this project because pharmacy students participated in the workshop tend to have higher motivations to the profession as they attend the international professional conference. Thus, their attitudes and motivations towards studying pharmacy may differ compared to those who did not attend the workshop. These possible differences were corroborated as much as possible by adding the results from the previous study and literature review.

4.4.2 Stage 2: Pilot study

This phase will describe the detailed information of the methods used for the pilot study. It is essential to pilot a survey in order to make sure that questions operate well and that the data-gathering instrument function well by looking at the reliability, validity, and practicability of the instrument (Bryman, 2012; Cohen *et al.*, 2011).

The SLEQ uses a questionnaire adapted from the full version of the Course Experience Questionnaire (CEQ; Wilson *et al.*, 1997) and the Shortened Study Process Questionnaire (S-SPQ; Fox *et al.*, 2001) to collect measures of educational experiences and approaches to learning of pharmacy students across nations. These questions were asked together with demographic and personal questions to examine correlations with variables from the CEQ and the S-SPQ.

The CEQ part contains 37 items grouped into six scales; 8 items in the 'Good Teaching' scale (e.g., the teachers of this degree motivate students to do their best work), 5 items in the 'Clear Goals and Standards' scale (e.g., it is always easy to know the standard work expected for the degree), 5 items in the 'Appropriate Workload' scale (e.g., the workload is too heavy), 6 items in the 'Appropriate Assessment' scale (e.g., teachers here frequently give the impression they have nothing to learn from the students), 6 items in the 'Emphasis on Independence' scale (e.g., the degree has encouraged me to develop my own academic interests as far as possible), 6 items in the 'Generic Skills' scale (e.g., this degree has helped me to develop my problem-solving skills), and 1 item in the 'Overall Satisfaction' scale (i.e., overall, I am satisfied with the quality of this degree). Items included in the CEQ were scored by respondents on a five-point Likert scale ranging from 'strongly agree' to 'strongly disagree'. The wording of the items was changed slightly to make the cross-cultural use easier and was finalised with the FIP Collaborating Centre research team.

The S-SPQ contains 18 items and grouped into three dimensions; 'surface approach', 'deep approach', and 'achieving approach'. Each approach has two subscales; 'motive' and 'strategy'. Each of the six subscales has 3 items. Originally, each item was given five points scale; 'rarely true', 'sometimes true', 'true half the time', 'frequently true', and 'usually true' (Fox *et al.*, 2001). In order for participants to avoid confusion about scales between the CEQ and S-SPQ, the scale of the SPQ was integrated to five points Likert scale as those of the CEQ. The suitability of responses by five points Likert scales to the S-SPQ items was confirmed and finalised in the FIP Collaborating Centre research team. Two previously developed questionnaires were re-worded in some questions to ease the students' understanding in global contexts.

The demographic part in this questionnaire has 15 items which previously developed, self-completed, anonymous questionnaire online entitled 'The Student Learning Experience Questionnaire' (Bruno, 2011) which primarily focused on measurement of pharmacy students' learning experiences. A question asking about the motivation to study pharmacy was added using a closed question format, instead of an open question format like the previous survey (Bruno, 2011).

4.4.2.1 Aim and objectives

This pilot study of the Student Learning Experience Survey instrument aimed to assess the practicability and credibility of the data-gathering instrument used for this project.

The objectives were:

- To check the clarity and simplicity in the wording and formatting of the instrument and obtain feedback on it to further amend; and
- To ascertain the credibility of the instrument.

4.4.2.2 Methods

This pilot study involved two steps to fulfil aim and objectives raised above. First of all, the study focused on the wording and formatting of the instrument that first developed for this project. Secondly, the study involves the confirmation of the contents of the instrument for this project with some representatives of pharmacy students globally and statistical analysis of reliability and validity of the tool to be used in confidence.

4.4.2.2.1 The wording and formatting of the questionnaire

Focusing on the wording and formatting, the used questionnaire here targeted only at the items which had low reliability in the previous survey or adopted additionally as well as its associated questions with the above due to the limited time allocation. Selected items were: gender; gender influence on the decision to study pharmacy; ranking motivation categories for wanting to be a pharmacist; the CEQ questions 1, 2, and 3. Used motivation list was the list (1), which was the one reworded and altered the format for a ranking question (Figure 4.2).

By applying the convenient sampling approach, overseas postgraduate students who then attended Master of Science in Clinical Pharmacy, International Practice and Policy at the UCL School of Pharmacy, were approached to give feedback on the provided paper-based questionnaire. Explaining the research purpose and time to spend with students, the course director was approached to permit the researcher to have time with students in the course. The researcher was allowed to have a short session with students using a short time in the beginning of the lecture on 4th July 2012.

Collected feedback was summarised in the Microsoft Office Excel 2010 spreadsheet to be used for further amendment. According to the suggestions made, the wording and formatting were altered, which then finalised and agreed among the research team members in the FIP Collaborating Centre to be used for the final online study (chapter 5).

4.4.2.2.2 *The confirmation of the contents of the questionnaire*

In order to ascertain the contents of the questionnaire, convenience sampling approach was used for the study aiming to sample the largest group of pharmacy students with wide range of global backgrounds. pharmacy students who attended either of two world- or regional conferences supported by the IPSF were surveyed: the 11th Asia Pacific Pharmaceutical Symposium (APPS) in Taiwan (3rd July 2012 – 9th July 2012) or the 58th IPSF World Congress in Egypt (1st August 2012 – 11th August 2012). Paper-based anonymous questionnaire in English was used in the study. Among all pharmacy students who met inclusion criteria at these two conferences, pharmacy students who agreed with participating in this pilot study and who completed the questionnaire were included.

Collected data were collated into the Microsoft Office Excel 2010 spreadsheet. The data in the Excel spreadsheet were cleaned and checked for errors before analysis. The cleaned data was then entered in the Statistical Package for Social Science (SPSS) version 21 for the analysis. The accuracy of the data entry was checked by randomly selecting 4% of the cases with the use of the SPSS electronic function of random selection. Each variable in the selected cases was cross-checked with the actual paper-based questionnaire to ensure that the error rate was within the acceptable limits.

Descriptive analysis was used on the demographic data for presenting the type of respondents and background generally. The responses of the five-point Likert scales in the questionnaire were given a numerical value (5=strongly agree, 4=agree, 3=neither agree nor disagree, 2=disagree, and 1=strongly disagree). Following the scoring by Wilson *et al.* (1997), 15 of the negative-posed CEQ questions (questions 3, 5, 7, 10, 14, 17, 18, 24, 26, 27, 29, 31, 32, 34, and 36) were scored in the opposite direction. Therefore, these fifteen questions were electronically re-recorded to positive using the SPSS function for enabling them to be grouped in the respective factors and analysed later.

Reliability was tested by using Cronbach's coefficient alpha for assessing the internal consistency.

4.4.2.3 Results

4.4.2.3.1 *The wording and formatting of the questionnaire*

Nine postgraduate students who attended Master of Science in Clinical Pharmacy, International Practice and Policy on 4th July 2012 were approached to provide any feedback on the part of the questionnaire that had amended from the previous survey. All respondents were female who have graduated from undergraduate pharmacy education in their home countries before the Master course.

Their feedback and its subsequent amendments are summarised in Table 4.9. In the demographic questions, some amendments were suggested to the question regarding the gender influences on their decisions to study pharmacy. In addition, the form of a question on the motivation categories to study pharmacy was recommended to change from ranking to simple selection because given feedback expressed the complexity in the question.

In the students' experience measurement part of the questionnaire, only first three questions, from 1 to 3, were asked to give any feedback. The selection of these questions was to evaluate the flow between the questions from the beginning to the question 3, and the understanding of the question 3 for attempting to reword the question to keep the reliability of the question. It is because Bruno (2011) experienced low reliability in the question 3 of the CEQ, which caused to removal from the scale grouping and analysis.

Table 4.9: Feedback and its subsequent amendments in phase 1 pilot study

	First draft	Feedback	Amendment
Demographic part			
Gender influence	Please answer a) or b) according to your gender. a) Have being a FEMALE influenced on my decision to study pharmacy? <input type="checkbox"/> Yes <input type="checkbox"/> No b) Have being a MALE influenced on my decision to study pharmacy? <input type="checkbox"/> Yes <input type="checkbox"/> No	<ul style="list-style-type: none"> • Have → Has • Influenced on my decision → influenced your decision • It may confuse the selection of the question between a) and b) 	Has gender influenced your decision to study pharmacy? <input type="checkbox"/> Positive influence <input type="checkbox"/> Negative influence <input type="checkbox"/> Not influence
Motivation categories	Rank your three motivations for wanting to be a pharmacist (please choose three categories that are the most suitable for your motivation, and tick them with your own ranking accordingly).	<ul style="list-style-type: none"> • Two questions included (choose three motivations AND rank them) • 'the most suitable for your motivation' → 'best represent your motivations' • Not clear how to answer • The list in the example is exhaustive. It might be better just to mention some. 	Please choose three categories which best represent your motivations to study pharmacy. <i>[Ranking was removed]</i>
Students' experience measurement part			
CEQ question 3	There are NOT many opportunities (in terms of fields of study) to choose particular areas to study.	<ul style="list-style-type: none"> • Not clear in pharmacy context 	There are NOT many opportunities (in terms of optional subjects / elective courses) to choose particular areas to study.

4.4.2.3.2 *The confirmation of the contents of the questionnaire*

562 pharmacy students from 46 countries responded in this phase of the pilot study. Table 4.10 shows the countries where participants study the pharmacy degree categorised by the WHO region.

Table 4.10: Respondent by WHO region

WHO region	Sample response	Sample %
Africa	33	5.9
Americas	55	9.8
Eastern Mediterranean	56	10.0
Western Pacific	209	37.2
South East Asia	69	12.3
Europe	140	24.7
Total	562	100.0

Of the 562 respondents, 374 (66.5%) were female. The mean age of participants was 22.17 years with 98.2% of the sample ranging from 18 to 49 years old. Among 98.8% of the sample with usable answers, years of study varied from year 1 to 6 and internship/pre-registration (5.8%, 15.3%, 25.0%, 28.6%, 16.6%, 5.0%, and 3.6%, respectively).

From 98.4% of the sample, a majority of students (n = 491, 87.4%) did not hold a previous degree, and approximately two thirds of 559 participants did not have a part-time job while they are studying pharmacy.

Of 98.8% of the participants, 230 students (40.9%) had always wanted to be a pharmacist before entering university. 417 students (74.2%) of 98.9% of the sample denied the influence of their gender on the decision to study pharmacy. 346 students (61.6%) of 97.9% of the sample agreed that they were encouraged by their family to study pharmacy while 201 students (35.8%) of the 99.3% of the sample had any family member or close friend who is a pharmacist.

Of 88.3% of the sample, 168 students (33.9%) would most like to work in hospital pharmacy, followed by industry/wholesale/marketing (n = 148, 29.8%), community pharmacy (n = 69, 13.9%), academic and research (n = 61, 12.3%), other pharmacy-related work (n = 40, 8.1%), and non-pharmacy related profession (n = 10, 2.0%).

The questionnaire included two instruments: the CEQ (Wilson *et al.*, 1997) measuring students' learning experiences and the S-SPQ (Fox *et al.*, 2001) measuring the SAL. The CEQ is composed of six scales including the 'Good Teaching', 'Clear Goals', and 'Generic Skills', 'Appropriate Assessment', 'Appropriate Workload', and 'Emphasis on Independence'. The S-SPQ is formed of three approaches including 'Surface Approach', 'Deep Approach', and 'Achieving Approach'. The distribution of data in these scale factors of the CEQ and S-SPQ were examined by the histograms in Figure 4.3 and Figure 4.4, considering that all scales of the questionnaire used were normally distributed and it was assumed that parametric tests would be robust enough.

Figure 4.3: Histograms representing the six scales of the CEQ

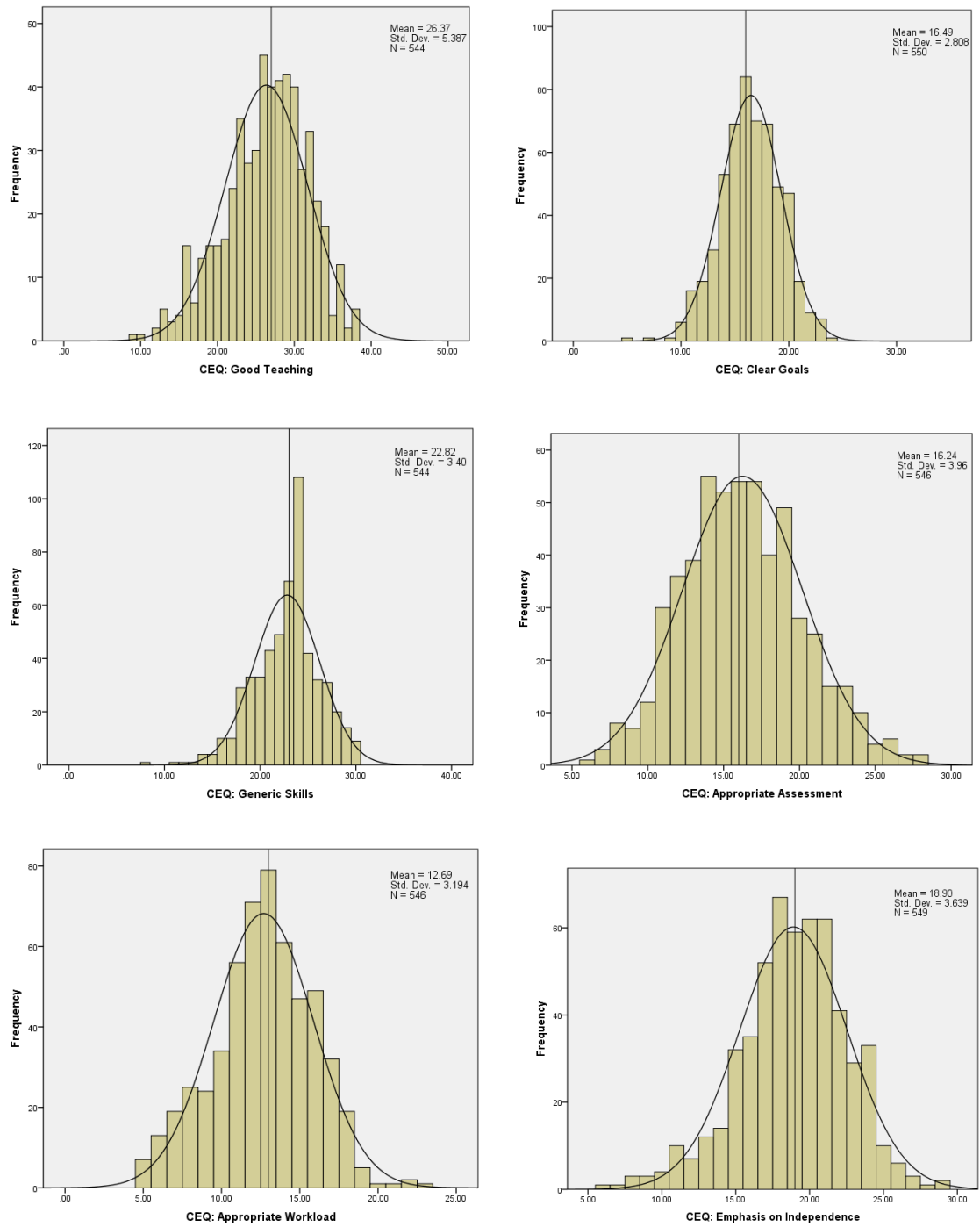
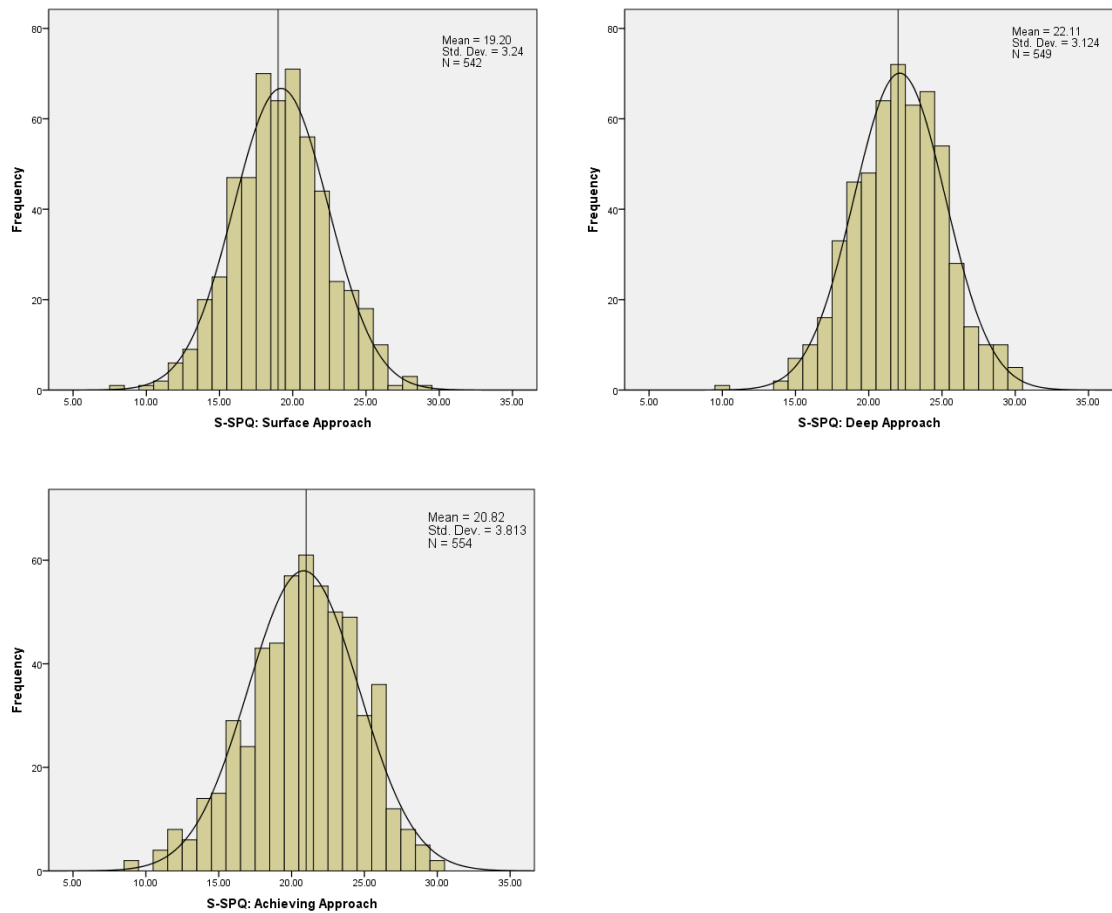


Figure 4.4: Histograms representing the three scales of the S-SPQ



Internal consistency was assessed by testing Cronbach's coefficient alpha (Table 4.11). Cronbach's alpha indicated moderate to high levels of reliability of scales, ranging from 0.50 to 0.84. However, some questions (the CEQ question 3, 10, 31, and the S-SPQ question 16) had low internal consistency with reducing the coefficient alpha.

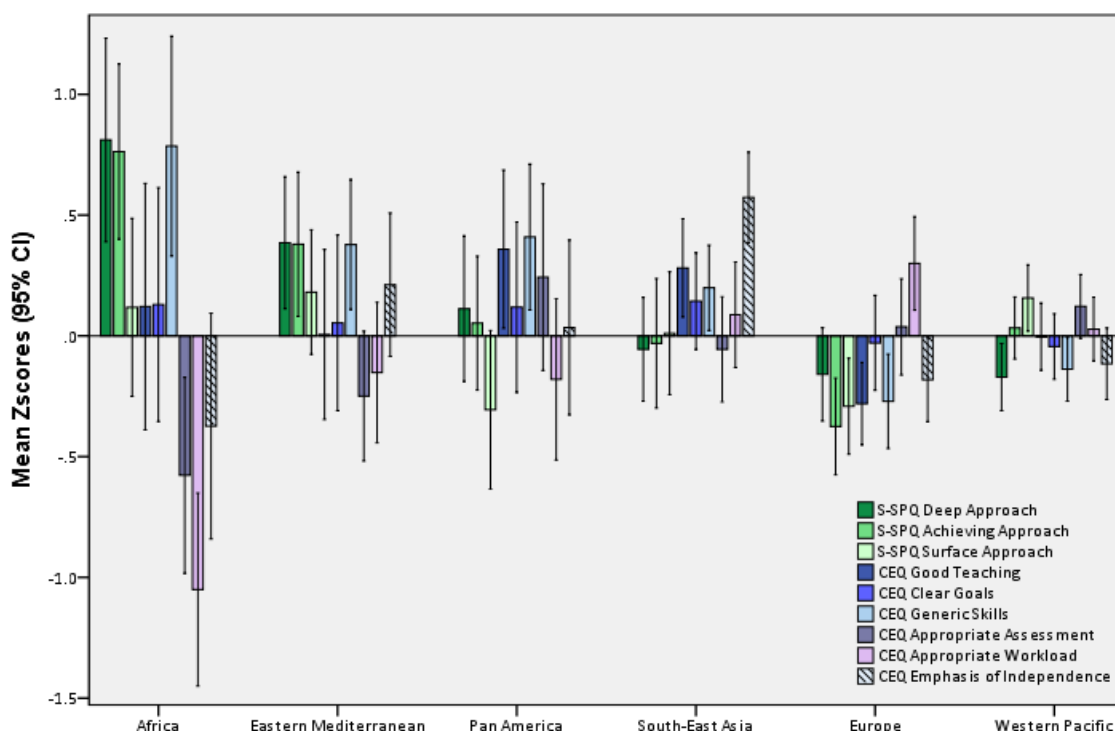
One-way ANOVA (F, P in Table 4.11) showed significant variance between the WHO regions in all the CEQ scales except for the 'Clear Goals' ($p = 0.457$) and 'Deep Approach' scale had a weak but significant variance ($p < 0.002$) as well as the other S-SPQ scales are significantly different ($p < 0.0001$).

Table 4.11: Variance in reliability and p value of the CEQ and S-SPQ scales

Scale	Number of items	Cronbach's alpha	F	P
CEQ Good Teaching	8	0.837 (if Q31 deleted: 0.845)	5.186	<0.0001
CEQ Clear Goals	5	0.544	0.937	=0.457
CEQ Generic Skills	6	0.764	9.663	<0.0001
CEQ Appropriate Assessment	6	0.618 (if Q10 deleted: 0.619)	4.255	<0.001
CEQ Appropriate Workload	5	0.630	9.892	<0.0001
CEQ Emphasis of independence	6	0.631 (if Q3 deleted: 0.648)	7.520	<0.0001
S-SPQ Deep Approach	6	0.620	7.383	<0.002
S-SPQ Achieving Approach	6	0.655	7.994	<0.0001
S-SPQ Surface Approach	6	0.504 (if Q53 deleted: 0.522)	10.366	<0.0001

The nine scales of the CEQ and S-SPQ were standardised as Z scores and the mean was compared to the WHO regions (Figure 4.5). Regarding the students' learning experiences, the Pan America students tend to have better experiences as opposed to the European students. There were strong correlations between specific the CEQ scales (the 'Good Teaching', 'Clear Goals', 'Generic Skills', and 'Emphasis on Independence') with the 'Deep Approach' (Pearson's $r = .331, .210, .450, \text{ and } .302$, respectively, and all $p < 0.0001$).

Figure 4.5: Comparison of Z scores (mean) of the six CEQ scales and the three S-SPQ scales between WHO regions (Error bars: 95% CI)



4.4.2.4 Main outcomes

With this pilot study, some wording issues were identified. The identified points were amended for the original web survey (chapter 4, 4.5).

Regarding the credibility evaluation, the paper-based questionnaire was used within 562 international pharmacy students. Tested Cronbach's coefficient alpha results indicated moderate to high levels of reliability of the CEQ and S-SPQ scales, though some problematic questions were also identified. It may be due to some problems of understanding of English questionnaire by non-native students because this pilot study was conducted only in English.

This study also revealed that the specific CEQ scales strongly correlated with the Deep Approach scale of the S-SPQ. It can interpret that there may be some specific quality attributes of IPPE which students perceived significantly.

4.4.2.5 Biases and limitations

The limitation of the sample representation and a bias on the opinions from the students should be noted. Participants in this pilot study did not necessarily represent all the opinions from the specific countries and may have different opinions as those who attend pharmacy related conferences tend to show more enthusiasm for the profession compared to non-attendees.

There is a possibility that the internal consistency was influenced by the language problems of non-English speakers to understand the meaning of questions. To conquer this problem, use more plain wording and clear explanation as well as translated versions of the questionnaire were employed for the original web survey (chapter 4, 4.5).

To assure the credibility of the instrument, the sample numbers are small. Thus, credibility will be assessed once again in the original web survey (chapter 4, 4.5).

4.5 Discussion and summary of the chapter

This chapter described the methods used for developing the questionnaire of the Student Learning Experience Survey (chapter 5) and outcomes of the development project. The process of the development included the instrument selection (chapter 4, phase 1) and the questionnaire development (chapter 4, phase 2).

By conducting literature reviews for the instrument selection (phase 1), the shortened Study

Process Questionnaire (S-SPQ; Fox *et al.*, 2001) to measure the SAL and the full version of the Course Experience Questionnaire (CEQ; Wilson *et al.*, 1997) to measure students' learning experiences were selected for the Student Learning Experience Survey.

The S-SPQ was chosen because it was developed for a research use to identify students' typical approaches to learning, focusing on the students as a group in a degree programme. On the contrary, the other identified instruments focus on individual students in order to identify their weak learning skills. The S-SPQ holds three dimensions of the SAL, including 'Achieving Approach'. This scale is likely to be important for pharmacy programmes as Kostrzewski and Dhillon (1997) found that the 'Achieving Approach' became higher when the 'Deep Approach' was high. In addition, the shortened version makes the administration with the other questionnaire easier in terms of response rate due to the time required for a response.

The full version of the CEQ was selected because it is the only version that includes the important scales for IPPE. 'Generic Skills' scale is crucial in the questionnaire in order to identify the quality attributes of IPPE as it is consistent with requisite competencies that pharmacy workforce needs to obtain through IPPE. Furthermore, the 'Emphasis on Independence' scale should be included in the questionnaire as it helps to evaluate the situational factors of IPPE for preparing pharmacy workforce for self-directed lifelong learners.

The questionnaire development phase (phase 2) included two stages: (1) the development of a motivation list to study pharmacy, and (2) pilot study. To develop a globally common motivation list for studying pharmacy, a workshop was conducted to collate motivations that IPPE students experienced globally. In addition, a literature review was conducted to finalise the list for the main questionnaire. The final version of the motivation list included eight motivation categories, which were embedded into the questionnaire for the main study (chapter 5) as part of the demographic questions. The pilot study focused on the wording and formatting of the questionnaire as well as the contents of the questionnaire. The wording and formatting were amended for the use in the main study (chapter 5) according to suggestions by postgraduate students who have a wide range of country backgrounds. The contents of the questionnaire were confirmed by a pilot study using a draft version of the questionnaire at the International Pharmacy Students Conferences. The findings showed that some questions in the CEQ and S-SPQ reduced the reliability of the scales. However, the questions were kept in the main study with some re-wording because it may be due to the language problems as it was conducted only in English.

Limitations need to be noted about the sample representation and language barrier. Thus, in the

main study, these limitations were reflected on a sampling method and the language versions of the questionnaire.

Chapter 5: Online Student Learning Experience Survey

5.1 Introduction to the chapter

This chapter will describe the methods used for the Online Student Learning Experience Survey in detail, and findings from the study. This survey sought to investigate the students' perceptions of learning environments and their approaches to learning in IPPE as the proxy indicators of the quality of IPPE, following the research questions proposed in chapter 2, 2.1.2, i, ii, iii and iv:

- i. How do initial professional pharmacy students experience current IPPE practice globally?
- ii. How do the students' learning experiences and their approaches to learning in their IPPE vary across nations?
- iii. What are personal and situational factors that influence students' adoption of a deep approach to learning?
- iv. To what extent do personal and situational factors affect the deep approach adoption by pharmacy students?

The online survey was placed as the main study of the Student Learning Experience Survey, designed as the phase 3 of the project exploring the students' aspects of the quality of IPPE globally (Figure 2.1). The online student learning experience survey entitled "2013/14 FIPed-IPSF Student Learning Experience Questionnaire" (SLEQ), was undertaken in collaboration with the FIPed and IPSF. For achieving high quality IPPE globally, findings of the SLEQ can assist the development of global pharmacy education policy recommendations.

5.2 Aim and objectives

The SLEQ aimed to collect the data providing a key marker of the quality of current IPPE practices globally for assisting the development of the international strategy for high quality IPPE across nations.

The objectives were:

- To survey global patterns of the students' learning experiences in IPPE across nations;
- To measure and map the quality of students' approaches to learning in IPPE globally; and

- To explore common personal and situational factors affecting student's adoption of the deep approach to learning in IPPE degree.

5.3 Methods

A cross-sectional, anonymous, self-completed web survey was used to fulfil the aim and the objectives addressed above. The questionnaire used for this survey was adapted from the CEQ (Wilson *et al.*, 1997) and S-SPQ (Fox *et al.*, 2001) with 15 items of personal demographic questions. The used questionnaire was developed, piloted and altered as described in chapter 4.

The details of methods and its process applied for this stage of the Student Learning Experience Survey will be described below.

5.3.1 Translated versions of questionnaire

In order for non-English-native students worldwide to participate this study, the original questionnaire in English was translated into 6 different languages including Arabic, French, Japanese, Mandarin-Chinese, Portuguese, and Spanish with forward-back translation process to keep the validity of the questionnaire (Costa *et al.*, 2007).

Each forward and back translation from English to targeted language was developed by two voluntary translators, who are native in the targeted language and fluent in English. One independent translator translated the original English questionnaire into the targeted language, and the other back-translated into English and reviewed for the final version of the translated questionnaire to be used. Each forward-back translation of the questionnaire can be found in Appendix 2 - Appendix 7.

5.3.2 Development of online questionnaire

To reach pharmacy students across nations, the online questionnaire was created with the DreamWeaver CS5.0 programme, and entitled as "2013/14 FIPeD-IPSF Student Learning Experience Questionnaire", which can be found at http://www.codegnet.org.uk/moll_2013/. The images of the online questionnaire were in Appendix 8. This on-line link leads students to the cover page to introduce the brief background and purpose of the survey. The cover page enables participants to select the language version that best suit each. Non-English versions have translated explanation of background and purpose of the survey from the English cover page was again on the targeted language version of the questionnaire page in order to ensure that participants understand the purpose of the survey.

All questions were made as mandatory questions, except for a question about faculty where the respondent studied in the demographic part of the questionnaire. For example, when the participant submits without answering questions, alerts come up to ask them to fill in the specific parts before submission.

In order to analyse the data in statistical ways, the responses of the five points Likert scale were given a numerical value at the beginning of the programming with the DreamWeaver (5=strongly agree, 4=agree, 3=neither agree nor disagree, 2=disagree, 1=strongly disagree).

5.3.3 Sampling

A snowballing sampling technique was used in this cross-sectional survey through the IPSF in order to reach general pharmacy students across nations. The sampling frame does not exist and there is no information on the exact number of pharmacy students all over the world; hence, the snowballing technique was appropriate with the broad network of the IPSF.

The IPSF was established by eight pharmacy student associations in London in 1949. The IPSF now represents approximately 350,000 pharmacy students and recent graduates in 70 countries worldwide. The IPSF holds official relations with the WHO and operational relations with the UNESCO. The IPSF also works collaboratively with the FIP closely (IPSF, 2014).

The invitation email with the online survey link with the attachment of the invitation letter (Appendix 9) was sent through the IPSF to national representatives in each country, who is often a contact person within the association of pharmacy students in the country. The email sent via the IPSF, then, was sent to the pharmacy students by national representatives in each country.

A first invitation email was sent in February 2013 globally (Appendix 10). Reminder emails with the online survey link have been sent once a month to encourage pharmacy students to participate the survey.

5.3.4 Data collection and analysis

This web survey used a self-completed, anonymous questionnaire. It was formatted to collect students' perceptions of their IPPE all over the world in light of their learning processes and experiences. The current instrument was adapted from the CEQ (Wilson *et al.*, 1997) including 37 items and S-SPQ (Fox *et al.*, 2001) including 18 items together with 15 items on participant's demography. Web survey opened from January 2013 till September 2014.

The collected data were retrieved directly into the Microsoft Office Access 2010 database, and after conversion to the Microsoft Office Excel 2010, the data were cleaned manually. Those cleaned data were transferred into the SPSS version 21 for comparative analyses.

The accuracy of data entry in the SPSS was checked by randomly selecting 10% of the cases with the use of the SPSS electronic function of random selection. Each variable of the selected cases was cross-checked with the Master database in the Excel data sheet to ensure that the error rate was within the acceptable limits.

A response rate was not applicable due to the use of the snowballing sampling technique.

As 15 of the CEQ questions (questions 3, 5, 7, 10, 14, 17, 18, 24, 26, 27, 29, 31, 32, 34, and 36) were negatively posed, these responses were re-recorded to positive for enabling to group them in the respective factors before the statistical analysis.

Descriptive analysis was used to the demographic data to identify the type of respondents and background. After grouping the responses in the factors, scale values were measured as a minimum, maximum, median and mean to test for the normality of distribution using histograms. The internal consistency was assessed by testing the Cronbach's coefficient alpha.

Inferential analyses (i.e., ANOVA, MANOVA, and correlational analysis) were used to compare and seek relationships between different variables, together with significant test and *post hoc* tests where possible. Path analysis was also used to explore the extent of effects by correlated variables in explaining the quality of the student's learning approach. The IBM SPSS Amos version 22 was used to obtain parameter estimates and goodness of fit indices of the model tested for the path analysis.

A probability level of $p < 0.01$ was used to identify the significant association to ensure its robustness of the results, and $p < 0.05$ was applied to underline its weak associations.

5.4 Results

5.4.1 Demographic data

A total of 4,105 responses were obtained through the web survey. Table 5.1 shows responses categorised by the country where the respondent enrolled in the IPPE which leads to the

registration as a licensed pharmacist in the sampled country. Table 5.2 and Figure 5.1 present the sample responses categorised by the WHO regions.

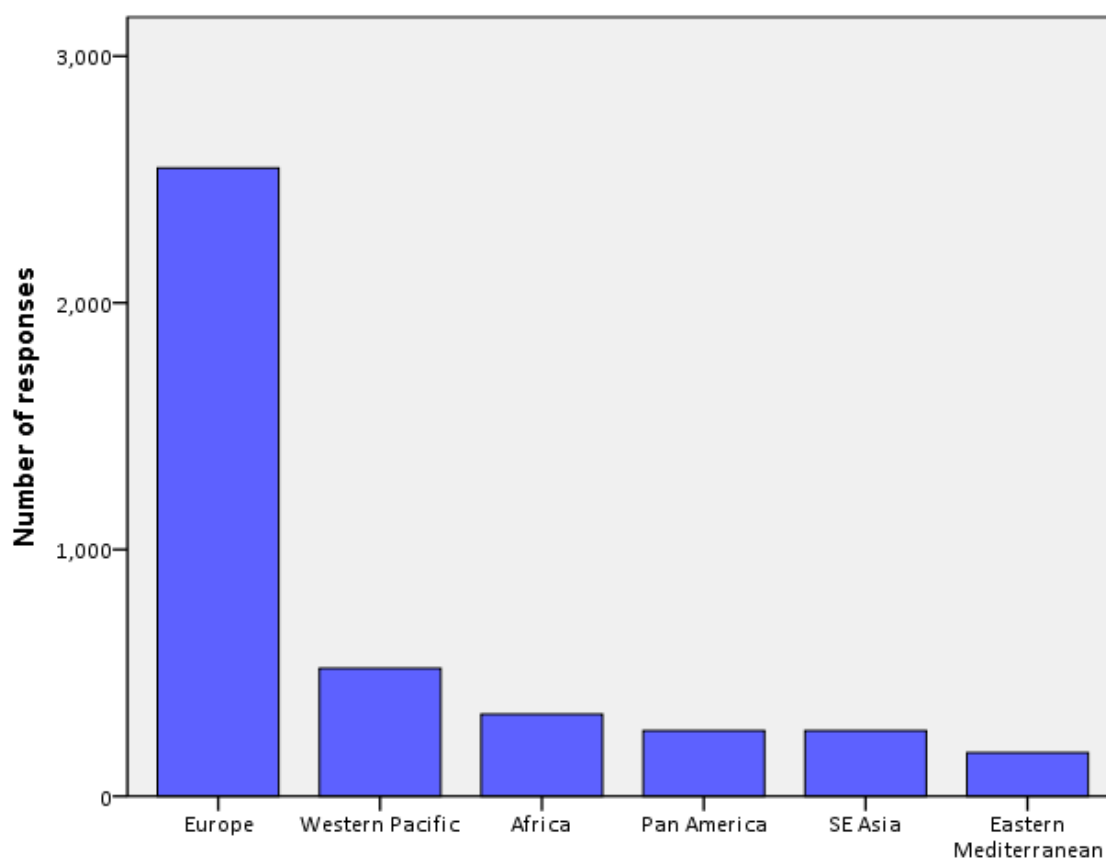
Table 5.1: Sample responses categorised by the country of study

Country of study	Response	%	Country of study	Response	%
Algeria	187	4.6	Latvia	1	0.0
American Samoa	1	0.0	Lebanon	2	0.0
Argentina	5	0.1	Malaysia	93	2.3
Australia	20	0.5	Mali	2	0.0
Austria	25	0.6	Montenegro	1	0.0
Bangladesh	17	0.4	Morocco	4	0.1
Bosnia and Herzegovina	1	0.0	Namibia	8	0.2
Brazil	11	0.3	Nepal	3	0.1
Burkina Faso	1	0.0	Netherlands	28	0.7
Canada	99	2.4	New Zealand	58	1.4
Chile	1	0.0	Nigeria	34	0.8
China Taiwan	42	1.0	Pakistan	11	0.3
Colombia	40	1.0	Palestinian territory	2	0.0
Cote d'Ivoire	1	0.0	Peru	22	0.5
Croatia	172	4.2	Philippines	3	0.1
Cuba	1	0.0	Poland	345	8.4
Cyprus	3	0.1	Portugal	209	5.1
Czech Republic	78	1.9	Romania	42	1.0
Denmark	14	0.3	Rwanda	3	0.1
Egypt	77	1.9	Saudi Arabia	1	0.0
Equatorial Guinea	1	0.0	Senegal	2	0.0
Finland	19	0.5	Serbia	5	0.1
France	942	22.9	Sierra Leone	2	0.0
French Guiana	1	0.0	Singapore	35	0.9
Germany	334	8.1	Slovakia	5	0.1
Ghana	14	0.3	Slovenia	19	0.5
Greece	1	0.0	South Africa	42	1.0
Haiti	1	0.0	Spain	6	0.1
Hungary	1	0.0	Sweden	5	0.1
India	26	0.6	Switzerland	6	0.1
Indonesia	220	5.4	Syrian Arab Republic	1	0.0
Iran (Islamic Rep. of)	7	0.2	Togo	4	0.1
Iraq	37	0.9	Tunisia	21	0.5
Italy	2	0.0	Turkey	9	0.2
Japan	263	6.4	UAE	2	0.0
Jordan	3	0.1	UK	273	6.7
Kenya	20	0.5	USA	80	1.9
Korea (Rep. of)	3	0.1	Venezuela	5	0.1
Kuwait	8	0.2	Zimbabwe	12	0.3
Total (78 countries and territories)				4105	100.0

Table 5.2: Sample responses categorised by the WHO regions

	Response	Response %
Africa	333	8.1
Americas	266	6.5
Eastern Mediterranean	176	4.3
Western Pacific	518	12.6
South East Asia	266	6.5
Europe	2546	62.0
Total	4105	100.0

Figure 5.1: Sample responses by the WHO regions with sample mean

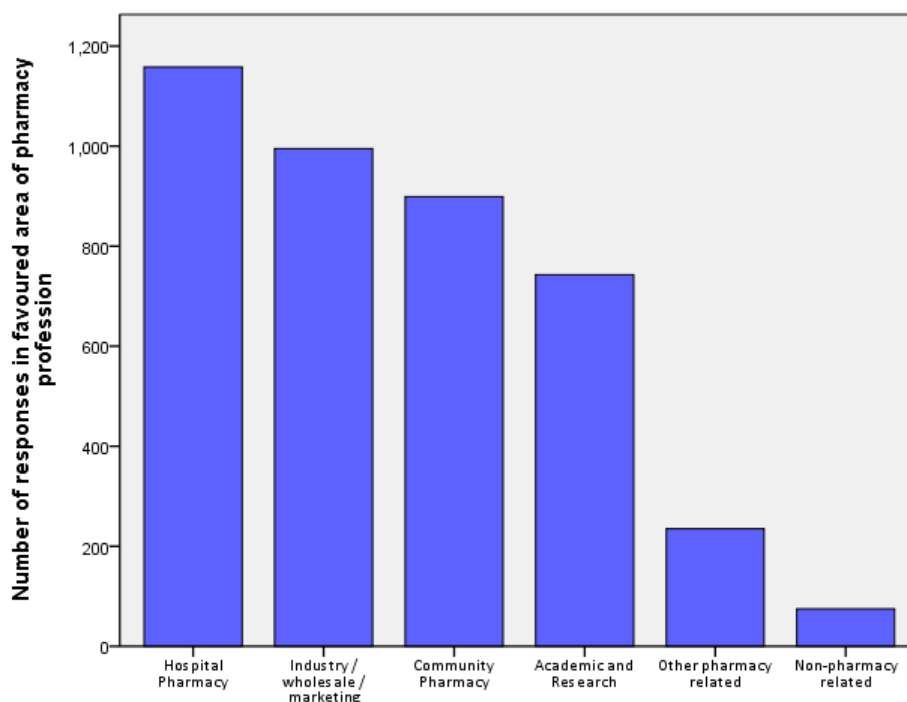


Of the 4,105 responses, 2,880 (70.2%) were female. The mean age of respondents was 22.08 years ranging between 17 and 56 years old. The distribution of participants in the year of study from year 1 to 6 and on-going internship/pre-registration training were: 438 (10.7%), 830 (20.2%), 823 (20.0%), 795 (19.4%), 584 (14.2%), 286 (7.0%), and 349 (8.5%) respectively.

3,584 respondents (87.3%) did not have any degree prior to the pharmacy degree, and around one fourth of respondents, 1,145 (27.9%) participants, had a part-time job while studying pharmacy. A majority of participants (n = 3476, 84.7%) felt that gender-influence on the decision to study pharmacy was not applicable to themselves, and 58 respondents (1.4%) stated that there was not the influence of the gender on the decision to study pharmacy, while the gender had influenced on 571 participants (13.9%) to decide to study pharmacy. Of the total 4,105 respondents, about half of respondents (n = 1,926, 46.9%) had always wanted to be a pharmacist (e.g., consider becoming a pharmacist at high school). 1,131 respondents (27.6%) had a family member(s) or close friend(s) who is a pharmacist, and more than half of respondents (n = 2,444, 59.5%) were encouraged by their family to study pharmacy.

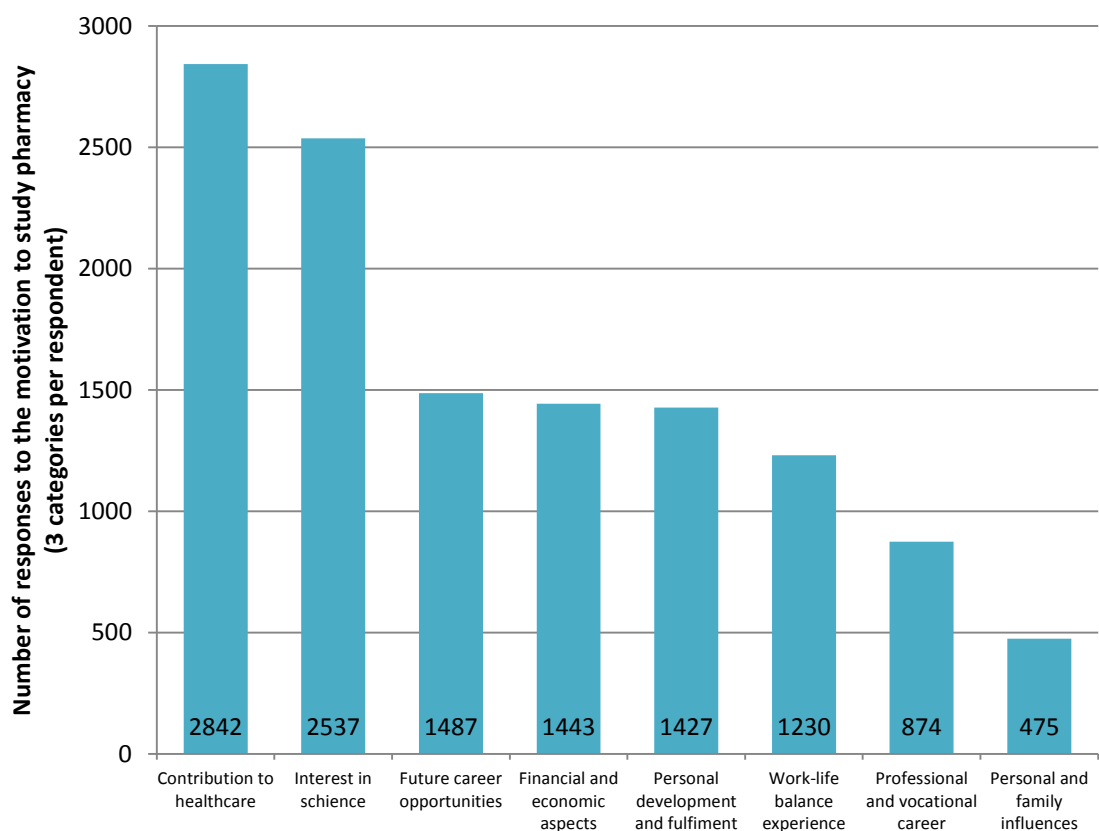
Favoured area of pharmacy profession that student pursue at the moment of the survey can be found in Figure 5.2, showing that hospital pharmacy is the most favoured profession (n = 1,158, 28.2%), followed by industry/wholesale/marketing (n = 995, 24.2%), community pharmacy (n = 899, 21.9%), academic and research (n = 743, 18.1%), other pharmacy related profession (n = 235, 5.7%), and non-pharmacy related profession (n = 75, 1.8%).

Figure 5.2: Sample responses in favoured area of pharmacy profession after graduation



The motivation to study pharmacy varied between eight categories (Figure 5.3). 2,842 respondents (69.2%) chose the contribution to healthcare as their motivations to study pharmacy, followed by interest in science (n = 2,537, 61.8%), future career opportunities (n = 1,487, 36.2%), financial and economic aspects (n = 1,443, 35.2%), personal development and fulfilment (n = 1,427, 34.8%), work-life balance experience (n = 1,230, 30.0%), professional and vocational career (n = 874, 21.3%), and personal and family influences (n = 475, 11.6%).

Figure 5.3: Sample responses in the motivation to study pharmacy (three categories were chosen per respondent)



5.4.2 Distribution of the data

Figure 5.4 and Figure 5.5 shows the histograms testing the distribution of the data in the six scales of the CEQ (the 'Good Teaching', 'Clear Goals', 'Generic Skills', 'Appropriate Assessment', 'Appropriate Workload', and 'Emphasis on Independence') and the three scales of the S-SPQ instruments (the 'Surface Approach', 'Deep Approach', and 'Achieving Approach'), respectively. The histograms show that all nine factors of the questionnaire were normally distributed and thus, it

was assumed that parametric tests would be robust enough.

Figure 5.4: Histograms representing the six scales of the CEQ (a straight line illustrating the mean of the score, a dotted line illustrating the mid-point of the scale)

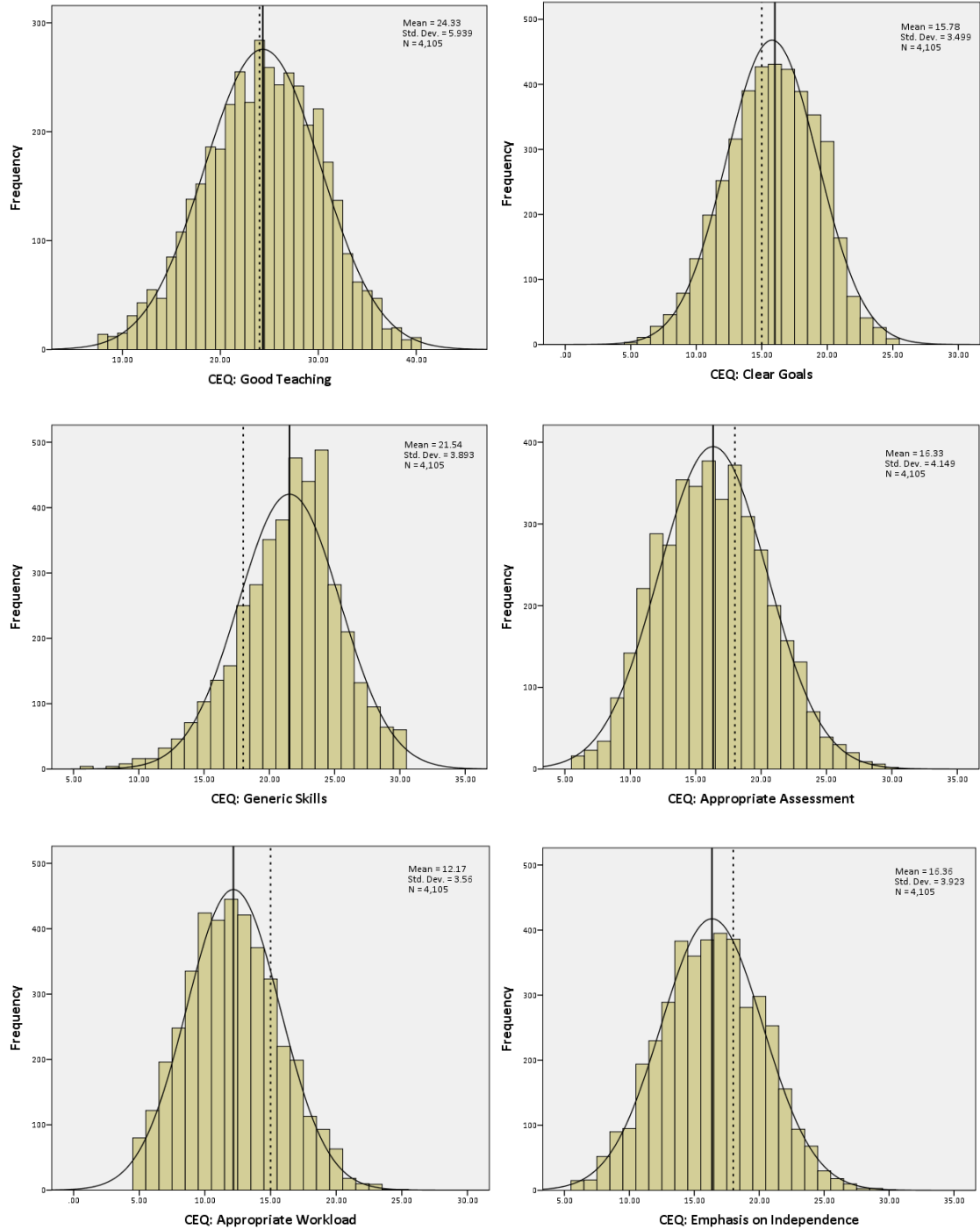
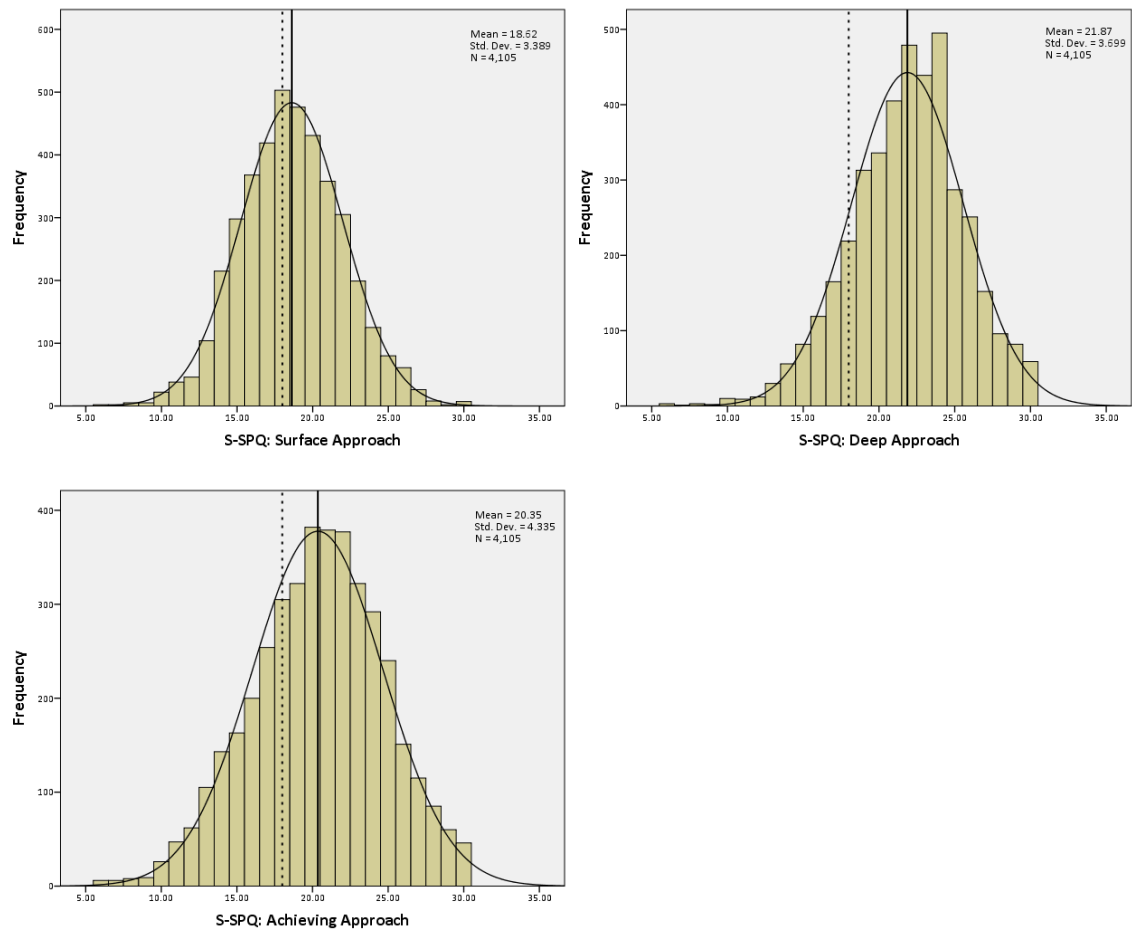


Figure 5.5: Histograms representing the three scales of the S-SPQ (a straight line illustrating the mean of the score, a dotted line illustrating the mid-point of the scale)



5.4.3 Reliability of scales

Cronbach's coefficient alpha was performed to assess the internal consistency, and Table 5.3 shows the results of the tests.

Cronbach's coefficient alpha tested above indicated moderate to high levels of reliability of the CEQ and the S-SPQ scales ranging from 0.51 to 0.87. Reliability of subscales of the S-SPQ was also tested as shown in Table 5.3, and shows the low reliability of the surface motive subscale as 0.266. However, this is a well-known situation with the use of the SPQ-type instrument because two kinds of factors are loading on this surface motive subscale.

In this study, there was no item that reduced the internal consistency of scale, so all items were included in the further analysis.

Table 5.3: Variance in reliability and p value of the CEQ and the S-SPQ scales

Instrument	Scale	Number of items	Cronbach's alpha
CEQ	Good Teaching	8	0.865
	Clear Goals	5	0.720
	Generic Skills	6	0.780
	Appropriate Assessment	6	0.632
	Appropriate Workload	5	0.704
	Emphasis on independence	6	0.682
S-SPQ	Deep Approach	6	0.706
	Deep Motive	3	0.676
	Deep Strategy	3	0.462
	Achieving Approach	6	0.724
	Achieving Motive	3	0.687
	Achieving Strategy	3	0.637
	Surface Approach	6	0.509
	Surface Motive	3	0.266
	Surface Strategy	3	0.543

5.4.3.1 Global overview

The retrieved data were grouped into the three S-SPQ and six CEQ scales and the mean of each score was compared to the scale midpoint to examine the global IPPE practice (Table 5.4).

Table 5.4: Global summary of the CEQ and S-SPQ scores

Instrument/scales		Scale Midpoint	Mean	Min	Max
CEQ	Good Teaching	24.0	24.3279	8.00	40.00
	Clear Goals	15.0	15.7764	5.00	25.00
	Generic Skills	18.0	21.5396	6.00	30.00
	Appropriate Assessment	18.0	16.3274	6.00	30.00
	Appropriate Workload	15.0	12.1695	5.00	25.00
	Emphasis on Independence	18.0	16.3559	6.00	30.00
S-SPQ	Deep Approach	18.0	21.8741	6.00	30.00
	Achieving Approach	18.0	20.3459	6.00	30.00
	Surface Approach	18.0	18.6229	6.00	30.00

IPPE globally provide a fundamental education guiding future pharmacists to adopt a higher level of the deep approach to learning (mean, 21.87) compared to the average midpoint (18.0), as well as the achieving approach to learning (mean, 20.35). This can interpret that IPPE globally is strategically well structured to lead students to obtain ability for conceptualising complex facts and skills by themselves and transferable skills to apply knowledge and skills to real works with high motivation.

As situational factors that students experienced globally, the 'Appropriate Assessment', 'Appropriate Workload', and 'Emphasis on Independence' were scored lower than scale midpoints (mean 16.33,

12.17, and 16.36, respectively). Pharmacy students worldwide perceive that IPPE provides less appropriate assessment and workload, and less emphasis on the independence of students.

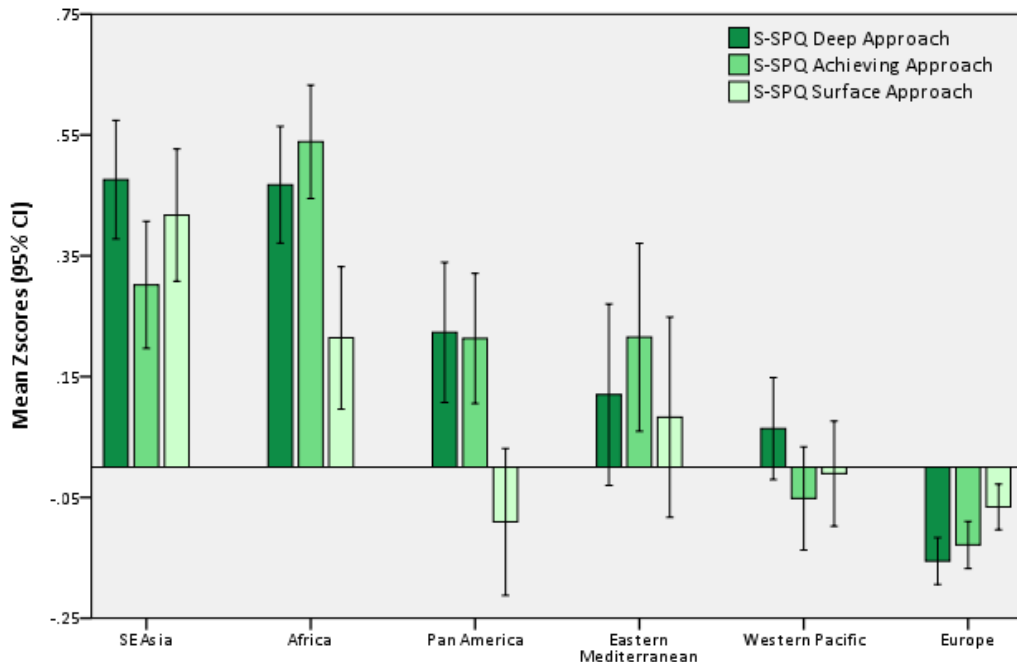
However, the mean of the CEQ 'Generic Skills' is higher than the scale midpoint (mean, 21.54, midpoint, 180), which can interpret that IPPE is globally designed to guide students to acquire problem-solving and analytic skills, and ability to work in healthcare team and to tackle unfamiliar situations, as a necessary foundation of the profession.

5.4.4 Variations in learning processes and experiences

After grouping the retrieved data into the three S-SPQ and six CEQ scales, the data were standardised as Z scores. The means of the Z scores were compared at the WHO regional and country levels to examine relative variances between the WHO regions and countries.

Figure 5.6 shows that the variances in the mean Z scores of the three S-SPQ approaches to learning scales by the WHO regions. This figure illustrates that how students go about their learning in their pharmacy degrees varies between the WHO regions.

Figure 5.6: Comparison of Z scores (mean) of the S-SPQ scales by WHO regions | Error bars: 95% CI



A MANOVA test was conducted to assess whether the S-SPQ scores differ between the WHO regions. The MANOVA test using Pillai's trace shows that there is a significant influence of the WHO

regional contexts on the three S-SPQ learning approach scores, $V = .091$, $F(15, 12297) = 25.51$, $p < 0.0001$. Separate univariate ANOVA tests also show that all the three S-SPQ scales vary significantly in the WHO regions ('Deep Approach', $F(5, 4099) = 44.77$, $p < 0.0001$; 'Achieving Approach', $F(5, 4099) = 38.62$, $p < 0.0001$; and 'Surface Approach', $F(5, 4099) = 15.477$, $p < 0.0001$).

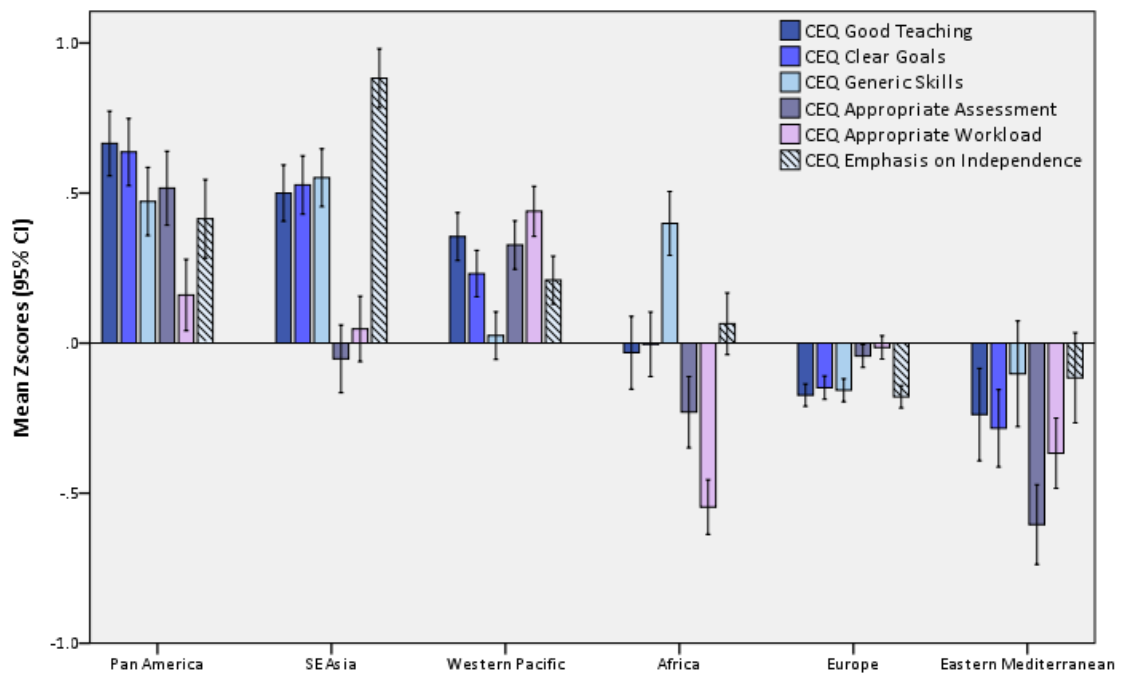
Post hoc tests using Bonferroni correction reveal that the South East Asian and African students tend to adopt the deepest approach as opposed to the European students ($p < 0.0001$). The highest surface approach application was also seen in the South East Asian students as opposed to the Europe and Pan America students ($p < 0.0001$). The African and South East Asian students also incline to apply the highest level of achieving approach by relative contrast with the Western Pacific and European students ($p < 0.0001$).

In addition, although the current data set shows that all the WHO region students are found to adopt the larger extent of the deep approach compared the surface one, the tendency of adoption of the deep approach compared to the surface one occurs more in the Pan America and African students as opposed to the European students (the difference between mean Deep and Surface approach: 4.38, 4.26, and 2.90, respectively, $F(5, 4099) = 7.76$, $p < 0.0001$).

The findings indicate that students in the African region are likely to go about their learning with a deeper approach in order to maximise their performance and obtain highest possible grades in their degree, considering the high level of the 'Achieving Approach'. It is also inferable that the pharmacy degree programmes in Africa region are designed for students to develop a deeper approach.

Figure 5.7 compares the mean Z scores of the six CEQ learning experiences scores by the WHO regions. To assess the extent of difference of the CEQ scores by the WHO regions, statistical analysis (including MANOVA, ANOVA, and *post hoc* tests) were conducted.

Figure 5.7: Comparison of Z scores (mean) of the CEQ scales by WHO regions | Error bars: 95% CI



A MANOVA test using Pillai's trace shows that there is a significant variance of total learning experiences of pharmacy students by the WHO regions, $V = .242$, $F(30, 20490) = 34.70$, $p < 0.0001$. Examining each of the CEQ scale by the WHO regions, all the six scales significantly differ by the WHO regional contexts ('Good Teaching', $F(5, 4099) = 73.16$, $p < 0.0001$; 'Clear Goals', $F(5, 4099) = 59.99$, $p < 0.0001$; 'Generic Skills', $F(5, 4099) = 54.971$, $p < 0.0001$; 'Appropriate Assessment', $F(5, 4099) = 45.04$, $p < 0.0001$; 'Appropriate Workload', $F(5, 4099) = 48.89$, $p < 0.0001$; and 'Emphasis on Independence', $F(5, 4099) = 79.04$, $p < 0.0001$).

Post hoc tests using Bonferroni correction and Figure 5.7 reveal that the Pan American students are prone to having the highest learning experiences relatively as opposed to the Eastern Mediterranean students (in all CEQ scales, $p < 0.0001$). Interesting point is that the students in the Africa region assess their pharmacy degree programmes well by helping them to develop generic skills, although the other components of learning experiences are relatively lower. In addition, the highest scores on the 'Emphasis on Independence' in the South East Asia students stands out compared to the other regions ($p < 0.0001$ in all).

Furthermore, comparative analyses were conducted at a country level. The analyses included the countries where either the number of responses was more than 30 or the proportion of responses

in estimated total student numbers of the sample country was more than 3%. 28 countries and territories were included in the analyses, covering 3,808 responses. Figure 5.8 and Figure 5.9 compare the mean Z scores of either the three S-SPQ scales or the six CEQ scales by the selected 28 countries.

MANOVA tests using the Pillai's trace show that there are significant variances in both the S-SPQ approaches to learning and the CEQ learning experiences scores between selected countries (S-SPQ, $V = .22$, $F(81, 11340) = 10.98$, $p < 0.0001$; CEQ, $V = .74$, $F(162, 22680) = 19.69$, $p < 0.0001$). ANOVA tests also show that each of the S-SPQ and the CEQ scales significantly differ in selected countries (Table 5.5).

Table 5.5: Summary of ANOVA results of the three S-SPQ and the six CEQ scales in selected 28 countries

	Instrument / Scale	F	Hypothesis df	Error df	p
S-SPQ	Deep Approach	13.56	27	3780	<0.0001
	Achieving Approach	16.76	27	3780	<0.0001
	Surface Approach	8.07	27	3780	<0.0001
CEQ	Good Teaching	35.81	27	3780	<0.0001
	Clear Goals	29.28	27	3780	<0.0001
	Generic Skills	23.21	27	3780	<0.0001
	Appropriate Assessment	23.49	27	3780	<0.0001
	Appropriate Workload	27.23	27	3780	<0.0001
	Emphasis on Independence	25.41	27	3780	<0.0001

Post hoc tests using Bonferroni correction show that the students in Zimbabwe adopt the deepest approach to learning as opposed to those in Germany ($p < 0.0001$). Whilst, the students in South Africa likely have the richest learning experiences compared to those in Iraq ($p < 0.0001$).

Figure 5.8: Comparison of Z scores (mean) of the three S-SPQ scales by 28 countries | Error bars: 95% CI

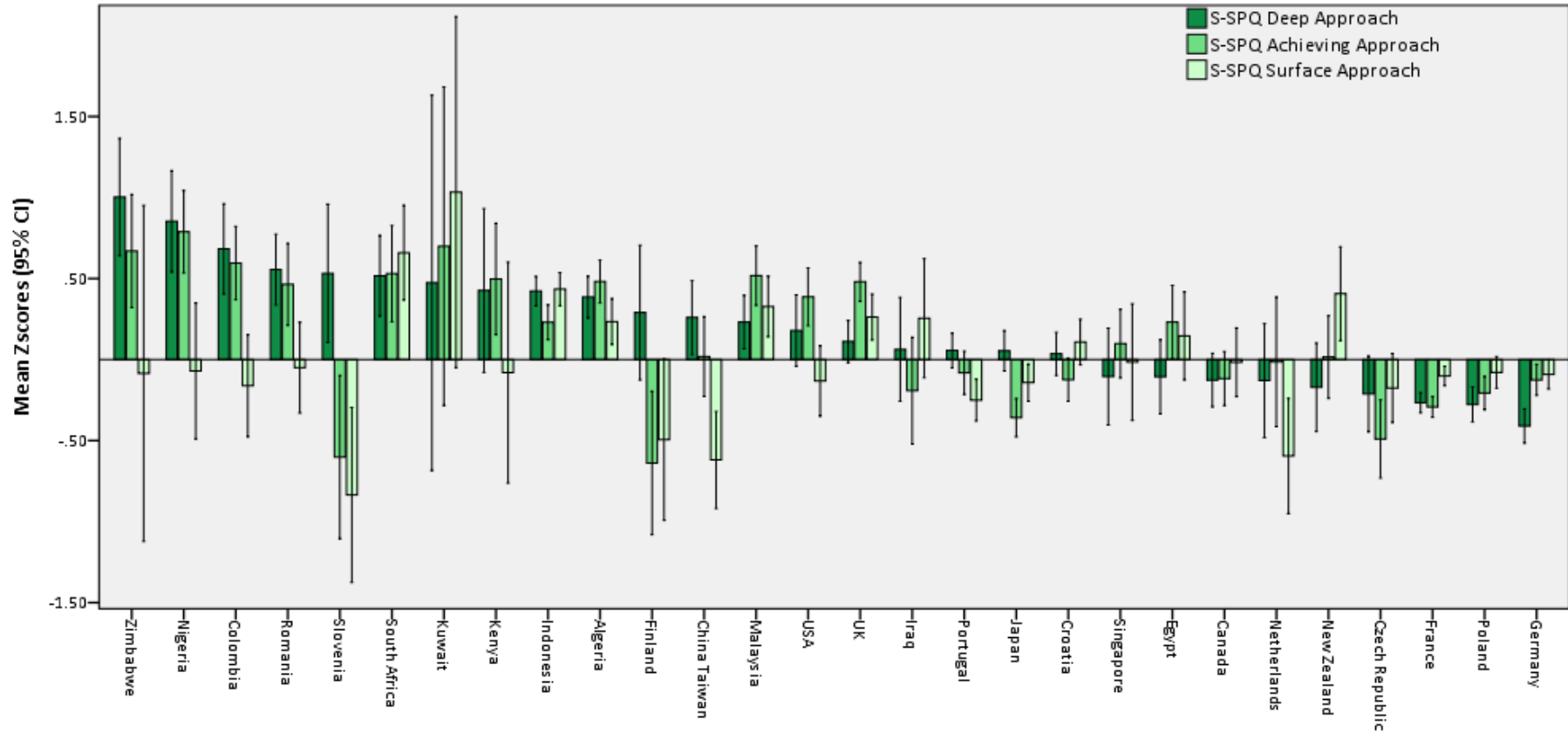
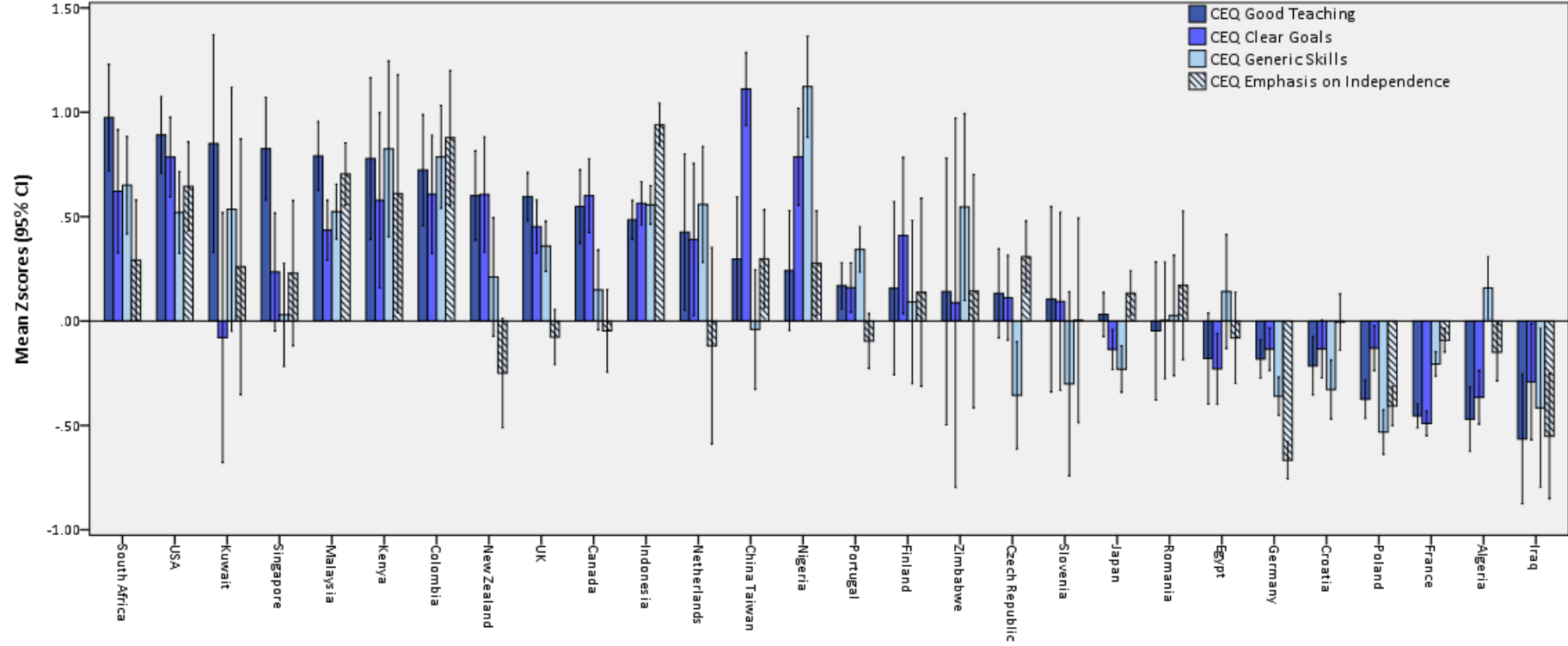


Figure 5.9: Comparison of Z scores (mean) of the four CEQ scales by 28 countries | Error bars: 95% CI



5.4.5 Correlations between approaches to learning and learning experiences

To investigate the global interrelationship between approaches to learning and learning experiences of pharmacy students, parametric bivariate correlation tests using Pearson's product-moment correlation coefficient were conducted on the data set retrieved (n = 4105).

Table 5.6 shows the results of the correlation tests conducted. The statistical analyses elaborate that the S-SPQ 'Deep Approach' scale correlates significantly with the four CEQ scales including the 'Good Teaching', 'Clear Goals', 'Generic Skills', and 'Emphasis on Independence' scales. The S-SPQ 'Achieving Approach' scale also has significant but slightly weaker correlations with the same four CEQ scales as the 'Deep Approach' scale. Although the relationships are weak, the S-SPQ 'Surface Approach' is found to be related negatively and significantly to the two CEQ scales; the 'Appropriate Assessment' and 'Appropriate Workload' scales.

Table 5.6: Correlation strength between the six CEQ scales and the three S-SPQ scales (Pearson's r and p value)

		S-SPQ Approach to Learning Scale					
		Deep Approach		Achieving Approach		Surface Approach	
		r	P	r	P	r	P
CEQ Learning Experience scale	Good Teaching	0.315	<0.0001	0.276	<0.0001	0.038	0.016
	Clear Goals	0.290	<0.0001	0.216	<0.0001	0.006	0.679
	Generic Skills	0.431	<0.0001	0.351	<0.0001	0.052	0.001
	Appropriate Assessment	0.145	<0.0001	0.092	<0.0001	-0.181	<0.0001
	Appropriate Workload	0.158	<0.0001	-0.034	0.031	-0.219	<0.0001
	Emphasis on Independence	0.347	<0.0001	0.237	<0.0001	0.006	0.712

The results indicate that, as a global trend, when pharmacy students consider that their provided education offer good teaching, set clear goals and standards, help develop generic skills, and provide freedom in learning, they tend to adopt deeper and more achieving approach. On the other hand, when pharmacy students feel that their provided education do not offer appropriate assessment and do not set appropriate workload, they tend to adopt more surface approach.

Regional perspectives on the sample correlations between approaches to learning and learning experiences of pharmacy students were also investigated. Figure 5.10 and Figure 5.11 compare the mean of the standardised Z scores of the S-SPQ and CEQ scales as correlated groups in the WHO regions.

Figure 5.10 shows the WHO regional differences in the correlated factors with the S-SPQ ‘Deep Approach’ and ‘Achieving Approach’ scales. Although it shows that there is a certain trend of the interrelationship of these factors by the WHO regions, a discrepancy of the extent of correlations can be seen. The African students exhibit the second highest deep approach to learning score; but, their scores on the ‘Good Teaching’ and the ‘Clear Goals’ scales of the CEQ was just on the mean. In addition, the students in the Eastern Mediterranean region expressed relatively lower scores on the CEQ learning experience scales compared to the other regions although they exhibit the middle level of the ‘Deep Approach’ and ‘Achieving Approach’ scores among the WHO regions. These discrepancies might be caused by the low number of sample responses from the specific regions and different perspectives in each country or institution of the WHO region.

Figure 5.10: Comparison of Z scores (mean) of the two S-SPQ scales with four CEQ scales between WHO regions | Error bars: 95% CI

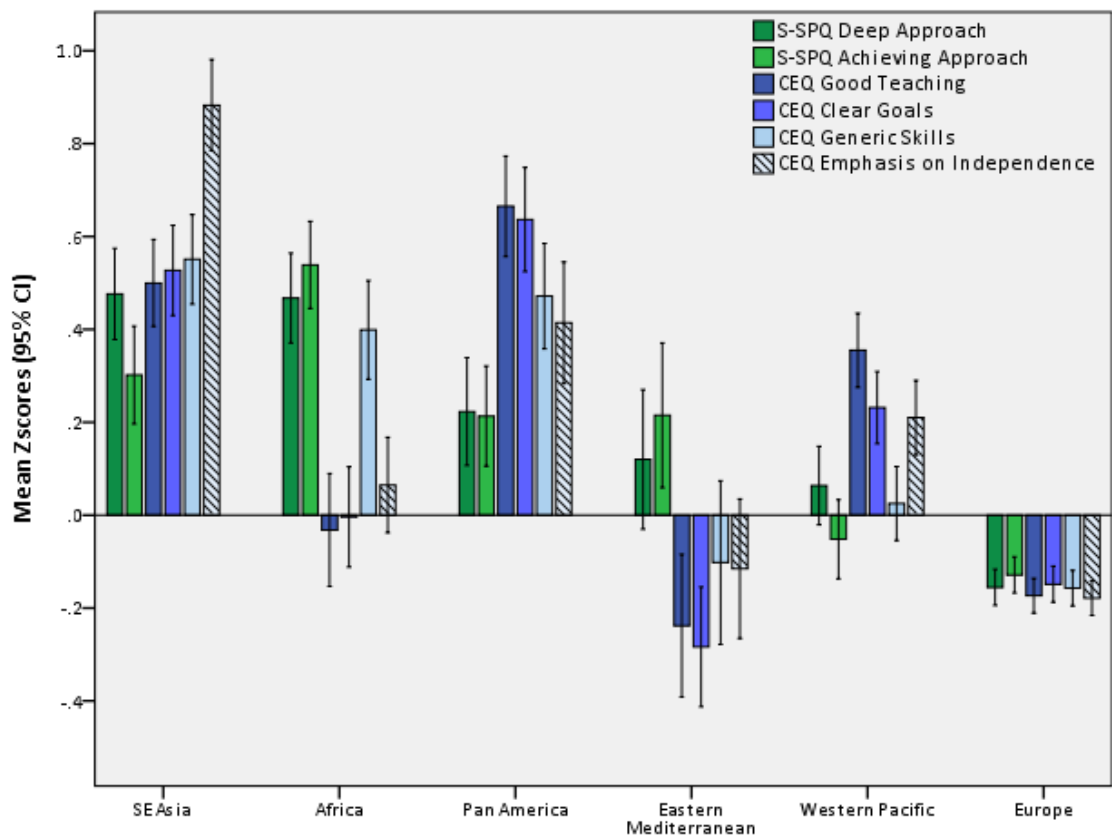
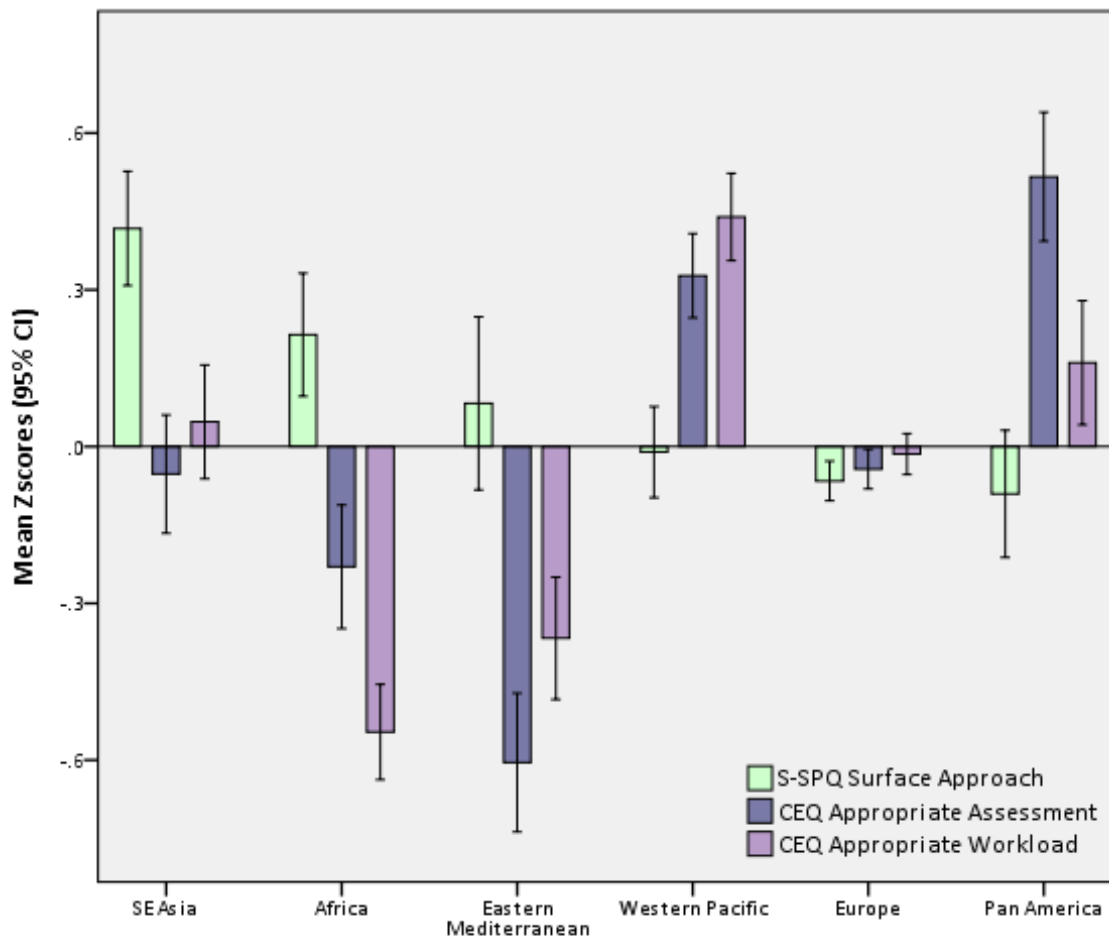


Figure 5.11 illustrates the WHO regional differences in the correlated factors with the S-SPQ ‘Surface Approach’ scale. Due to the weak correlations between the S-SPQ ‘Surface Approach’ and

the CEQ 'Appropriate Assessment' and 'Appropriate Workload' scales, the negative correlations between the scales are not seen in the figure well.

Figure 5.11: Comparison of Z scores (mean) of the S-SPQ Surface Approach scale with two CEQ scales between WHO regions | Error bars: 95% CI



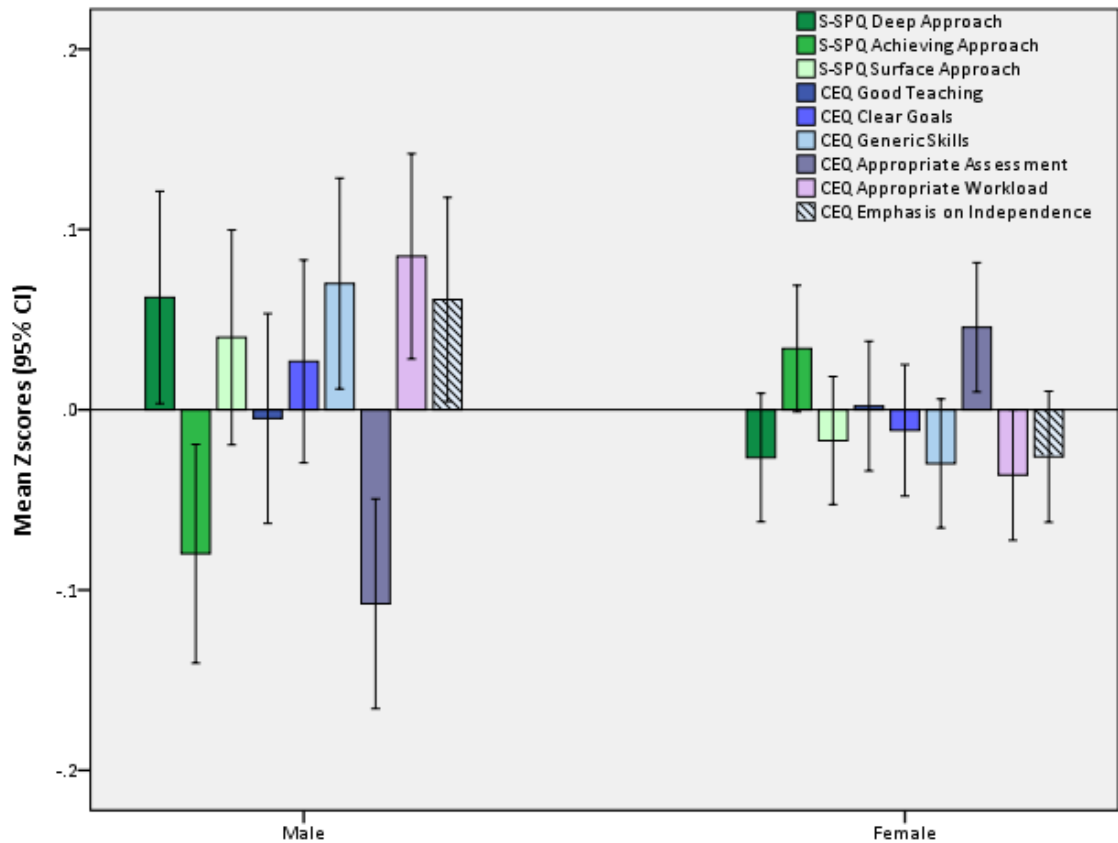
5.4.6 Gender

A one-way ANOVA test shows significant differences in the S-SPQ 'Deep Approach' and 'Achieving Approach' scores and the CEQ 'Generic Skills', 'Appropriate Assessment', and 'Appropriate Workload' scores compared by gender ('Deep Approach', $F(1, 4103) = 6.79, p = 0.009$; 'Achieving Approach', $F(1, 4103) = 11.14, p = 0.001$; 'Generic Skills', $F(1, 4103) = 8.58, p = 0.003$; 'Appropriate Assessment', $F(1, 4103) = 20.32, p < 0.0001$; and 'Appropriate Workload', $F(1, 4103) = 12.69, p < 0.0001$).

However, there is no significant correlation between gender and the S-SPQ and CEQ scales found

(Figure 5.12).

Figure 5.12: Comparison of Z scores (mean) of the S-SPQ and the CEQ scales by gender | Error bars: 95% CI



5.4.7 Economics

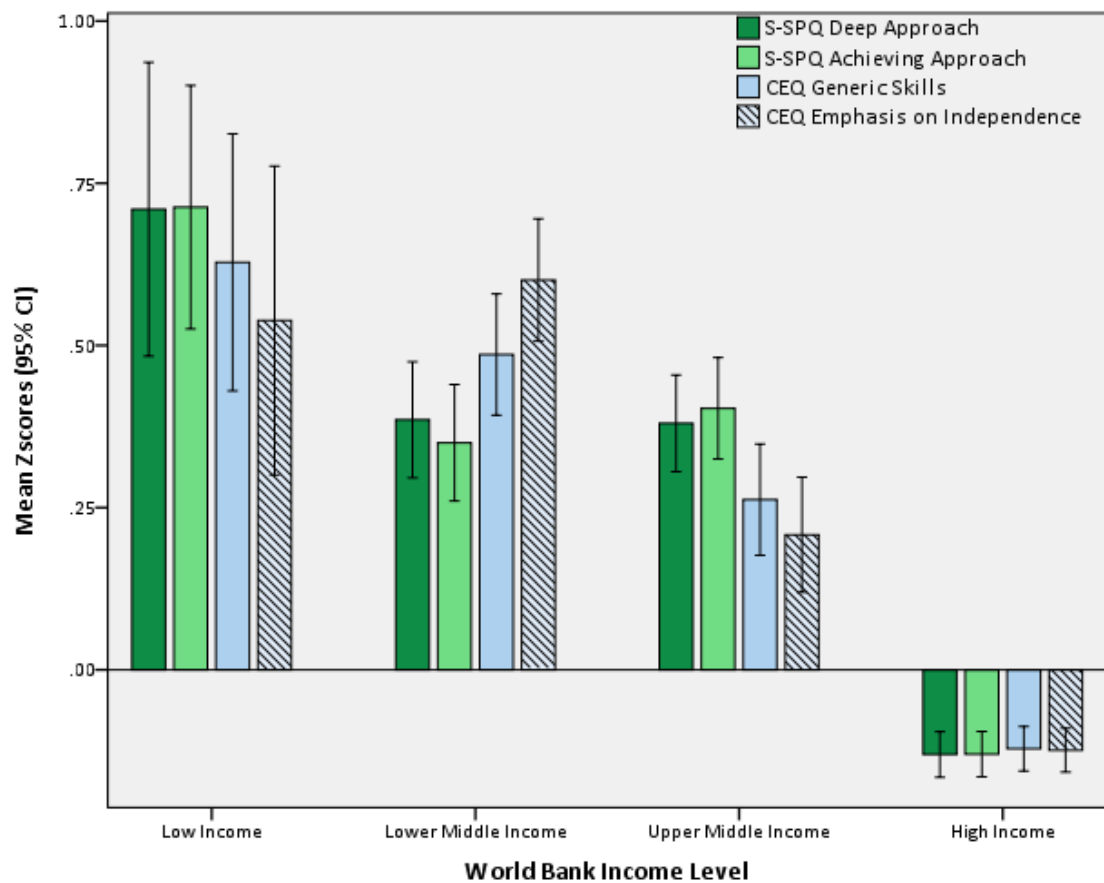
A MANOVA test using Pillai's trace shows that there is a significant effect of the World Bank Income Level on the three S-SPQ and six CEQ scores, $V = .181$, $F(27, 12276) = 29.17$, $p < 0.0001$. Separate univariate ANOVAs on the World Bank Income Levels also show that each of the S-SPQ and CEQ scores significantly differ by the income level ($p < 0.0001$, in all scales).

Parametric bivariate correlation tests using Pearson's product-moment correlation coefficient was conducted among 4,102 sample data where the World Bank Income Levels were available. The correlation tests reveal that the two S-SPQ scales (the 'Deep Approach' and 'Achieving Approach') and the two CEQ scales (the 'Generic Skills' and 'Emphasis on Independence') have significant correlations with the World Bank Income Level ('Deep Approach', $r = -.22$, $p < 0.0001$; 'Achieving

Approach', $r = -.21, p < 0.0001$; 'Generic Skills', $r = -.22, p < 0.0001$; and 'Emphasis on Independence', $r = -.23, p < 0.0001$).

Figure 5.13 illustrates the comparison of the mean of the standardised Z scores of these four scales compared by the World Bank Income Level. It clearly displays that, as the Income Level becomes higher, the less level of deep and achieving approach adoption are reported by students, and the lower learning experiences to develop generic skills the students perceive with less extent of openness in the curriculum.

Figure 5.13: Comparison of Z scores (mean) of the two S-SPQ and the two CEQ scales by World Bank Income Level | Error bar: 95% CI



However, there was no significant correlation between these scales and the GDP (current US\$), GDP per capita (current US\$), and GNI per capita, PPP (current international \$) found.

It should be noted that these results do not indicate the direct relationships between the level of approaches to learning, learning experiences and country income levels. Common attributes of

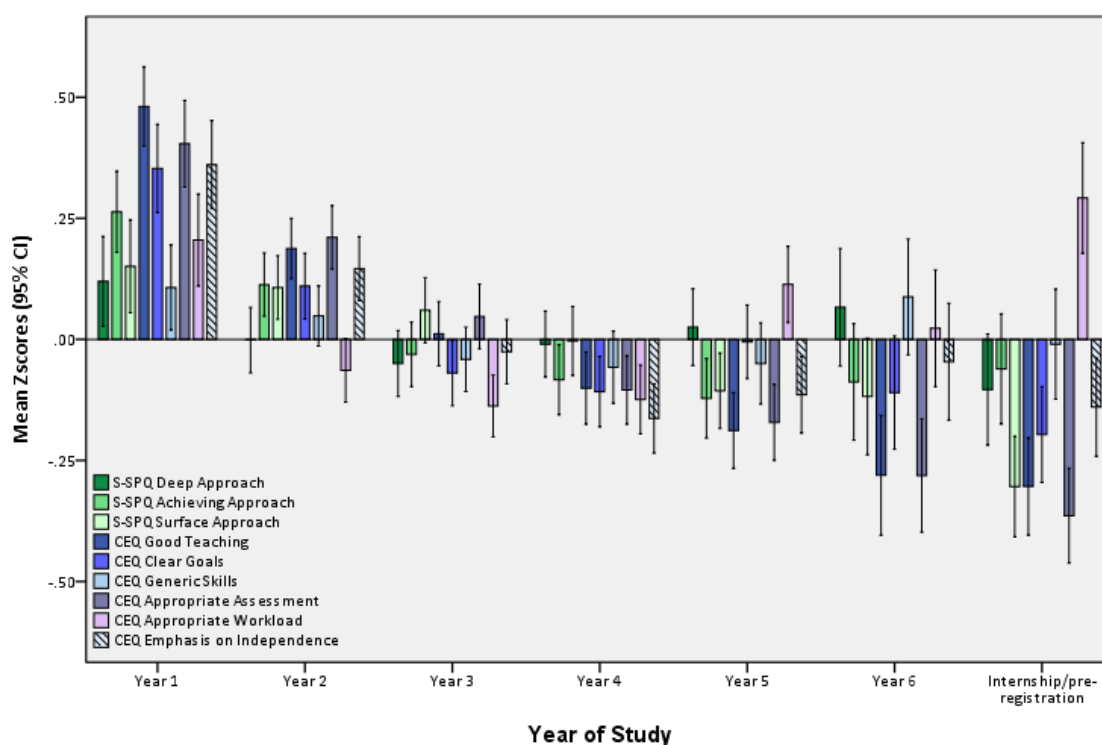
students and IPPE degree programmes within the same income level countries can be the factors that correlate with the S-SPQ and CEQ scales.

5.4.8 Years of study

A MANOVA test using Pillai's trace shows that the years of study that the participant was on have a significant effect on the three S-SPQ and six CEQ scores, $V = .155$, $F(54, 24570) = 12.09$, $p < 0.0001$. However, separate univariate ANOVAs on the years of study reveal that the years of study have only a weak effect on the S-SPQ 'Deep Approach' and CEQ 'Generic Skills' scores ($p = 0.032$ and 0.023 , respectively) compared to the other scales ($p < 0.0001$) (Figure 5.14).

Significant but weak correlations were found between the CEQ 'Good Teaching', the 'Appropriate Assessment' scales and the year of study (Pearson's $r = -.217$ and $-.220$, respectively).

Figure 5.14: Comparison of Z scores (mean) of the S-SPQ and the CEQ scales by the years of study | Error bar: 95% CI



5.4.9 Consistent desire to be a pharmacist

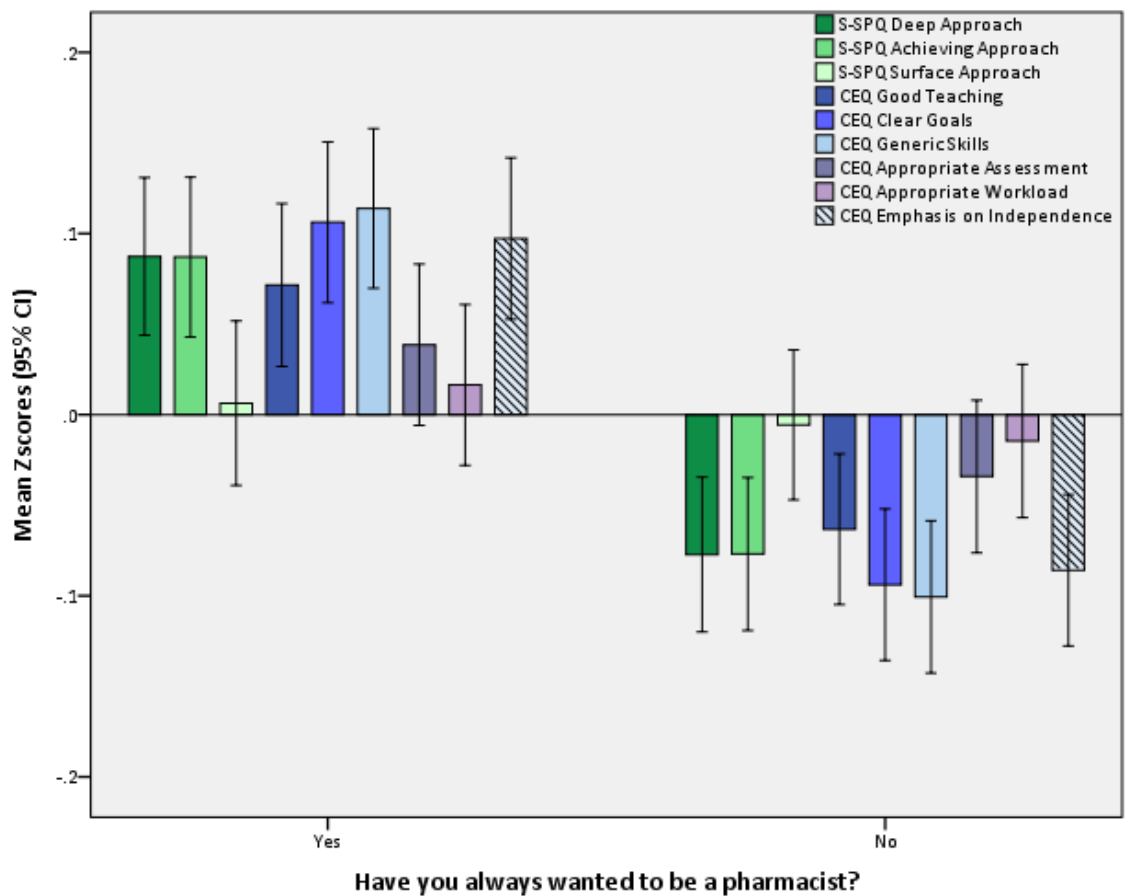
A univariate ANOVA test shows that the consistent desire to be a pharmacist have a significant effect on the variance in the S-SPQ 'Deep Approach' and 'Achieving Approach' scores and the CEQ 'Good Teaching', 'Clear Goals', 'Generic Skills', and 'Emphasis on Independence' scales (Table 5.7).

Table 5.7: One-way ANOVA results of the consistent desire to be a pharmacist on the two S-SPQ and the four CEQ scales

Instrument / Scale		F	Hypothesis df	Error df	p
S-SPQ	Deep Approach	27.89	1	4103	<0.0001
	Achieving Approach	27.67	1	4103	<0.0001
CEQ	Good Teaching	18.66	1	4103	<0.0001
	Clear Goals	41.33	1	4103	<0.0001
	Generic Skills	47.57	1	4103	<0.0001
	Emphasis on Independence	34.57	1	4103	<0.0001

Figure 5.15 illustrates the comparison of the mean standardised Z scores of the S-SPQ and CEQ scales. The figure displays significant variances of the two S-SPQ and four CEQ scales found by the ANOVA test above in whether pharmacy students have always wanted to become a pharmacist.

Figure 5.15: Comparison of Z scores (mean) of the S-SPQ and the CEQ scales by the desire to become a pharmacist | Error bar: 95% CI



However, conducting parametric bivariate correlation tests using Pearson's product-moment correlation coefficient, there were no meaningful correlations between these scales above and the consistent desire to be a pharmacist, only by less than 1% of variance (r ranging from $-.082$ to $-.11$, $p < 0.0001$).

5.4.10 Future desired professional area

Future desired professional areas were asked in the six predefined categories as which area of the pharmacy professional the respondent would most like to work in at the time of their responses. These prefixed categories include: community pharmacy; hospital pharmacy; industry/wholesale/marketing; academic and research; outside the profession (not pharmacy related); and other (pharmacy related).

Excluding the non-pharmacy related profession as an outlier, a MANOVA test using Pillai's trace ($n = 4,030$) shows that there is a significant effect of the future desired professional areas on the level of the three S-SPQ and the six CEQ scales, $V = .085$, $F(36, 16080) = 9.645$, $p < 0.0001$. Separate univariate ANOVA test also reveals that the S-SPQ and CEQ scales significantly differ by the future desired professional areas ($p < 0.01$ in all scales) (Table 5.8).

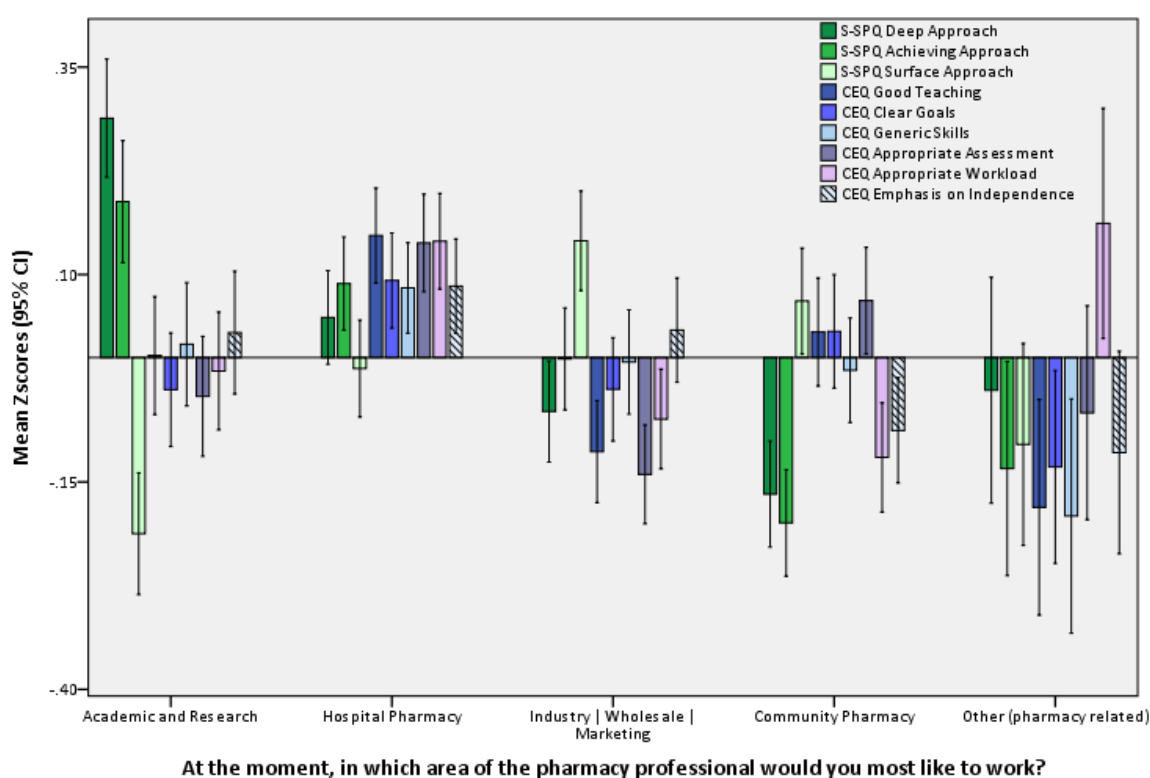
Table 5.8: ANOVA results of the future desired pharmacy professional areas on the three S-SPQ and six CEQ scales | excluding outlier (non-pharmacy related profession), $n = 4,030$

Instrument / Scale		F	Hypothesis df	Error df	p
S-SPQ	Deep Approach	15.30	4	4025	<0.0001
	Achieving Approach	23.94	4	4025	<0.0001
	Surface Approach	19.20	4	4025	<0.0001
CEQ	Good Teaching	11.63	4	4025	<0.0001
	Clear Goals	4.34	4	4025	0.002
	Generic Skills	4.25	4	4025	0.002
	Appropriate Assessment	12.29	4	4025	<0.0001
	Appropriate Workload	12.02	4	4025	<0.0001
	Emphasis on Independence	4.99	4	4025	0.001

Figure 5.16 compares the mean of the standardised Z scores of the three S-SPQ and six CEQ scales in the desired professional areas. The figure clearly shows the variance in the Deep Approach by the professional areas. The pharmacy students who would like to work in academic and research area exhibit the greatest tendency for the deep approach to learning while those who would like to work in a community pharmacy setting express the least level of the Deep Approach among the five prefixed categories. In addition, the pharmacy students who have a desire to work in hospital pharmacy environment show the highest level of the CEQ learning experience scores compared to the other areas. It can indicate that the IPPE is globally geared to clinical pharmacy, especially

clinical skills in a hospital setting. Considering the least level of the 'Deep Approach', 'Generic Skills', and 'Emphasis on Independence' for the community pharmacy area, this global trend may be alarming to consider fitting the initial pharmacy education to the role of the community pharmacist.

Figure 5.16: Comparison of Z scores (mean) of the S-SPQ and CEQ scales in future desired professional areas | n = 4,030 (excluding the outlier: non-pharmacy related)

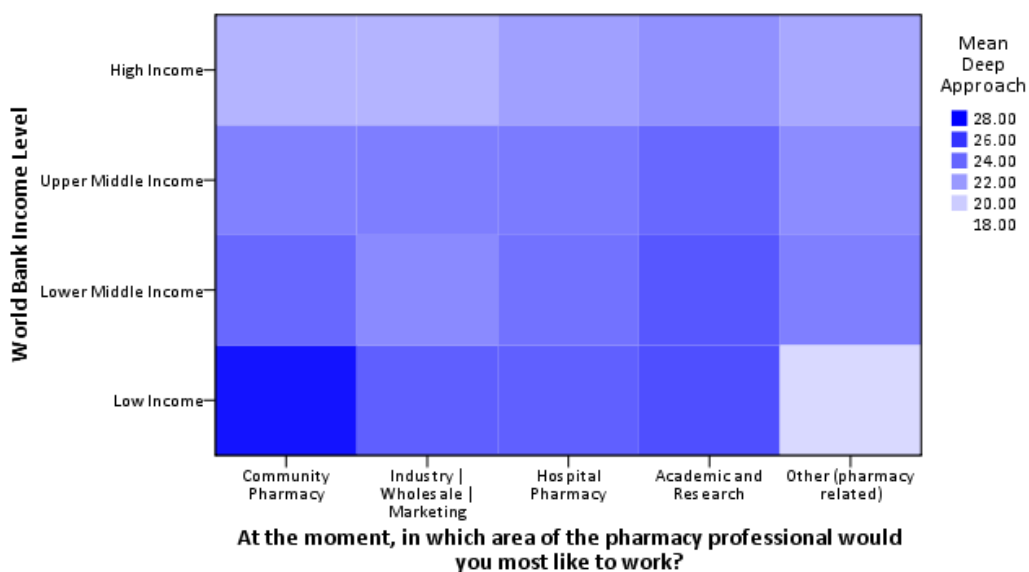


With all six pre-fixed categories of the future desired professional areas, there was no meaningful correlation with the CEQ and S-SPQ scales. However, when correlational analysis includes only four major pharmacy professional areas (community pharmacy, hospital pharmacy, academic and research, and industry/wholesales/marketing), the magnitude of correlational coefficient raised and expresses the slight association between the future desired professional areas with the 'Deep Approach' ($r = .12, p < 0.0001$).

However, this global trend is not the same at a country economic level. The heat map of Figure 5.17 shows that the variance of the mean scores of the S-SPQ 'Deep Approach' at the World Bank Income level compared by the future desired pharmacy professional areas (excluding the outlier, non-pharmacy related profession). The order in the level of the mean 'Deep Approach' scores

differs in the World Bank Income Level, and the level of the mean 'Deep Approach' scores of the community pharmacy area becomes higher towards the Low Income Level. It may reflect on the role of the professions of the prefixed areas by the Income level, and students seem to alter their approaches to learning according to the professional areas that they desire to get involved in.

Figure 5.17: Heat map comparing the level of Deep Approach scores by future desired professional areas in pharmacy with World Bank Income Level | n = 4,030 (excluding the outlier: non-pharmacy related)



5.4.11 Motivation orientations

The eight predefined motivation orientations were provided to the respondent to choose three categories which best represent his/her motivations to study pharmacy; the interest in science, the contribution to healthcare, the personal and family influences, the personal development and fulfilment, the work-life balance expectation, the future career opportunities, the professional and vocational career, and the financial and economic aspects.

To assess the variances of the S-SPQ and CEQ scores by the eight motivation orientations, separate univariate ANOVAs were conducted (Table 5.9). The test shows that there are no significant variances of all the S-SPQ and CEQ scales in 'personal and family influences' motivation category.


Table 5.9: ANOVA results of the three S-SPQ and the six CEQ scales in the eight motivation categories

		Interest in science		Contribution to healthcare		Personal and family influences		Personal development and fulfilment		Work-life balance experience		Future career opportunities		Professional and vocational career		Financial and economic aspects	
		F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P
S-SPQ	Deep Approach	24.34	<.0001	36.6	<.0001	1.09	0.296	24.12	<.0001	15.97	<.0001	7.5	0.006	0.96	0.327	87.79	<.0001
	Achieving Approach	0.89	0.345	3.77	0.052	6.55	0.011	0.032	0.858	3.25	0.071	2.33	0.127	16.47	<.0001	17.91	<.0001
	Surface Approach	79.76	<.0001	51.28	<.0001	3.62	0.057	96.83	<.0001	23.5	<.0001	24.66	<.0001	4.36	0.037	173.34	<.0001
CEQ	Good Teaching	0.08	0.779	27.93	<.0001	2.47	0.116	0.05	0.817	0	0.994	0.05	0.829	0.16	0.689	33.29	<.0001
	Clear Goals	0.06	0.802	3.99	0.046	1.06	0.304	0.03	0.86	0.12	0.734	2.33	0.127	0.26	0.613	8.81	0.003
	Generic Skills	0.21	0.645	45.4	<.0001	1.06	0.302	4.15	0.042	6.26	0.012	0.06	0.805	4.05	0.044	45.5	<.0001
	Appropriate Assessment	0.01	0.922	31.82	<.0001	0	0.958	0.66	0.417	0.36	0.551	0	0.993	0.09	0.761	28.85	<.0001
	Appropriate Workload	13.12	<.0001	16.76	<.0001	0.93	0.334	10.35	0.001	9.43	0.002	4.3	0.038	0.13	0.722	38.16	<.0001
	Emphasis on Independence	9.55	0.002	21.9	<.0001	5.77	0.016	1.27	0.259	8.47	0.004	0.39	0.531	10.43	0.001	22.33	<.0001

Further, the bivariate correlations between the three S-SPQ and six CEQ scales and each motivation orientation were assessed by testing the Pearson's product-moment correlation coefficient. However, there are no meaningful bivariate correlations between all the S-SPQ and CEQ scales and the eight motivation categories.

The 'personal and family influences' and 'professional and vocational career' motivation categories did not have statistically significant variances or correlations with the 'Deep Approach' or 'Surface Approach'. Excluding these two motivation categories, although all correlation coefficient identified with either the 'Deep Approach' or 'Surface Approach' are small (coefficient of determinant, ranging from 0.2% to 4.0%), there is a certain trend of the direction of correlational relationships between the types of motivations and either the 'Deep Approach' or 'Surface Approach' (Table 5.10). This trend is consistent with the SDT (Ryan & Deci, 2000) and previous evidence that larger extent of autonomy in the motivation for the study associated with a deeper approach to learning.

Table 5.10: The direction of correlation between the type of motivation and the Deep or the Surface Approach

Autonomy	Self-determination theory Motivation Style	Perceived locus of causality	Motivation category	Direction of correlational relationship with motivation category	
				Deep Approach	Surface Approach
Larger extent  Less extent	Intrinsic	Internal	Interest in science	+	-
			Contribution to healthcare	+	-
	Extrinsic (integration)	Internal	Personal development and fulfilment	+	-
	Extrinsic (identification)	Somewhat internal	Work-life balance expectation	-	+
			Future career opportunities	-	+
	Extrinsic (external regulation)	External	Financial and economic aspects	-	+

5.4.12 Path model

With findings regarding the meaningful significant correlations of the S-SPQ 'Deep Approach' scale with the four CEQ scales (the 'Good Teaching', 'Clear Goals', 'Generic Skills', and 'Emphasis on Independence'), path analysis was conducted within the current sample dataset to explore to what extent the deep approach to learning has been explained and to examine the level of relative magnitude of each effect by the other factors. The IBM SPSS Amos version 22 was used to obtain parameter estimates and goodness of fit indices of the model tested.

The 'Deep Approach' scale has two sub-scales, including the 'Deep Motive' and 'Deep Strategy', as Biggs (1987b) ascertains the congruent motive-strategy package. Thus, each effect on these

sub-scales by the four CEQ scales above was examined in this analysis.

A correlation matrix in Table 5.11 shows the significant and meaningful correlations of the four CEQ scales, including the 'Good Teaching', 'Clear Goals', 'Generic Skills', and 'Emphasis on Independence' with the 'Deep Motive' ($r = .29, .26, .38, .33$, respectively, $p < 0.0001$ in all), and correlations of the two CEQ scales (the 'Generic Skills' and 'Emphasis on Independence') with the 'Deep Strategy' ($r = .36, .26$, respectively, $p < 0.0001$ in both). Therefore, path model A (Figure 5.18) was postulated according to the found correlations.

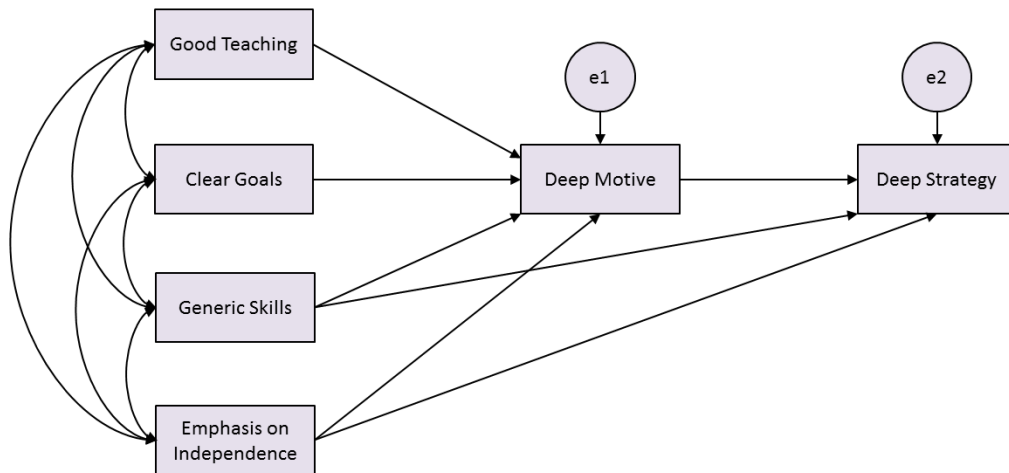
Table 5.11: Correlation and covariance matrix on the four CEQ scales and the S-SPQ Deep Approach sub-scales | $n = 4,105$

		GT	CG	GS	IN	DM	DS
GT	Pearson Correlation	1					
	Sum of Squares and Cross-products	144758.656					
	Covariance	35.273					
CG	Pearson Correlation	.607**	1				
	Sum of Squares and Cross-products	51748.006	50244.708				
	Covariance	12.609	12.243				
GS	Pearson Correlation	.526**	.429**	1			
	Sum of Squares and Cross-products	49916.717	23980.340	62201.817			
	Covariance	12.163	5.843	15.156			
IN	Pearson Correlation	.581**	.427**	.477**	1		
	Sum of Squares and Cross-products	55557.949	24078.723	29896.665	63167.019		
	Covariance	13.538	5.867	7.285	15.392		
DM	Pearson Correlation	.291**	.262**	.380**	.328**	1	
	Sum of Squares and Cross-products	17149.628	9082.466	14676.018	12771.333	24006.298	
	Covariance	4.179	2.213	3.576	3.112	5.849	
DS	Pearson Correlation	.247**	.236**	.362**	.262**	.480**	1
	Sum of Squares and Cross-products	11238.892	6344.917	10810.948	7885.671	8905.305	14344.978
	Covariance	2.739	1.546	2.634	1.921	2.170	3.495

** : Correlation is significant at the 0.001 level (2-tailed).

NB: GT = Good Teaching, CG = Clear Goals, GS = Generic Skills, IN = Emphasis on Independence, DM = Deep Motive, and DS = Deep Strategy

Figure 5.18: Path model A with the Deep Motive and the Deep Strategy



In the hypothesized path model A, four exogenous variables (the 'Good Teaching', 'Clear Goals', 'Generic Skills', and 'Emphasis on Independence') correlate with each other; affect one of the endogenous variables, the 'Deep Motive'; two of the exogenous variables (the 'Generic Skills' and 'Emphasis on Independence') affect the other endogenous variable, the 'Deep Strategy'; and finally, the 'Deep Motive' affect the 'Deep Strategy' as Biggs (1987b) identified. Error terms are added onto the endogenous variables (the 'Deep Motive' and 'Deep Strategy') to indicate any unexplained effects by the exogenous variables in the model.

5.4.12.1 Model evaluation method

There is no robust guideline for selection of model fit indices to determine the goodness of model fit (Brown, 2006). Each test statistic has advantages and disadvantages; hence, it is important to examine several indices and not to rely on a single index to evaluate the model fit (Olobatuyi, 2006). In this study, the chi-square (χ^2) and the degrees of freedom (df) as well as the widely used two-index presentation strategy (the Comparative Fit Index (CFI) and the Standardized Root Mean Square Residual (SRMR)) by Hu and Bentler (1999) is applied, and when the model fit was incompatible by these indices the Consistent Akaike Information Criteria (CAIC) was used to compare between the models regarding the model parsimony. The used indices and cut-off values were described in Table 5.12.

In addition, Modification Indices (MIs) with parameter change coefficients were used to grow the model by adding arrows in the model-building process. The common threshold of the MIs to add arrow is 4.0 (Garson, 2014). The significance level of the path coefficients was used to trim the model by deleting arrows that do not contribute the model adequacy.

Table 5.12: The fit indices and their cut-off values

Category	Model fit index	Abbreviation	Cut-off value
Absolute fit measure	Chi-square	χ^2	Smaller χ^2 shows the better fit of the model (should be non-significant)
	Degrees of freedom	df	
	Relative chi-square	χ^2/df	Ratio of χ^2 to $df \leq 3$ (typically ranging from 1.5 to 2.5)
Comparative fit measure	Standardized Root Mean Square Residual	SRMR	<.08 → adequate fit <.05 → good fit
	Comparative Fit Index	CFI	>.90 → adequate fit >.95 → good fit
Parsimony fit measure	Consistent Akaike Information Criterion	CAIC	Smaller the better when comparing the models

Source: Garson (2014), and Olobatuyi (2006)

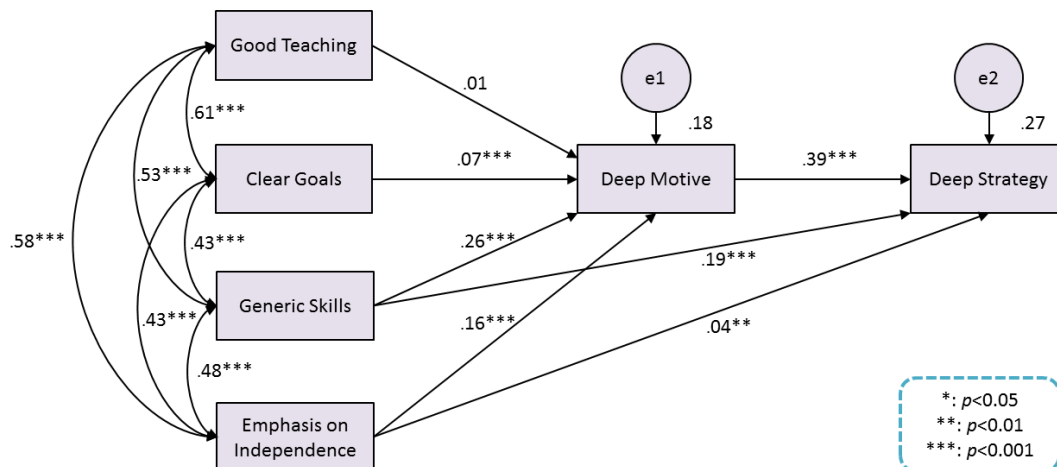
5.4.12.2 Model evaluation

5.4.12.2.1 Model A evaluation

Figure 5.19 illustrates model A with tested path coefficients. A path from the 'Good Teaching' to the 'Deep Motive' appears to be non-significant ($\beta_{GT, DM} = .01, p = 0.473$), showing that the 'Good Teaching' scale does not affect the variance in the 'Deep Motive' significantly. A chi-square test shows significant variances between the model-implied and observed covariance matrices ($\chi^2 = 8.674, p = 0.013$), and the relative chi-square is greater than 3 ($\chi^2/df = 4.337$), which indicates the lack of fit of the model. On the other hand, the SRMR and CFI show the good fit of the model (SRMR = 0.0074; CFI = 0.999).

Furthermore, the Modification Index (MI) on a path from the 'Clear Goals' scale to the 'Deep Strategy' scale is greater than 4.0 ($MI_{CG, DS} = 6.192$), indicating the improvement of the model fit by adding the arrow from the 'Clear Goals' to the 'Deep Strategy'.

Figure 5.19: Path model A with the path coefficients



5.4.12.2.2 Model B evaluation

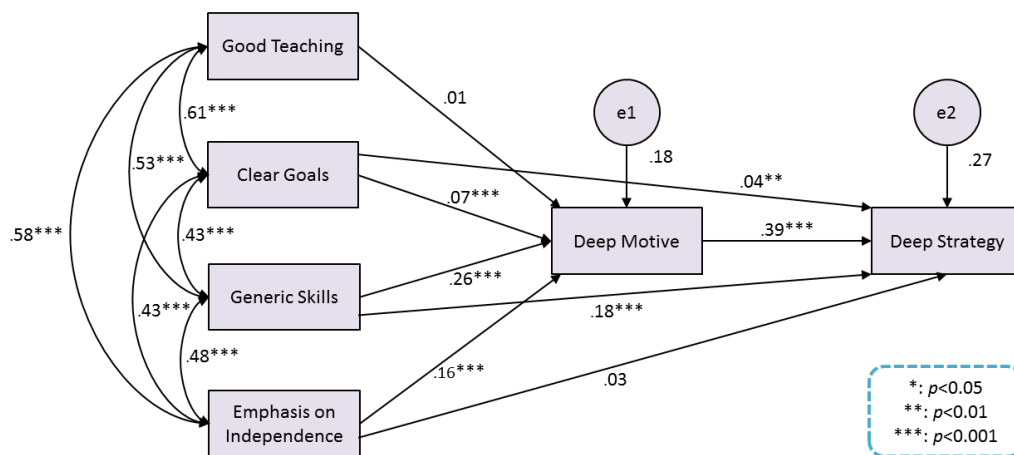
To improve the fit of the path model from model A, model B was evaluated as adding the arrow from the 'Clear Goals' to the 'Deep Strategy' (Figure 5.20).

While a path coefficient from the 'Good Teaching' to the 'Deep Motive' is still non-significant ($\beta_{GT, DM} = .01, p = 0.473$), a path from the 'Emphasis on Independence' to the 'Deep Strategy' also becomes non-significant ($\beta_{IN, DS} = .03, p = 0.073$).

The non-significant chi-square result shows the adequate model fit, together with the relative chi-square less than 3 ($\chi^2 = 0.386, p = 0.534, \chi^2/df = 0.386$). Hoelter's critical N at the .05 significant level shows that sample size should be 40,806 or less to accept a model based on a non-significant model chi-square, which denotes the adequate use of the chi-square test within the current sample size of 4,105. The SRMR and CFI also show the good fit of the model (SRMR = 0.0012; CFI = 1.000). No additional path was indicated from the MI.

However, the CAIC of Model B is bigger than that of Model A ($CAIC_A = 185.754; CAIC_B = 186.786$), indicating that Model B is less fit than Model A regarding the model parsimony.

Figure 5.20: Path model B with the path coefficients



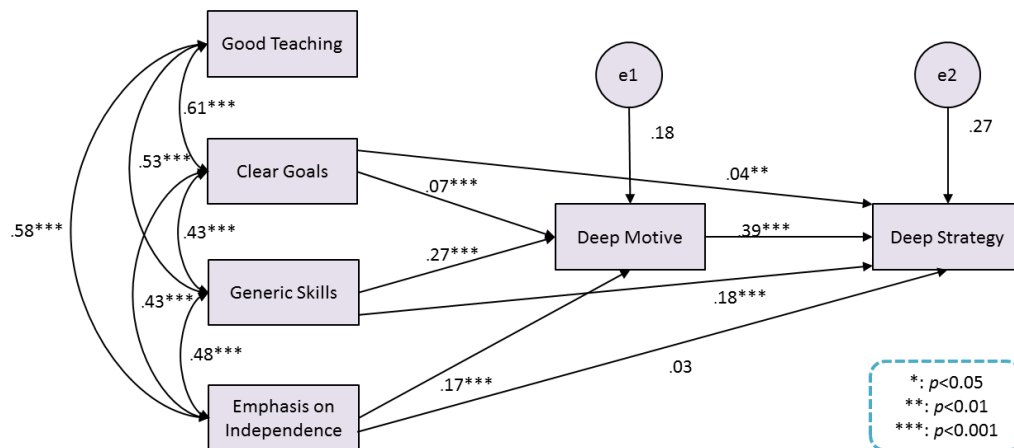
5.4.12.2.3 Model C evaluation

As model A and B have a non-significant path, a better model was explored. A path from the 'Good Teaching' to the 'Deep Motive' is non-significant and the path coefficient is the smallest in the model; hence, the path was removed from the model B to be model C (Figure 5.21).

Model C still includes a non-significant path from the 'Emphasis on Independence' to the 'Deep Strategy' ($\beta_{IN, DS} = .03, p = 0.073$). A chi-square test shows that there was no significant variance between the observed and expected covariance matrices ($\chi^2 = 0.901, p = 0.637, \chi^2/df = 0.451$), which indicates the adequate fit of model C. Hoelter's critical N at the .05 significant level was 27,277, which is greater than the present sample size of 4,105; hence, the non-significant result of model chi-square test was acceptable. The SRMR and CFI also show the good model fit (SRMR = 0.0017; CFI = 1.000).

Comparing the model B and C, the CAIC shows the better fit of model C than that of model B (CAIC_B = 186.786; CAIC_C = 177.981) in terms of the model parsimony.

Figure 5.21: Path model C with the path coefficients



5.4.12.2.4 Model D evaluation

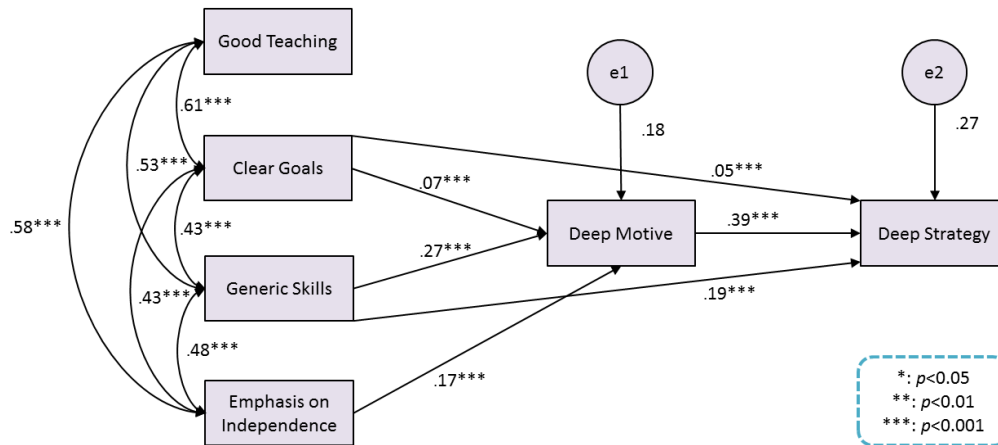
To explore further better model fit, Model D, removing a path between the 'Emphasis on Independence' to the 'Deep Strategy' in model C, was evaluated (Figure 5.22).

All the path and correlation coefficients evaluated in model D show significant associations between the variables indicated. A chi-square test shows that there is no significant difference between the observed and expected covariance matrices, indicating still the adequate fit of model D ($\chi^2 = 4.122, p = 0.249, \chi^2/df = 1.374$). Hoelter's critical N at the .05 significant level was 7,782, which is greater than the present sample size of 4,105, showing that the non-significant mode chi-square result is acceptable. The SRMR and CFI also indicate the good model fit (SRMR = 0.0047; CFI = 1.000).

Comparing the extent of model parsimony of model C and D, the CAIC shows that model D has the

better fit than model C (CAIC_C = 177.981; CAIC_D = 171.881). No MI to add any links in the model was identified, indicating that no important link was missed in the model.

Figure 5.22: Path model D with the path coefficients



The model fit measures of all specified models A to D are summarised in Table 5.13.

Table 5.13: Model fit measures for the models A to D

	Model A	Model B	Model C	Model D
χ^2 (p value)	8.674 (0.013)	0.386 (0.534)	0.901 (0.637)	4.122 (0.249)
df	2	1	2	3
χ^2/df	4.337	0.386	0.451	1.374
SRMR	0.0074	0.0012	0.0017	0.0047
CFI	0.999	1.000	1.000	1.000
CAIC	185.754	186.786	177.981	171.881

5.4.12.3 Model exposition

According to the model evaluation above, model D appears to be the best fit of the model in this dataset. Standardised total effects on two endogenous variables (the ‘Deep Motive’ and ‘Deep Strategy’) are shown in Table 5.14.

Table 5.14: Standardised total effects on the ‘Deep Motive’ and ‘Deep Strategy’ in the Model D.

	Clear Goals	Generic Skills	Emphasis on Independence	Deep Motive
Deep Motive	.075	.267	.168	-
Deep Strategy	.081	.295	.066	.394

The whole model accounted for total 70% of the variance in the ‘Deep Strategy’ adoption, and 26% of the variance in the ‘Deep Motive’ cognition of pharmacy students in their initial pharmacy education globally.

All of the identified arrows from exogenous variables to endogenous variables show significant path coefficients, indicating that these three CEQ learning experience scales (the 'Clear Goals', 'Generic Skills', and 'Emphasis on Independence') directly and significantly affect the adoption of the 'Deep Motive' by pharmacy students ($\beta_{CG, DM} = .07$, $\beta_{GS, DM} = .27$, $\beta_{IN, DM} = .17$, $p < 0.001$ in all scales). Furthermore, the 'Clear Goals' and 'Generic Skills' scales also significantly and directly affect the 'Deep Strategy' adoption by pharmacy students ($\beta_{CG, DS} = .05$, $\beta_{GS, DS} = .19$, $p < 0.001$ in both scales).

By this model, the 'Generic Skills' is proved to best affect the 'Deep Motive' and the 'Deep Strategy'. The standardised total effect of the 'Generic Skills' on the 'Deep Motive' is .267 and that on the 'Deep Strategy' is .295, which accounted for 7.1% of the variance in the 'Deep Motive' and 8.7% of the variance in the 'Deep Strategy'.

The 'Emphasis on Independence' directly affects the 'Deep Motive', accounted for 2.9% of the direct variance in the 'Deep Motive'. However, this student's perception only indirectly affects the 'Deep Strategy' adoption by 0.4% variance. The relationship between the 'Emphasis on Independence' and 'Deep Strategy' from a correlational analysis ($r = .26$, $p < 0.0001$) disappears due to the indirect effect through the 'Deep Motive' identified in the model.

The model identifies the direct effect of the 'Clear Goals' scale both on the 'Deep Motive' ($\beta_{CG, DM} = .07$, $p < 0.0001$) and 'Deep Strategy' ($\beta_{CG, DS} = .05$, $p < 0.0001$). Although the variances caused by the 'Clear Goals' are small (0.6% in the 'Deep Motive', 0.7% in the 'Deep Strategy'), the positive influence of the perception of clear goals and standards in the provided education on the 'Deep Approach' adoption is significant.

The student's perception on the 'Good Teaching' appears to have no direct effect on the 'Deep Approach' in the model, although the correlational analysis found the meaningful relationship with the 'Deep Motive' ($r = .29$, $p < 0.0001$). However, the indirect effect of the 'Good Teaching' perception of the pharmacy student is impossible to overlook ($\beta_{GT, DM} = .28$, 8.1% variance; $\beta_{GT, DS} = .24$, 6.0% variance). This result indicates that the extent of how good the provided teaching indirectly affect the 'Deep Approach' adoption of the pharmacy students in conjunction with the other three exogenous variables (the 'Clear Goals', 'Generic Skills', and 'Emphasis on Independence').

The model also expresses that there is 3.2% of the unexplained variance in the 'Deep Motive' and 7.3% of the unexplained variance in the 'Deep Strategy' adoption that the sample students

reported.

5.5 Biases and limitations

Findings of this study may not be generalisable due to the non-probability sampling scheme used and the sample country representation. Participants in this study did not necessarily represent all the opinions from the specific countries and territories. The snowball sampling was initiated through the IPSF network; thus, many participants seem to connect with this organisation. Therefore, those students reached through the IPSF network may even have different opinions as those who join the national and international pharmacy students organisations tend to have eagerness towards the profession when it compares to the others.

The sample size is not enough to express explicit country and regional level comparisons. Also because of the variance in the sample representations between countries, aggregated country, regional and global level data may not clearly represent the averaged outcomes.

Self-completed questionnaire is sometimes controversial for actual behavioural measurement. However, the notion of the relationship between situational factors and students' approaches to learning is always built on the hypothesis that the predictor learning environments that students perceived influence their approaches to learning according to Biggs (1985) and Ramsden (1991).

Measurement construction may not be coherent and consistent for all groups of pharmacy students, although both instruments (the CEQ and S-SPQ) are validated in many disciplines and cultural settings (Wilson *et al.*, 1997; Lizzio *et al.*, 2002; Watkins, 2001a).

There may still be language barriers though this study used seven different language versions of the questionnaire. The extent of understanding of questions may affect the scores of instruments. In addition, the translation process of the questionnaire from original English to different language version may affect the validity of the instruments though the questionnaire was translated with extra care not to reduce the validity by using the forward-back translation process.

5.6 Discussion and summary of the chapter

The study allows a global comparison of learning experiences and approaches to learning of pharmacy students. It is the first study to examine the proxy indicators of the quality of IPPE practices with the combination of the CEQ and S-SPQ instruments across nations, having seven

different language versions.

The study addressed four of the principal research questions (chapter 2, 2.1.2, i, ii, iii and iv), concerning: the global features of IPPE practice that students experience; the variances in and relationships between learning processes that students adopted; and personal and situational factors that students experienced during their IPPE. The deep approach to learning adopted during student's learning process is considered as a proxy leading students to acquire the capacity to work in a team, introduce and adjust to new challenge and environment while adopting their competencies, and affect their own motivation towards further life-long learning.

5.6.1 Global features of initial pharmacy education practice

It is vital to understand and recognise global challenges of current IPPE practice, as identifying the current situation can be a basis towards further development and improvement. This was addressed as one of the principal research questions (chapter 2, 2.1.2, i), concerning the current IPPE practice that students experience at a global level.

Globally aggregated scores of the students' approaches to learning and learning experiences highlight that IPPE students globally adopt higher levels of the deep approach to learning and lower levels of the surface approach to learning compared to the scale midpoints. It infers that IPPE globally guides their students to obtain better transferrable skills with structured knowledge in a continuous process of self-directed learning, mediated by fostering the adoption of the deep approach to learning. Furthermore, as the higher level of the achieving approach to learning was shown together with the deep approach adoption compared to the scale midpoint, IPPE is globally designed well for students to adopt a deeper approach to learning when they desire high marks during the course.

Pharmacy students globally also perceive that IPPE better assists students to develop generic skills, such as problem-solving and analytic skills, and the ability to work in a team and tackle unfamiliar situations. This particular situational factor is often rated higher when the PBL approach is employed in the programme (Lyon & Hendry, 2002), to foster the development of generic skills.

Three situational factors, including the 'Appropriate Assessment', 'Appropriate Workload', and 'Emphasis on Independence', were rated lower than the scale midpoints at a global level. It expresses that the current IPPE practice needs to improve its assessment scheme with an appropriate amount of the workload to be a pharmacist, and openness in topics to learn together with diverse learning approaches. IPPE needs to contain many different kinds of topics as pharmacy

graduates have generally a wide range of career pathways. Thus, lower levels on the appropriate workload scale are understandable. To improve this specific part of IPPE, integration of the subjects would be a key.

5.6.2 Variations in learning processes and experiences

One of the principal research questions (chapter 2, 2.1.2, ii) was answered by the data retrieved in the Student Learning Experience Survey.

In all the WHO regions, the three approaches to learning that students reported follow a similar order: the highest level of learning approach applied was the deep approach, followed by the achieving approach, and surface approach. However, analyses express the significant variations in the magnitude of each approach that students adopt in their education between the WHO regions as well as countries, which imply that different structures, teaching and learning approaches are used across nations.

The South East Asian students reported the deepest approach to learning compared to the other countries, but also the highest level of surface approach to learning among the WHO regional categories. The reason for the highest levels of both deep and surface approach may be explained by the cultural differences in understanding the underlying meaning of the tasks. Biggs (1993) describes the cultural differences in understanding as Asian students, especially Chinese and Japanese, believe their understanding process comes through memorisation. Thus, they use surface strategy (memorisation) to deepen understanding (deep approach to learning). A similar pattern was seen in the Western Pacific students with a relatively similar magnitude of both deep and surface approaches to learning reported. In this case, many students who have Asian background may have had reported in a similar way in the SAL concept.

The African students reported the second highest level of the deep approach to learning relatively compared with the other WHO regions. In addition, their achieving approach scores hit the highest level among all the regions. It can indicate that their education and curricula were systematically well organised to induce their deep approach to learning through getting greater marks. The similar trends can be seen in the Eastern Mediterranean students; however, the broad 95% Confidence Intervals indicate that a larger sample size is needed for explicit indication.

The Pan American students reported the biggest difference between the level of the deep and surface approaches to learning. With the similar level of the achieving approach with the deep one reported, their education constructed the best for students to adopt the deep approach to learning,

matching with their desire to getting the greatest possible marks and performance with the less use of rote-learning.

The European students reported the smallest level of the deep and achieving approaches to learning within the WHO regions, though they also express the same order of the magnitudes in the learning approaches adoption ('Deep Approach' > 'Achieving Approach' > 'Surface Approach'). It can be explained by the difference in the sample size compared to the other regions, which covers overall opinions from all kinds of students. The finding can also indicate that the European students experienced greater anxiety over examinations and task deadlines compared to the other regional students, which induce their surface approach adoption over the deep approach during their learning.

The global trend in the level of scales regarding students' learning experiences is somewhat similar between the WHO regions ('Good Teaching' > 'Generic Skills' > 'Emphasis on Independence', 'Clear Goals', 'Appropriate Assessment' > 'Appropriate Workload'). However, the magnitude of each score and the order of the three scales ('Emphasis on Independence', 'Clear Goals', and 'Appropriate Assessment') varied, indicating differences in learning environments between regions.

The Pan American students reported relatively high learning experiences in all scales compared to the other regions, though their perceptions on the workload are less compared to the other aspects of their experiences.

The high level of the 'Emphasis on Independence' score reported by the South East Asian students was outstanding compared to the other WHO regions. It expresses that IPPE within the South East Asian region offers greater choices in study areas, learning and assessment methods.

The Western Pacific students felt that the offered education minimally helps develop their generic skills though other scales were rated as third greatest magnitudes of learning experiences within the WHO regions. On the other hand, the African students reported the greater level of the 'Generic Skills' scores relatively compared with the other scales. This may infer the difference in the focus of the IPPE between these regions. IPPE programmes in the African region seem focused more on the development of the ability which will be used in professional life after the graduation.

5.6.3 Influence on students' approaches to learning

Previous evidence expresses the association of students' adoption of the deep approach to learning with their quality learning outcomes as a better demonstration of their understanding of material

(Balla *et al.*, 1990; Trigwell & Sleet, 1990) or a better development of their conceptions of material (Van Rossum & Schenk, 1984; Prosser & Millar, 1989). The approaches to learning that students apply also reflect on situational and personal factors (Newble & Hejka, 1991), which raised the research question on which factors influence pharmacy students' adoption of the deep approaches to learning (chapter 2, 2.1.2, iii).

Correlational and comparative analyses revealed several situational and personal factors influencing the adoption of the deep approach by pharmacy students.

5.6.3.1 Situational factors

The study found the global trends in the relationships between the students' learning approaches and the situational factors that students perceive. The four CEQ learning experience categories (the 'Good Teaching', 'Clear Goals', 'Generic Skills', and 'Emphasis on Independence') significantly correlate with the S-SPQ 'Deep Approach' score in a meaningful matter, while weak but significant relationships between the two learning experience groups (the 'Appropriate Assessment' and 'Appropriate Workload') and the S-SPQ 'Surface Approach' were found. This means that as pharmacy programme provides good quality teaching, sets clear goals and standards, encourages students to develop more generic skills and emphasises students' independent learning, students are likely to adopt a deeper approach to learning which eventually produce better performance outcome.

This global pattern in IPPE is consistent with the findings identified by Crawford *et al.* (1998) without the Generic Skills in the CEQ because Crawford *et al.* (1998) used a shorter version of the CEQ excluding the Generic Skills group for first-year science and engineering students in Australia. Similar findings were also reported by Lizzio *et al.* (2002) with 5,000 all-year students across 14 faculties.

The correlation pattern of the 'Deep Approach' with specific situational factors was also found with the 'Achieving Approach' in the current sample set. This finding may indicate the higher factor order of the 'Deep Approach' and 'Achieving Approach' against the 'Surface Approach'. It infers that IPPE globally tend to be constructed as higher grades can be obtained through learning resulted from the deeper approach to learning.

Comparative analyses express that the South East Asian students report better learning experiences and adopt deeper approaches to learning relatively as opposed to the European students. It indicates that the South East Asian pharmacy education is more likely to have a better structure and

process for students to adopt the deep approach to learning, in turn, to obtain quality learning outcomes. However, there may be a bias in sampled opinions due to the variance in the sample representativeness as the South East Asian sample size is smaller than the European one (South East Asia, n = 266; Europe, n = 2,546).

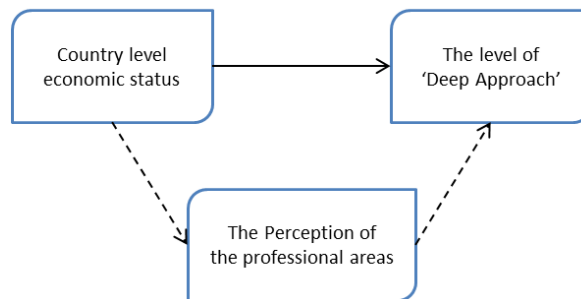
5.6.3.2 Personal factors

Gender, age, and the year of study did not correlate with the students' adoption of a deep approach to learning. However, country-economic level, as the World Bank Income Level, associates slightly but significantly with the level of a deep approach to learning. This study indicated that pharmacy students in lower income countries tend to report a higher level of the 'Deep Approach' and 'Achieving Approach' scores in their curricula as well as higher scores in the 'Generic Skills' and 'Emphasis on Independence' learning experience scales. This finding suggested that there may be common characteristics in pharmacy education in lower income countries to lead pharmacy students to adopt a deeper approach to learning.

The study also found that major four pharmacy professional areas which pharmacy students desired to work in at the time of their responses have a slight association with the 'Deep Approach' scale. The global correlational pattern is likely to illustrate the influence of the student's perception of vocational characteristics upon the adoption of the deep approach to learning. In addition, further analysis together with the country economic levels showed that the country-level economic status affects the relationship between the levels of deep approach adoption and students' future desired pharmacy professional areas.

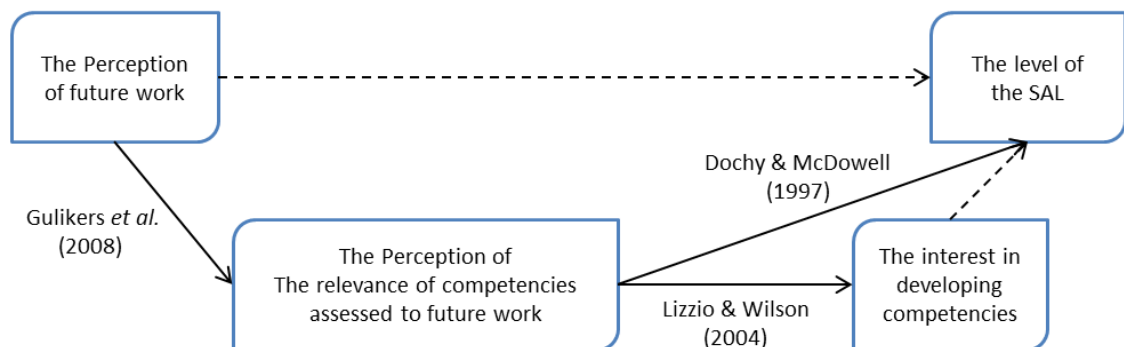
The analysis showed the variances in the mean 'Deep Approach' level of the future desired professional areas compared with a country economic level using the World Bank Income Level (Figure 5.17). The analysis between the level of the 'Deep Approach' score and desired professional areas showed that pharmacy students who would like to work in the community pharmacy sector reported the least level of the 'Deep Approach' to their learning. However, an analysis comparing the level of the 'Deep Approach' score against future desired professional areas at the country economic level revealed that pharmacy students in lower income countries, who desire to work in a community environment, reported the deepest approach to learning. The finding may indicate that the correlation between the country economic level and the extent of the adoption of a deep approach to learning is likely to be mediated by the student's perception of the pharmacy professional areas which can vary between country-level economic statuses (Figure 5.23).

Figure 5.23: Assumption of the correlation between variables



The assumption above was made according to the previous evidence (Gulikers *et al.*, 2008; Lizzio & Wilson, 2004b; Dochy & McDowell, 1997). The assumption above was made according to the previous evidence (Gulikers *et al.*, 2008; Lizzio & Wilson, 2004b; Dochy & McDowell, 1997). Gulikers *et al.* (2008) found that there is a correlation between the student's perception and experience of future work and their perception of the relevance of the assessment to real professional practice (i.e., authenticity). Dochy and McDowell (1997) identified the influence of the student's perception of the extent of the authenticity of assessment upon the level of the SAL. Whilst, Lizzio and Wilson (2004b) found that there is a relationship between the student's perception of the relevance of the competencies evaluated in the assessment to future work and the level of the student's interest in developing the competencies. Figure 5.24 illustrates the possible relationship between the evidence.

Figure 5.24: Summary of evidence and possible relationship



According to the evidence and conceivable links between variables in Figure 5.23 and Figure 5.24, in IPPE, the students' perceptions of the desired pharmacy professional areas are likely to influence the extent of their awareness of the authenticity of assessment. Then, if the student found the authenticity in the assessment, the motivation for developing the competencies for the area increases, which eventually leads to the adoption of a deeper approach.

In lower income countries, community pharmacies are frontline healthcare services where are often first points that local people can contact. This situation can make the community pharmacy practice more aware. In addition, if IPPE in these lower income countries were to well grasp the actual practice in a community pharmacy sector, then the high level of the deep approach to learning of community pharmacy area in lower income countries can be explained.

Furthermore, the study shows that having consistent desire to be a pharmacist before entering IPPE has a significant impact on the levels of deep and achieving approaches to learning as well as those of learning experiences in good teaching, clear goals, generic skills, and emphasis on independence. However, no meaningful correlations were found between the consistent desire becoming a pharmacist and these scales.

The study also found the relationship between academic motivations of students and the level of the SAL. The congruent motive-strategy package in the SAL theory (section 1.5.1.1.1) explains that the motivation for learning is a changeable predictor of learning strategy the student employs depending on the students' perceptions of the learning environment and their personal characteristics (Biggs, 1985). However, motivations are often persistent and considered as a stable personal factor influencing the level of the SAL (Prat-Sala & Redford, 2010). In order to explore the association between the academic motivation and the level of the SAL, a list of common motivation categories for IPPE students were developed for this research (section 4.4.1.2).

The study found that, of the eight motivational categories, six motivations had significant but weak correlations with the 'Deep Approach' scores. Although the magnitudes of the correlations between these six motivations and the 'Deep Approach' were small, the direction of the correlational relationships between the motivations and the level of the SAL were consistent with the SDT theory (Ryan & Deci, 2000), which indicates that a larger extent of autonomy in the motivation for study pharmacy leads to the adoption of the deeper approach to learning.

The most intrinsic motivations (i.e., 'interest in science' and 'contribution to healthcare') had the strongest influence to the level of the deep approach adoption. The finding may imply the importance of the interest not only in pharmacy subject but also in the profession for fostering the adoption of a deep approach to learning in IPPE.

5.6.4 Pharmacy model for the deep approach to learning

To answer the research question addressing the degree of each effect of exogenous variables on the

deep approach to learning in pharmacy (chapter 2, 2.1.2, iv), the best fit model was explored by a path analysis.

The best-fit path model (Figure 5.22) illustrates how much each of the correlated factors influences the student's adoption of the deep approach to learning in IPPE globally, identifying the extent of each effect of each effect from the four CEQ learning experience scales (the 'Good Teaching', 'Clear Goals', 'Generic Skills', and 'Emphasis on Independence') on the S-SPQ 'Deep Motive' and 'Deep Strategy' scales.

According to the model, the 'Generic Skills' factor is the strongest predictor for the deep approach adoption in pharmacy. This finding is consistent with the study results by Wilson *et al.* (1997), which examined the validity of the CEQ as well as the relationship between the CEQ factors and deep/surface approach to learning using the *Approaches to Studying Inventory*. The finding indicates that, when they foresee the application of their acquiring transferable and adaptive skills to their future work, pharmacy students tend to adopt the deep approach to their learning. Therefore, the curriculum design should be based on the pharmaceutical service provision which reflects the population health needs, so that students can link the content to actual health services and recognise how transferable knowledge and skills can be used in real professional work.

The model also highlighted the 'Emphasis on Independence' factor has a direct influence only on the 'Deep Motive' scale, but an indirect and relatively small effect on the 'Deep Strategy'. The greater degree of openness in the subject choices, learning/assessment methods in IPPE degree can provide more opportunities to students for choosing the subjects which better fit with their intrinsic interests and individual preferences in learning and assessment methods (i.e., the 'Deep Motive'). As the model illustrates the strong correlations of the 'Emphasis on Independence' score with the 'Generic Skills' score as well as the greatest influence of the 'Generic Skills' on the 'Deep Approach' adoption, the fact that students themselves select what they learn may lead to the ability to take responsibility for their work, which was explained in the correlation with the 'Generic Skills' and another direction of the influence on the deep approach adoption.

Although the 'Clear Goals' directly influence both on the 'Deep Motive' and the 'Deep Strategy' of pharmacy students globally, the magnitudes of the effects are relatively small. This finding is consistent with the results found by Lizzio *et al.* (2002).

Even weak effects by the paths from the 'Clear Goals' are important, in conjunction with the 'Good Teaching' factor, which is an indirect predictor of the deep approach adoption. The correlation of

the 'Good Teaching' with the 'Deep Approach' occurs only when concurrent with the other exogenous variables, i.e., the 'Clear Goals', 'Generic Skills', and 'Emphasis on Independence'. It may indicate that the characteristics related to good teaching acknowledged by pharmacy students are not only features addressed by the 'Good Teaching' factor, but also include the aspects from the 'Clear Goals', 'Generics Skills', and 'Emphasis on Independence'.

The identified model explains a total 70% of the 'Deep Strategy' adoption by pharmacy students and 30% was left unexplained. The deep approach to learning is affected by and derived through metacognitions through many factors. Furthermore, country situations and educational systems and practices vary all over the world, which can be included in unexplained 30% of the influence to the deep approach adoption. Thus, identifying explanation of 70% variance in the deep strategy adoption of global pharmacy students can have an important impact on the improvement of the IPPE globally.

Further research with larger sample size will be needed to more explicit country level analyses, as well as more comprehensive global trends because there is the variance in the sample size at a regional level.

Chapter 6: Pharmacy Education Survey

6.1 Introduction to the chapter

This chapter will describe the methods used in the Pharmacy Education Survey in detail. This survey was conducted with the attempt to answer the following questions proposed in chapter 2, 2.1.2, v, vi and vii:

- v. How do IPPE capacities vary globally?
- vi. How do the provisions of IPPE institutions differ across nations?
- vii. How different are the ways in which IPPE is quality-assured across the globe?

This global survey was the largest of its type focusing on pharmacy education across nations. The survey was supported by the FIP and WHO, and the part of results were published as the FIP report, 2013 *FIPEd* Global Education Report (*FIPEd*, 2013). The survey investigated the quality attributes of the institutional and teaching factors of IPPE (Figure 2.1 and Figure 2.2).

6.2 Aim and objectives

The Pharmacy Education Survey aimed to develop evidence-based data through which to facilitate the sustainable development of IPPE and subsequent pharmacy workforce.

The objectives were:

- To explore validated global description of IPPE and training leading to registration as licensed pharmacists in subsequent countries and territories;
- To investigate the IPPE institutional data regarding capacity; and
- To map the quality assurance mechanisms and processes in the IPPE institutions across nations.

6.3 Methods

6.3.1 Questionnaire development

The questionnaire was first developed by the *FIPEd* Development Team members and WHO to cover IPPE institutional data worldwide. Present questionnaire used in this project (Appendix 11) was derived from the institutional-level questionnaire in order to focus on the country level data of

IPPE (e.g., production of pharmacists, ownership of school, resource finance, academic programme in pharmacy, admission requirements, licensure, and QA system) in collaboration with the FIP Collaborating Centre (UCL), the School of Pharmacy University of Nottingham, FIPeD and WHO Human Resources for Health staff.

Considering the time to spend completing all the questions as well as collecting the documents, internet conditions, and flexibility of the answer, the questionnaire was formed in the Microsoft Office Word document and rich text files.

The original questionnaire was developed in English and translated into five different languages (Arabic, French, Japanese, Portuguese, and Spanish) via the forward-back translation process (Costa *et al.*, 2007) to make sure the validity of them. Two voluntary translators were involved in each forward and back translation from English to the targeted language. The independent translators are native in the targeted language and fluent in English. One independent translator translated the original English questionnaire into the targeted language, and the other back-translated into English and reviewed for the final version of the translated questionnaire to be used. Each forward-back translation of the questionnaire can be found in Appendix 12 - Appendix 16.

6.3.2 Sampling

The purposive sampling approach was applied to seek country- and territory-level data concerning the initial professional education and training in pharmacy which leads to registration as licensed pharmacists in their countries or territories. The list of samples approached was developed for this study including contacts of FIP member organisations and respondents to the 2012 FIP Global Pharmacy Workforce Survey as well as other contacts for professional bodies, regulatory bodies, and universities. In total, 476 contacts were gathered purposively to reach the expertise in initial professional pharmacy education in the specific country or territory settings. These listed contacts were approached via email (Appendix 17) inviting their participations in the survey together with the invitation letter (Appendix 18) as well as the questionnaire (Appendix 11).

Due to the nature of the selected approach in sampling, the response rate was not considered. To describe the institutional attributes of IPPE globally, data were collected from as many countries as possible.

6.3.3 Data collection and analysis

476 purposively selected contacts were approached by sending the questionnaire via email with invitation letter (Appendix 18) providing a brief purpose of this survey. A first invitation was sent on

24th of January, 2013 with the questionnaire. Reminders were sent once a month afterwards, and data collection was closed at the end of April 2013.

The self-completed questionnaires were returned via email. The data was collected in multiple languages, translated into English for analysis matter, and then collated in the Microsoft Office Excel 2010. The dataset was cleaned and checked with respondents or the information available online on the official website of relevant organisations/universities, where possible, before being prepared for analysis.

To capture more data from various countries, some data were obtained from the PHARMINE database (available at: <http://www.pharmine.org/country-profiles/>), and 2012 FIP Global Pharmacy Workforce database.

Economic data of the countries including national population, Income level, Gross Domestic Product (GDP) (current US\$), GDP per capita (current US\$), and Gross National Income (GNI) per capita – Purchasing Power Parity (PPP) (current international \$) were retrieved from the World Bank Database (available at: <http://data.worldbank.org/>), as of May 2013. A total number of licensed pharmacists and licensed female pharmacists were obtained from 2012 FIP Global Pharmacy Workforce Report (FIP, 2012) database.

Cleaned data were coded in the Microsoft Office Excel 2010 spreadsheet. These data were collated in the SPSS version 21 for analysis. Comparative analyses were conducted at a country level, WHO regional category level, and World Bank Income level with their means and 95% Confidence Intervals (CIs) when applicable. Categorized data were analysed with numerical data by ANOVA tests. The correlations between or among numerical data were investigated by correlational analysis.

6.4 Results

6.4.1 Demographic data

Data was collected from 110 countries and territories in total. The resources of dataset were summarised in Table 6.1 and Table 6.2. Of the 110 countries and territories, 78 countries or territories responded to the questionnaire. Among 78 countries, two to three different responses were collected from each of five countries (Ghana, Ireland, Nepal, India, and Japan): each response was triangulated with the others within each country and checked with respondents if there is any discrepancy in answers. Data of four countries were obtained from the PHARMINE database, and

those of 28 countries were from 2012 FIP Workforce database.

Table 6.1: Countries dataset collected via questionnaire

Questionnaire (n = 78)					
Africa	Americas	Eastern Mediterranean	Western Pacific	South East Asia	Europe
Benin; Cameroon; Congo (Rep. of); Ghana; Kenya; Madagascar; Malawi; Namibia; Nigeria; Rwanda; Senegal; South Africa; Uganda; Zimbabwe	Argentina; Brazil; Canada; Chile; Colombia; Costa Rica; Panama; Uruguay; USA	Afganistan ; Iraq ; Jordan ; Kuwait ; Pakistan ; Qatar ; Saudi Arabia; Tunisia	Australia; Cambodia; Fiji Islands; China Hong Kong; China Taiwan; Japan; Malaysia; Nauru; New Zealand; Samoa; Singapore; Tonga (Kingdom of); Vietnam	Bhutan; India; Nepal; Thailand	Armenia; Austria; Belarus (Rep. of); Belgium; Bulgaria; Croatia; Czech Republic; Denmark; Finland; France; Germany; Great Britain; Hungary; Iceland; Ireland; Italy; Latvia; Lithuania; Macedonia (Rep. of); Malta; Netherlands; Poland; Portugal; Bosnia and Herzegovina; Russian Federation; Serbia; Spain; Sweden; Switzerland; Turkey

Table 6.2: Countries dataset collected by resources other than the questionnaire

PHARMINE database (n = 4)					
Africa	Americas	Eastern Mediterranean	Western Pacific	South East Asia	Europe
					Cyprus; Estonia; Greece; Slovenia
2012 FIP Pharmacy Workforce database (n = 28)					
Africa	Americas	Eastern Mediterranean	Western Pacific	South East Asia	Europe
Burundi; Congo (Dem. Rep. of); Ethiopia; Mali; Tanzania; Zambia	Grenada; Mexico	Egypt; Iran; Somalia	China; Cook Islands; Korea (Rep. of); Marshall Islands (Rep. of); Niue; Palau; Papua New Guinea; Philippines; Tuvalu; Vanuatu	Bangladesh	Albania; Israel; Moldova (Rep. of); Norway; Romania; Ukraine

In addition, Table 6.3 shows the data-collected countries and territories categorised by the WHO region in comparison with the list of all the WHO member states (WHO, 2014). It shows relatively a good balance between responses and the WHO member states within the WHO regions. It should be noted that China Hong Kong and China Taiwan were included as each territory in the Western Pacific region in all the analysis.

Table 6.3: Total sample and WHO regional comparison

	Sample response	Sample %	WHO member states	Who member states %
Africa	20	18.2	46	23.7
Americas	11	10.0	35	18.0
Eastern Mediterranean	11	10.0	22	11.3
Western Pacific	23	20.9	27	13.9
South East Asia	5	4.5	11	5.7
Europe	40	36.4	53	27.3
Total	110	100	194	100

6.4.2 Pharmacy supply: global overview

The results of this survey (n = 110 countries and territories) consist descriptive data covering 176,180 graduating students per year and 2,596 pharmacy and pharmaceutical education institutions.

To explore the capacity of pharmacy graduates production at a country and WHO regional level, bivariate correlation analysis was conducted between the densities of pharmacists and graduates in countries and territories. No normal distributions of the sample data were identified (Figure 6.1). Thus, non-parametric bivariate correlation test was used for the analysis.

Figure 6.1: Histograms representing the numbers of pharmacists and graduates per 10,000 populations

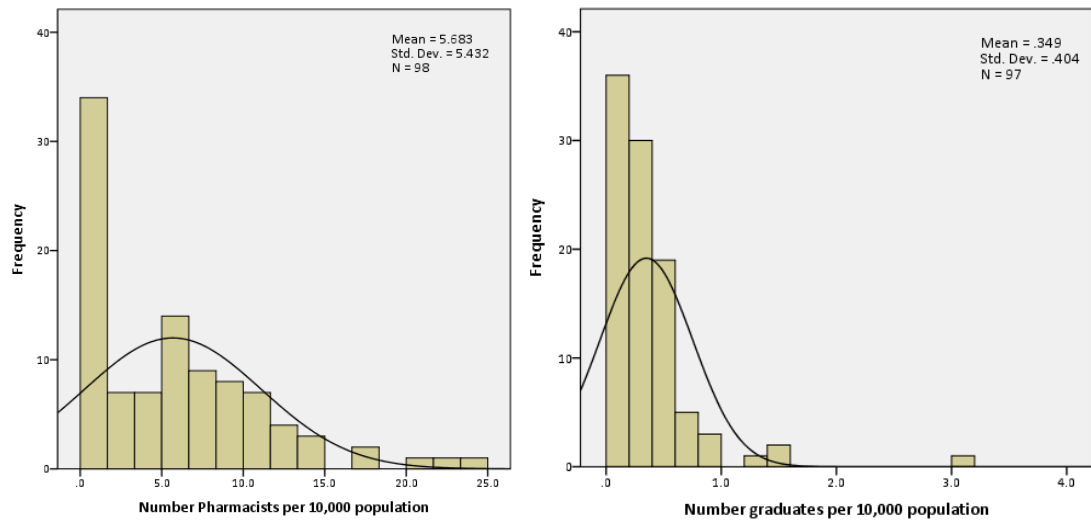


Figure 6.2 shows the relative graduate production capacity in the sample countries modified for the population size of each country. The correlation analysis and the figure illustrates that there were strong correlations between total number of pharmacists and number of graduates per annum (Figure 6.2: $R^2 = 0.574$, Spearman's rho $r = .718$, $p < 0.0001$). This scatter plot indicates that the WHO African regional countries tend to have fewer pharmacists and corresponding smaller production of graduates compared to the other countries. The South East Asian region displays the workforce development trend as the number of graduates is greater than predicted by the number of pharmacists according to the global trends identified by the sample dataset.

Figure 6.2: Number of pharmacists and graduating students (per 10,000 population) | n = 96

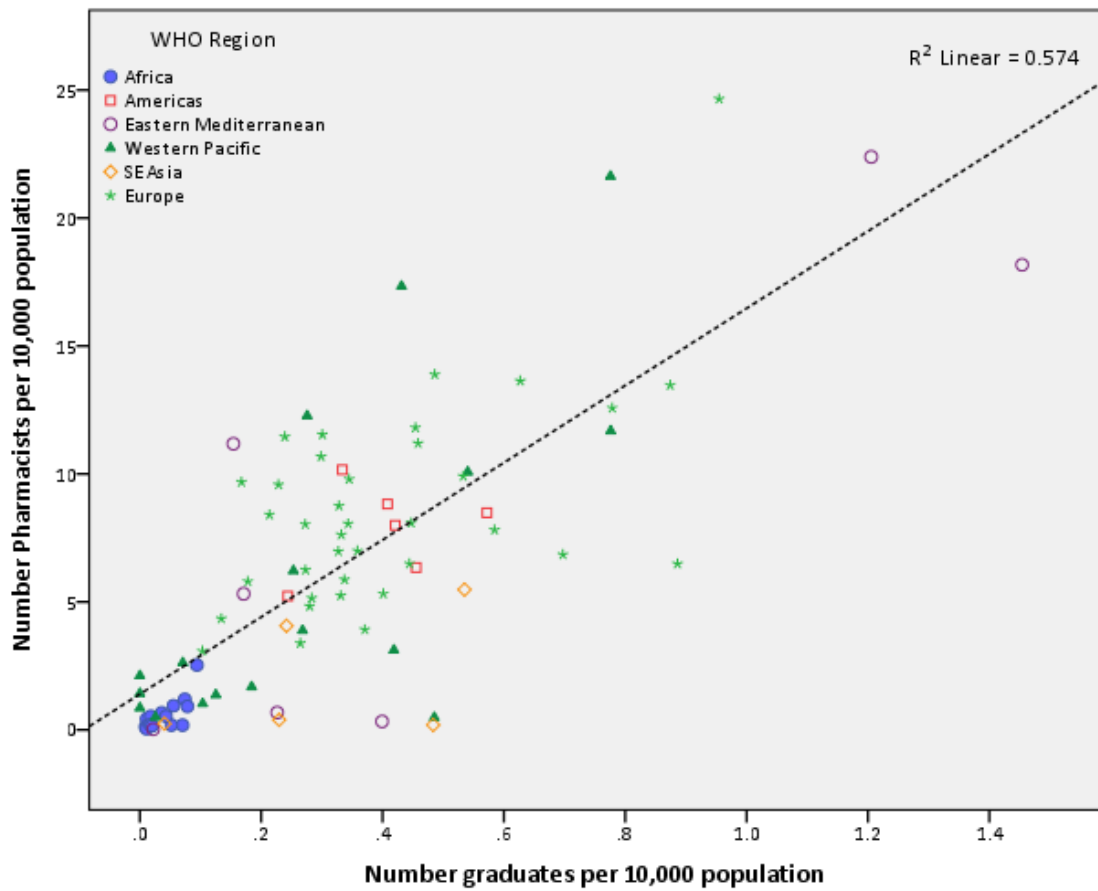
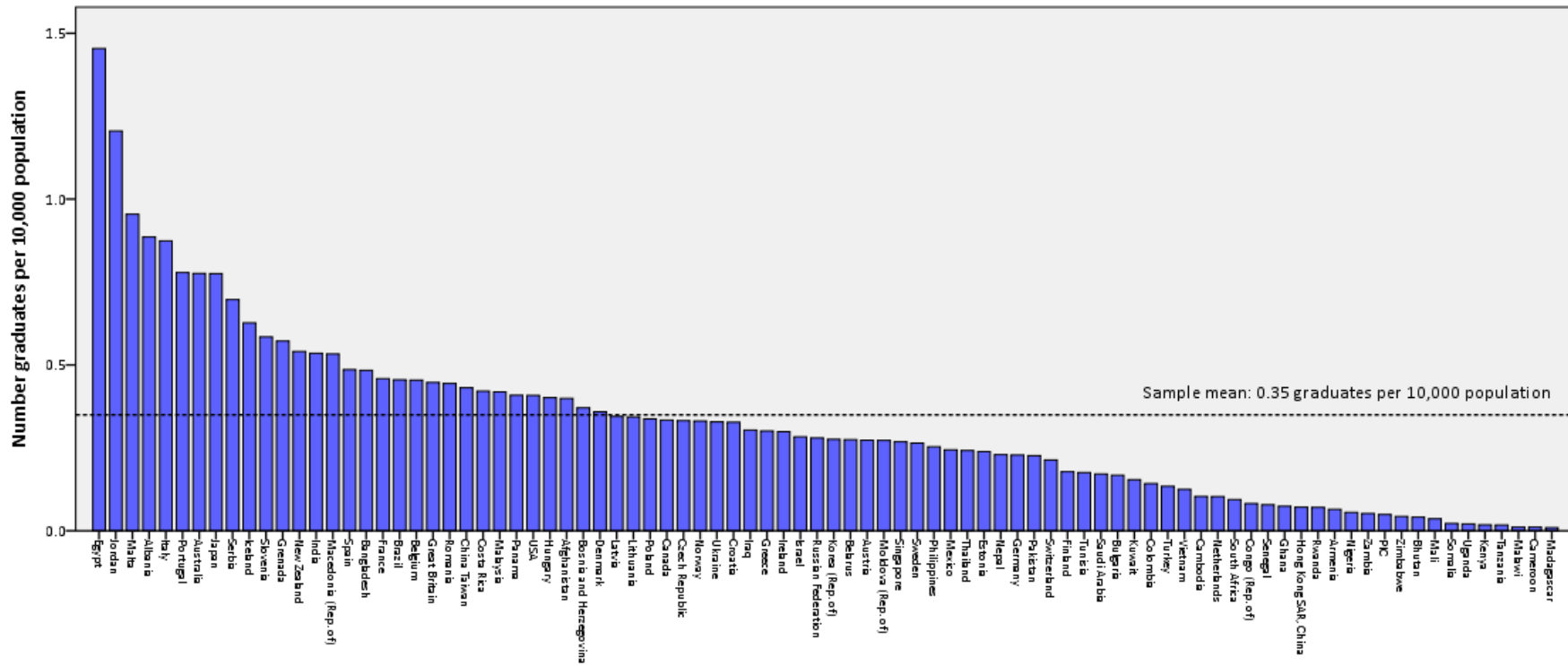


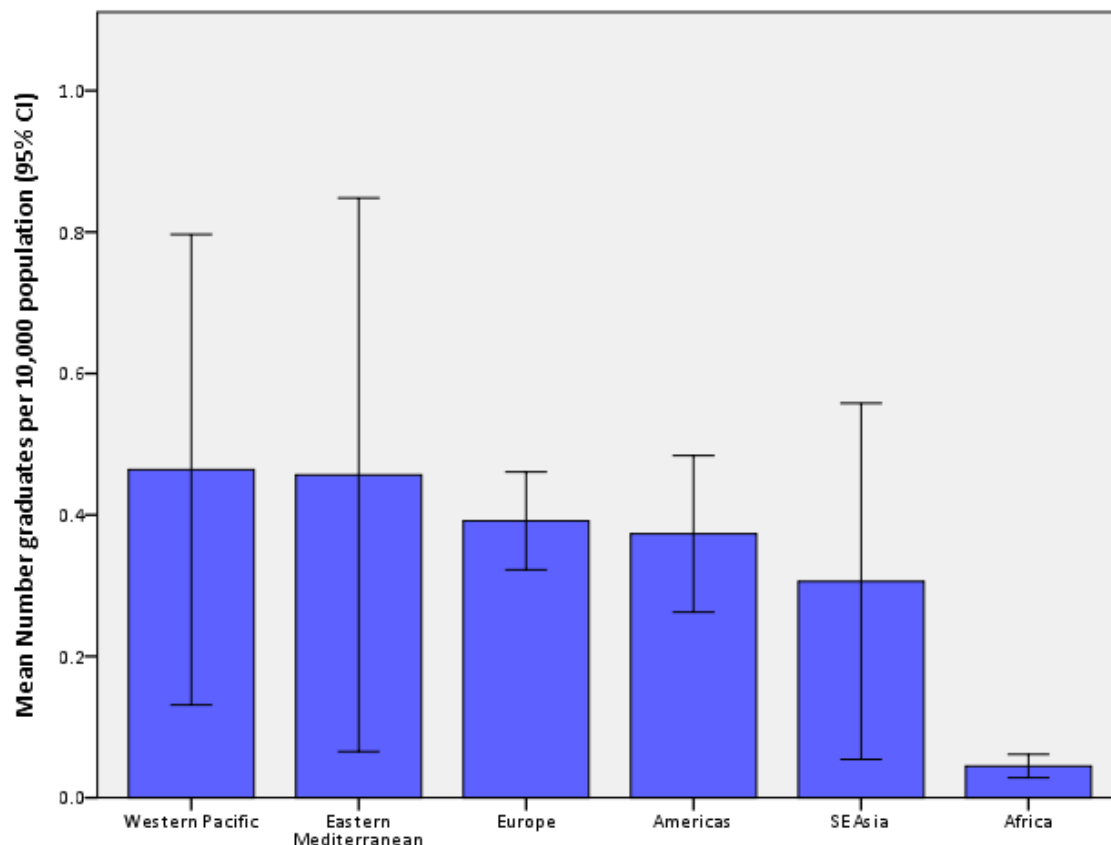
Figure 6.3 also illustrates the variance of graduate production capacity among the sample countries. Egypt has the largest capacity for pharmacy workforce capacity, followed by Jordan and Malta. 0.35 graduates are supplied per 10,000 populations as a global sample mean. Some countries reported the pharmacist production though there is no school of pharmacy established in the countries. These countries strategically send students abroad and educate them in the foreign pharmacy educational system.

Figure 6.3: Number of pharmacy graduates per 10,000 population per country | n = 89



The small production capacity in the WHO African regional countries are clearly seen in Figure 6.4, which shows the disparities between the WHO regions aggregated country production capacities. It indicates the lowest educational capacity in the African region.

Figure 6.4: Mean number of graduates per 10,000 population by WHO region | n = 96



6.4.3 Pharmacy Educational Institutions

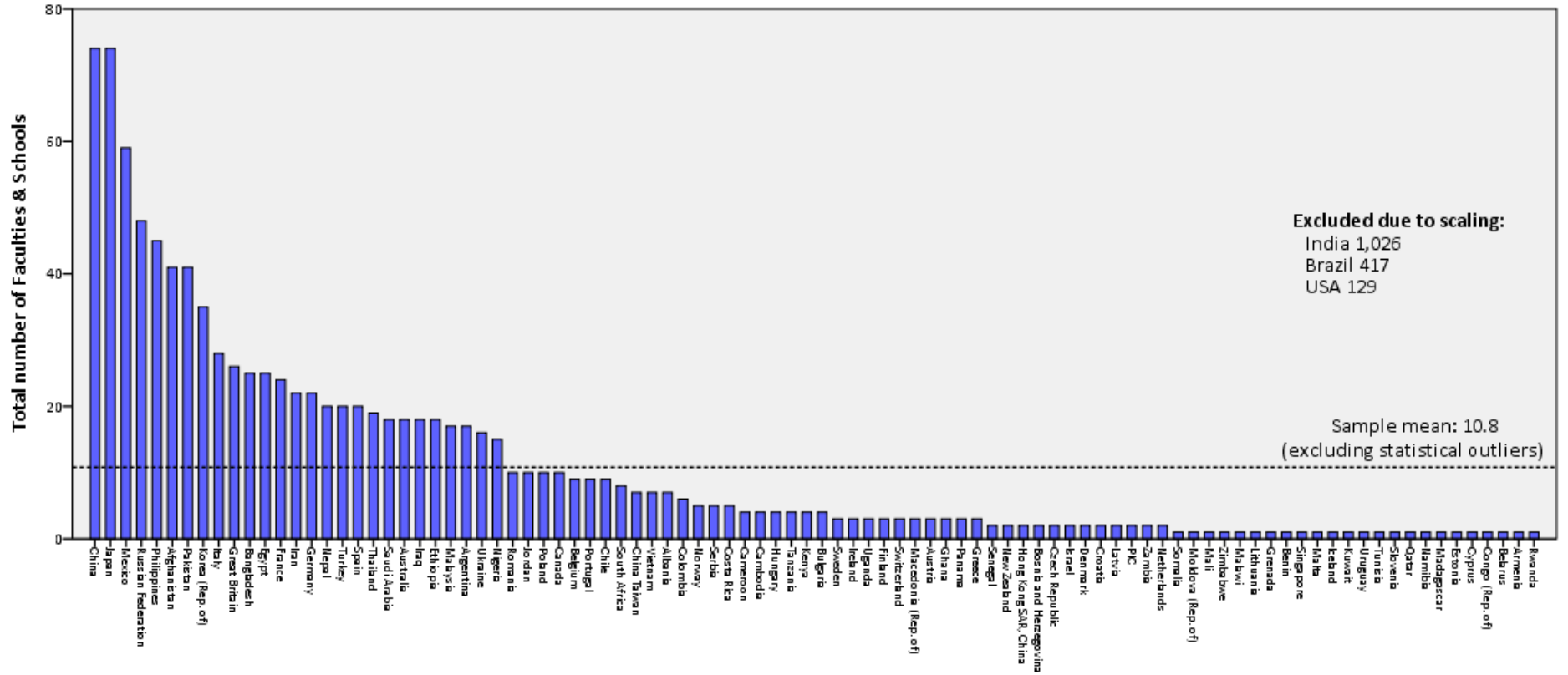
The numbers of schools, faculties, or department where provide IPPE leading to a regulated pharmacy qualification vary between countries and territories, ranging from none to 1,026. Figure 6.5 shows the distribution of schools and faculties of pharmacy globally, comparing the total number of schools and faculties of pharmacy in countries and territories. This graph excludes India, Brazil, and the USA due to scaling, and shows sample mean 10.8 excluding statistical outliers as the global average. 12 countries and territories stated that there was no institution providing IPPE (Table 6.4). Of the 12 countries and territories that declared no IPPE institution in the nation, 9 countries were in the Pacific Island Countries (PICs).

Table 6.4: Distribution of zero schools/faculties

Countries with no pharmacy schools or faculties in this sample		
Bhutan	Marshall Islands (Rep. of)	Samoa
Burundi	Nauru	Tonga (Kingdom of)
Congo (Rep. Dem. of)	Niue	Tuvalu
Cook Islands	Palau	Vanuatu

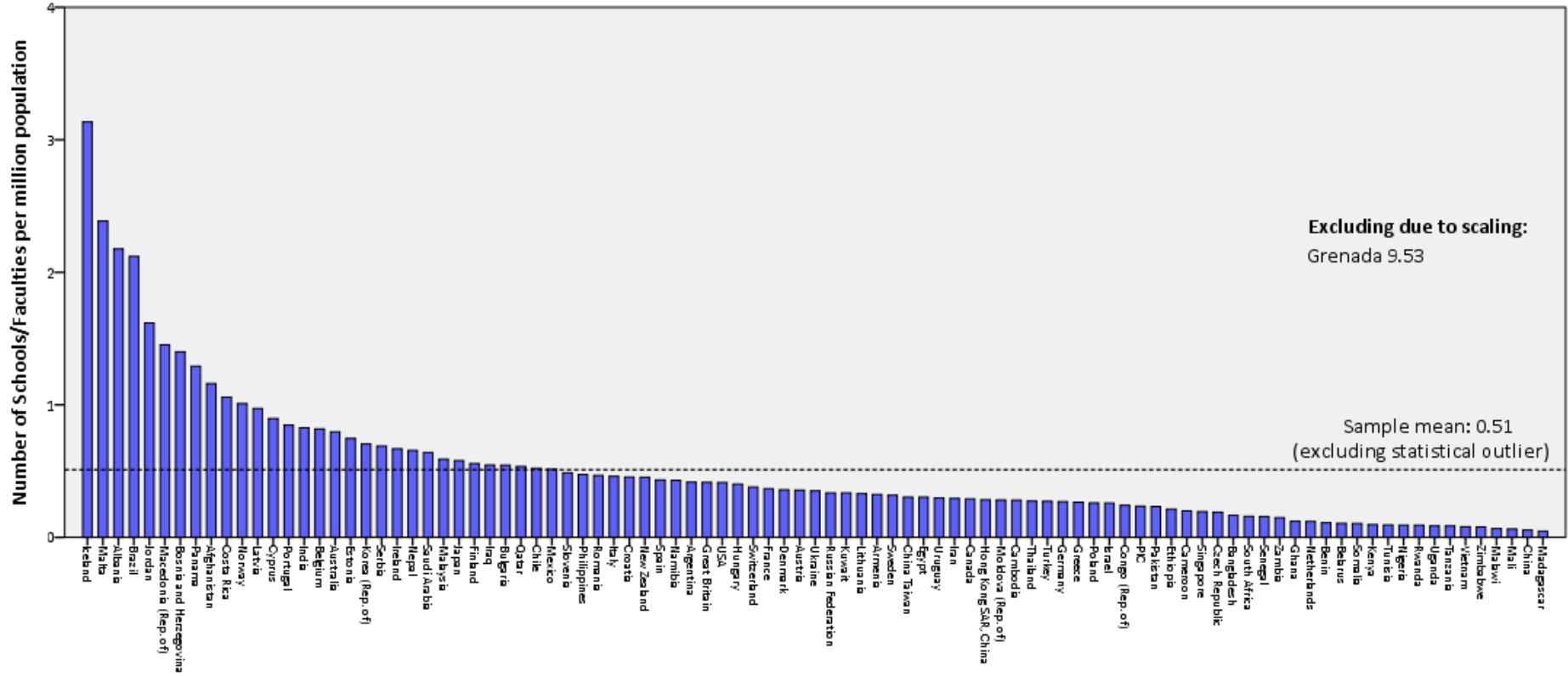
Figure 6.6 shows the distribution of schools or faculties adjusted by 1,000,000 populations by country, indicating 0.51 schools or faculties in the country as the global average, ranging from 0.0012 to 9.53. Grenada was excluded due to scaling showing the adjusted number of pharmacy schools were 9.53 per million populations. In this graph, the lower populated nations (including outlier Grenada) indicate the higher number of schools and faculties adjusted by population: 26 countries (26.5% of those countries declared having a school or faculty for pharmacy) reported having only a single national School or Faculty.

Figure 6.5: Distribution of Schools and Faculties | n = 98



* Note: PIC = Pacific Island Countries

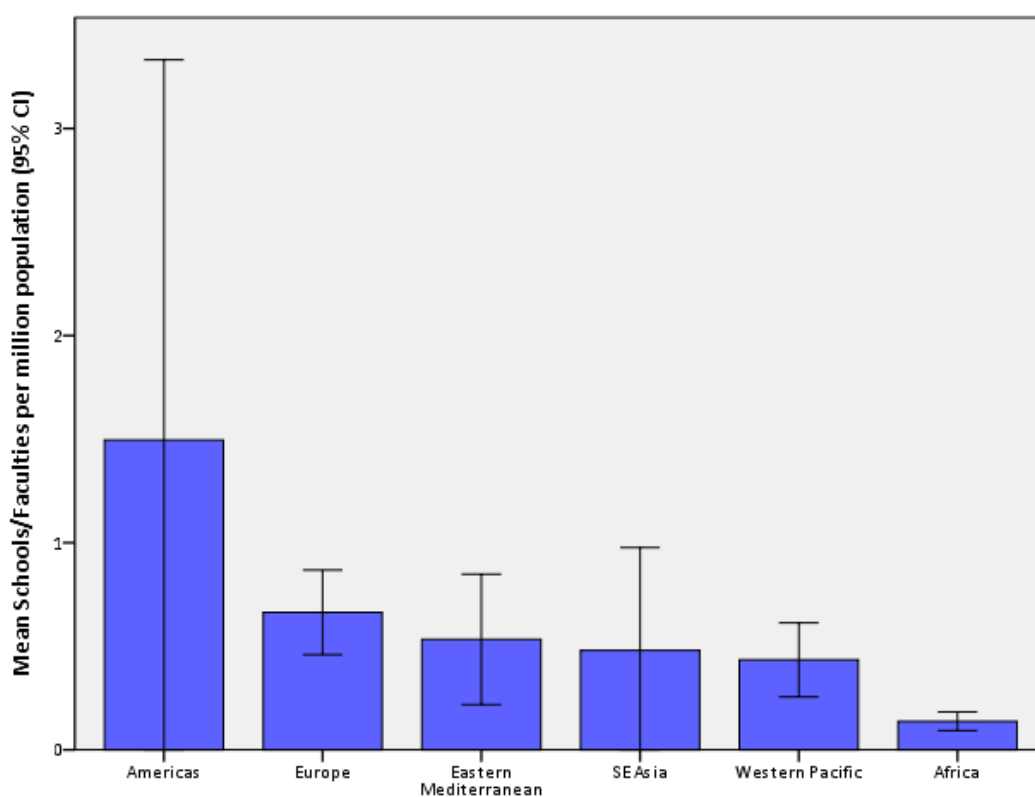
Figure 6.6: Distribution of Schools and Faculties per 1,000,000 population | n = 98



*Note: PIC = Pacific Island Countries

Figure 6.7 illustrates the differences in the distribution of schools and faculties per population by the WHO regions, showing that the African region has the lowest number of IPPE institutions compared to the other regions. The number of schools/faculties of pharmacy in the Pan American region was greater than the other regions, although the 95% Confidence Interval express the wide variance in the category. With the comparison of the mean number of graduates per population of this region as Figure 6.4 illustrated, this graph may also indicate that the schools/faculties in the Pan American region supply fewer graduates per school than those in the other regions.

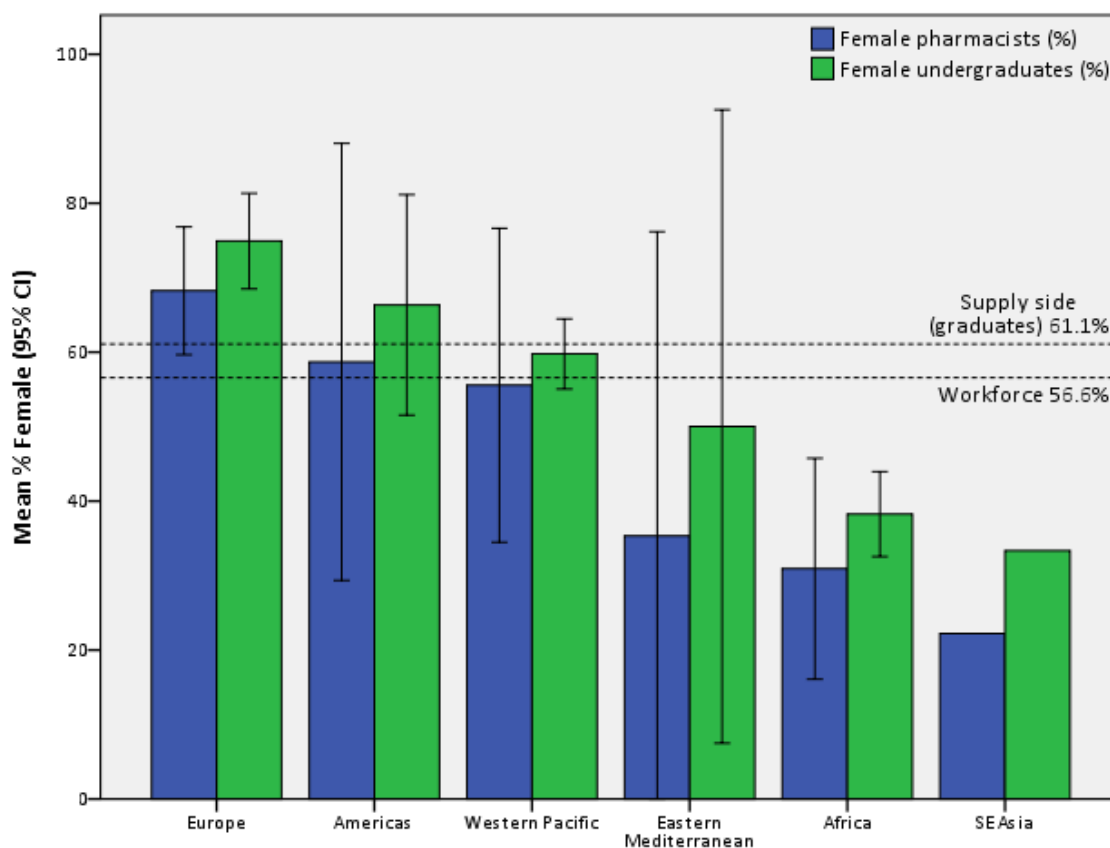
Figure 6.7: Distribution of Schools and Faculties per 1,000,000 population by the WHO regions | n = 98



6.4.4 Gender

To explore the global trends in feminisation of the profession, means of the registered female pharmacists and female undergraduates were compared in Figure 6.8. The mean of the proportion of registered female pharmacists were 56.6% and the mean of the proportion of female undergraduates were 61.1%. Even though the proportion of female pharmacists by the WHO regions varies, the relative trend towards feminisation was observed globally to differing extent.

Figure 6.8: Proportions of female workforce (n = 67) and graduate supply (n = 52) by the WHO region



6.4.5 Provision

Several degree titles and lengths in programme years were reported through the survey (Table 6.5). Of the 76 sample countries which reported their degree titles leading to a regulated pharmacy profession, 20 countries and territories use several different title and programmes which produce the same regulated pharmacy profession within the country or territory. In this dataset, Bachelor degree is the most often reported for a regulated professional degree, together with 19 countries using several degree titles to supply pharmacy graduates (n = 49, 64.47%).

Further, among the 56 countries which use the single degree title for academic pharmacy degree programme, the used degree title had a significant correlation with the programme length (including the separated internship duration) (Spearman's rho $r = .518$, $p < 0.0001$). The corresponding programme lengths were: Bachelor for 4 years, Master for 5 years, and PharmD for 6 years.

Table 6.5: Distribution of programme type

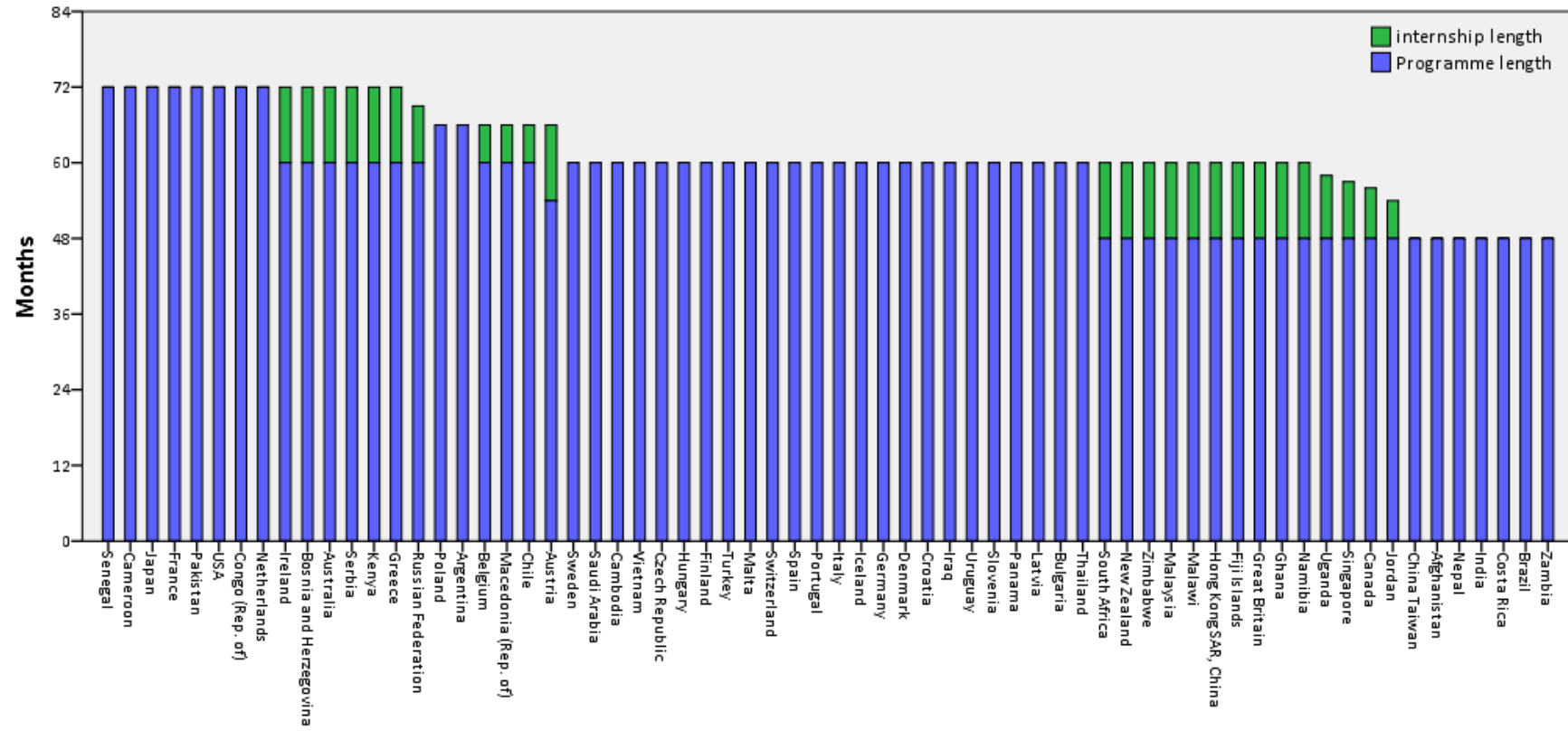
Academic programme by degree title	Frequency	Responses (%)	Programme length (year mode)		
			4 years	5 years	6 years
Bachelor	30	39.5	14*	15	1
Master	17	22.4	1	16*	0
PharmD	9	11.8	0	3	6*
Bachelor + Master	9	11.8	0	8	1
Bachelor + PharmD	8	10.5	5	3	0
Diploma + PharmD	1	1.3	0	0	1
Diploma + Bachelor + PharmD	1	1.3	1	0	0
Diploma + Bachelor	1	1.3	1	0	0
Total	76	100.0	22	45	9
No School of Pharmacy	4				
Missing data	30				

*Correlation $p < 0.0001$ level

Of the 60 valid responses on the existing national higher education qualification framework, 45 countries and territories (75%) declared its presence to describe the types of degree qualification nationally and formally (e.g., Bachelor, Master, Diploma, PhD, etc.). This may indicate another restriction of the degree type corresponding to the programme length year.

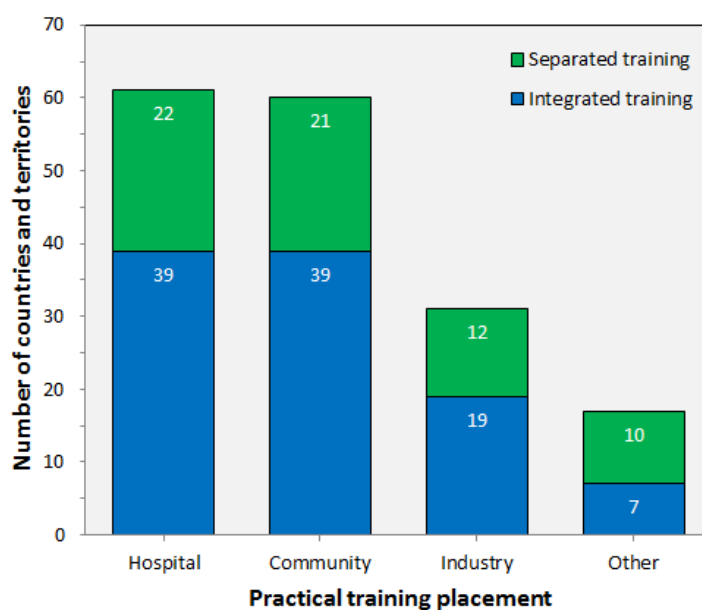
Figure 6.9 shows the distribution of length of the academic programme and associated internship. 66 countries and territories provided the information if the practical training is integrated into the main academic programme or separated with its length of training. The minimum length to be a pharmacist varies across nations, ranging from 4 years to 6 years. 25 countries and territories (37.9%) stated that the practical training is delivered outside of the main academic programme as a mandatory requirement after the graduation to be a pharmacist in the subsequent country.

Figure 6.9: Distribution of academic programme length and internship | n = 66



68 countries and territories additionally provided where the practical training is conducted (Figure 6.10). The placement where the practical training is conducted focused mainly on hospital (n = 61, 89.7%) and community settings (n = 60, 88.2%), followed by industry environment (n = 31, 45.6%). Others include regulatory affairs, governmental organisations, pharmaceutical laboratories (n = 17, 25.0%).

Figure 6.10: Practical training placement | n = 68



6.4.6 Economics

The relationship between economic status and financing resources is explored. 15 countries in this sample reported that there are no direct student tuition fees (Table 6.6).

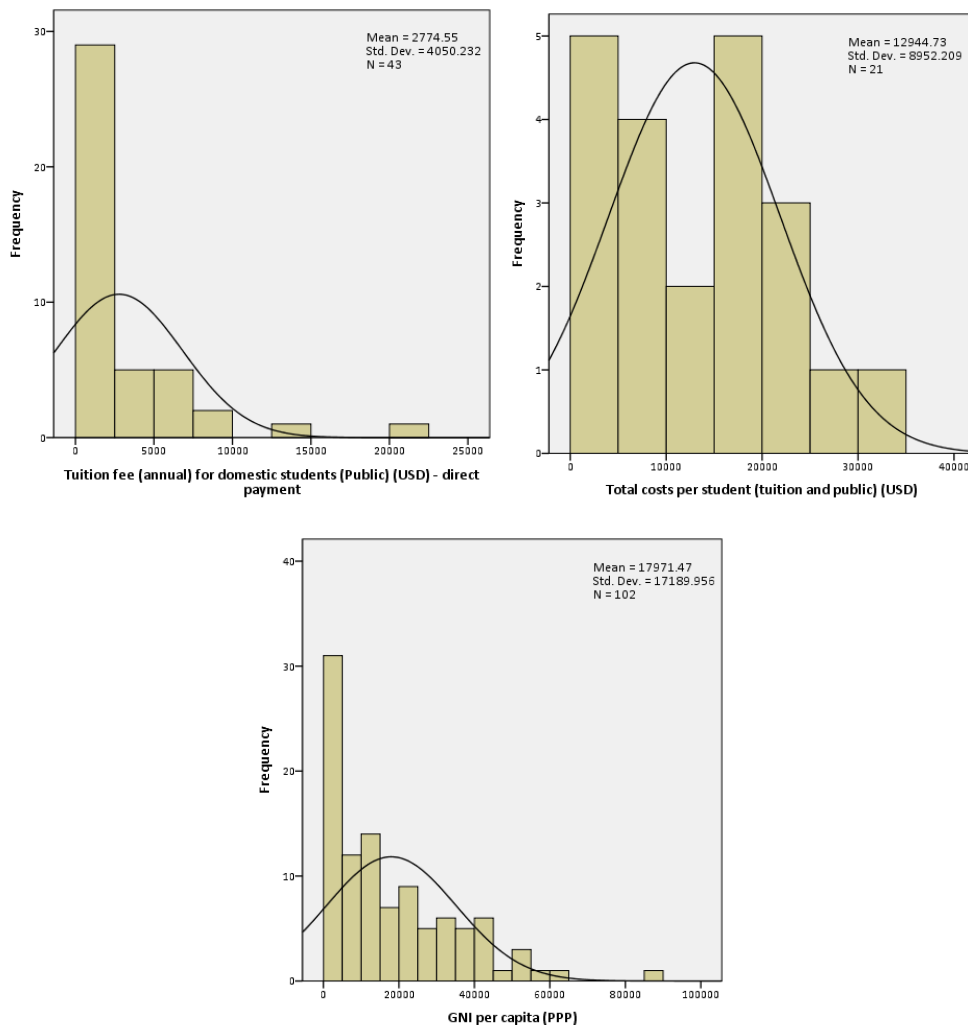
Table 6.6: Distribution of zero direct student tuition fees

Countries with no direct student tuition fees in this sample n=15		
Afghanistan	Finland	Serbia
Austria	Greece	Slovenia
Czech Republic	Hungary	Sweden
Denmark	Malta	Turkey
Estonia	Poland	Uruguay

Among those countries which charge the direct tuition fee for domestic students (in public universities) and declared the education cost per student, bivariate correlation analysis was conducted to explore the relationships. The histograms in Figure 6.11 illustrates that there is no normal distribution in the sample dataset regarding the direct student tuition fee (for domestic students in public universities), the total costs per student (direct tuition fee plus public

contribution), and the GNI per capita - PPP (current international \$). Thus, non-parametric correlational test was used to examine the relationship between the variables.

Figure 6.11: Histograms representing the direct student tuition fee, total costs per students per annum, and GNI per capita (PPP) in the sample data set



A non-parametric bivariate correlation analysis shows that there is a significant correlation of GNI per capita (current international \$) with direct tuition fee (Spearman's rho $r = .597$, $p < 0.0001$, $n = 43$), and with total student costs (i.e., direct tuition fee and public capitation contribution) (Spearman's rho $r = .700$, $p < 0.0001$, $n = 12$). Figure 6.12 illustrates the correlation between the standardized total student cost and GNI per capita - PPP ($R^2 = 0.553$). Figure 6.13 shows the relationship of direct student tuition fees per annum for domestic students in public universities by a World Bank Income Level.

Figure 6.12: Pharmacy education costs and GNI (PPP) per capita | n = 12

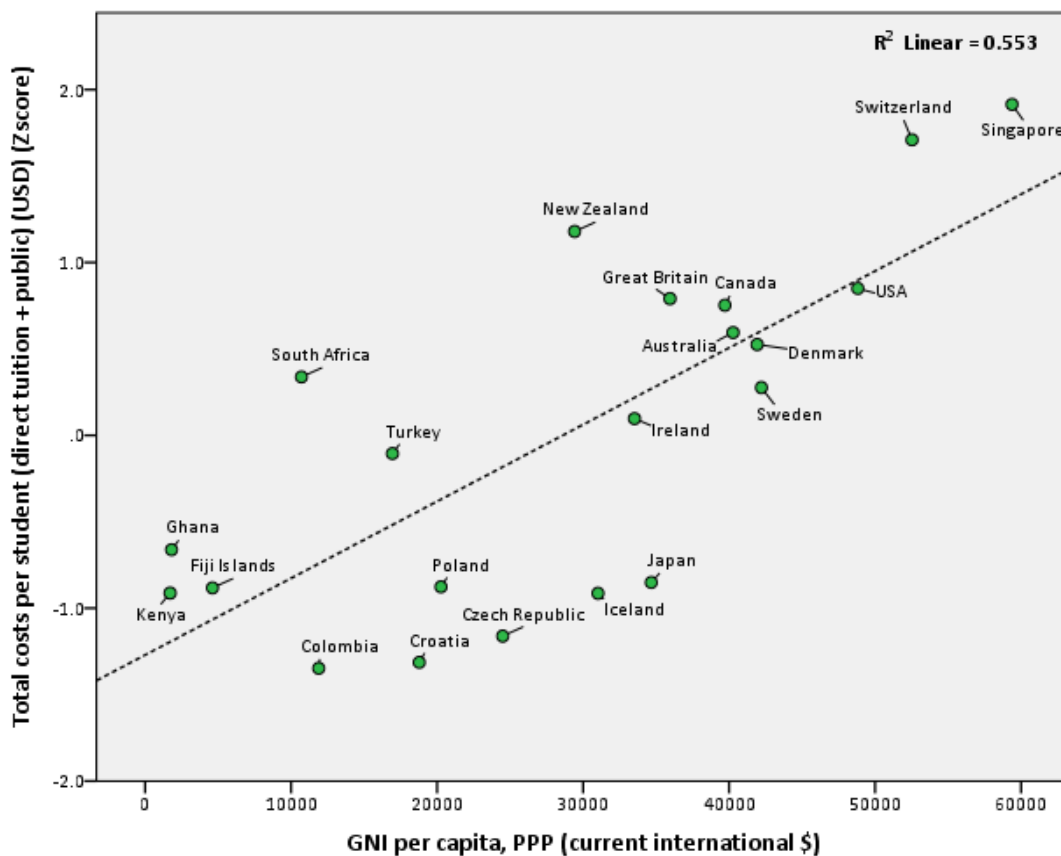
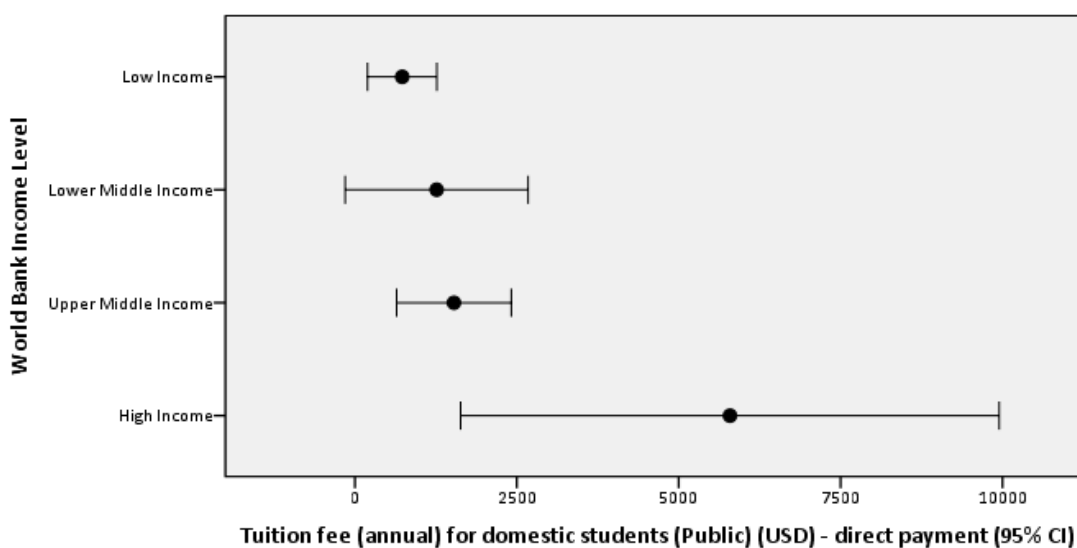
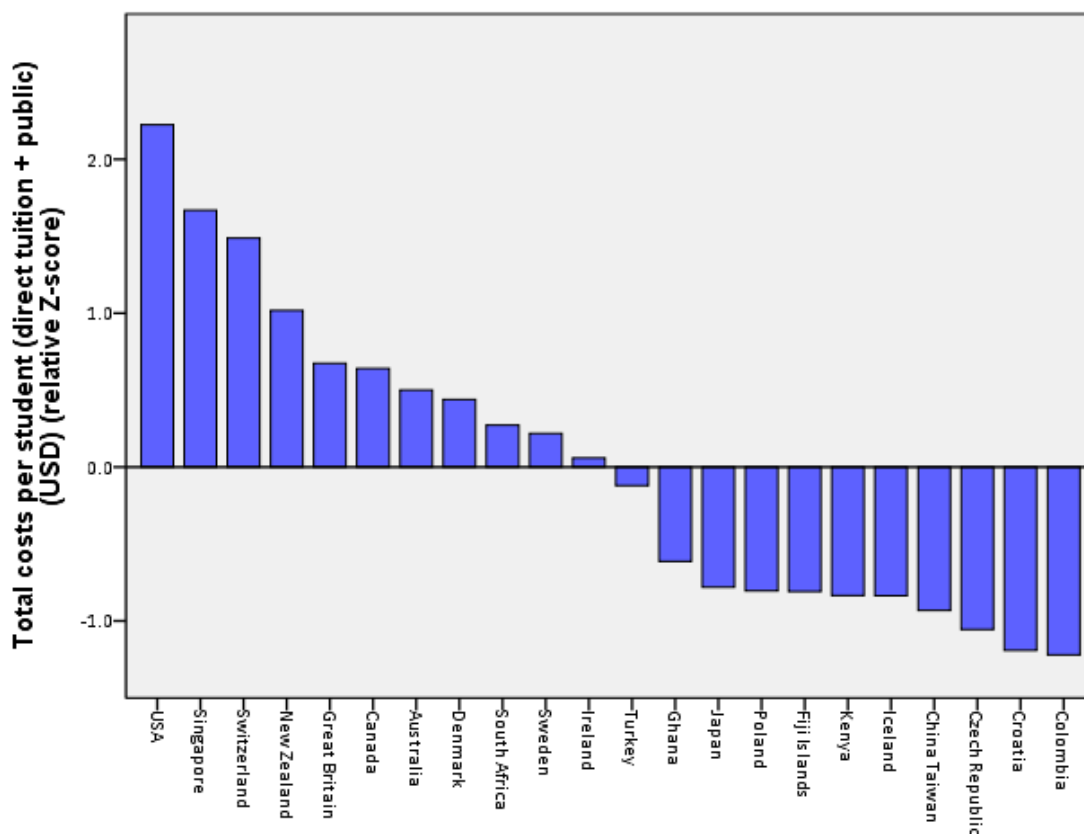


Figure 6.13: Direct student tuition fees per annum for domestic student in public universities by World Bank Income Level | n = 43



For 43 countries which declared that public universities charge a direct tuition fee to students, the global sample mean is USD 2774.55. Figure 6.14 illustrates the comparison of the total education costs (i.e., direct student tuition fee plus public capitation) in public universities as standardized Z scores by countries where the public capitation data was available (n = 21)

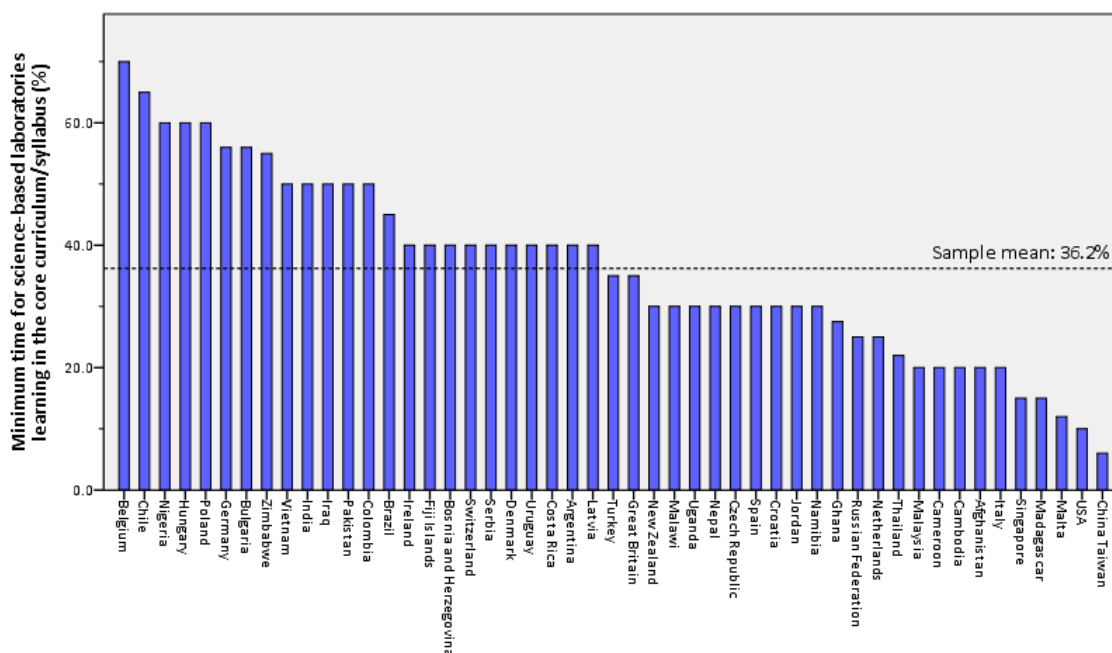
Figure 6.14: Summative education costs – relative between countries | n = 21



6.4.7 Curriculum

Of the 66 countries and territories which provided information for this section, 39 (59.1%) reported the use of any nationally agreed core curriculum, syllabus, or standards for IPPE academic degree. In addition, 49 countries and territories provided data about the minimum proportion of time for practice in the science-based laboratory in the curriculum/syllabus that generally used at a country level, indicating the sample mean of 36.2%, ranging from 6% to 70% (Figure 6.15).

Figure 6.15: Laboratory science learning time (% of core curriculum) | n = 49



Respondents were asked to provide the description on the early years of the IPPE academic curriculum about the content/expectations in general, and 66 countries and territories reported in this part of the questionnaire. Only Ghana reported the variety in schools, and the other 65 respondents categorised their curriculum in the three categories as shown in Table 6.7. There was no correlation between the WHO regions and these self-declared categories (Spearman's rho $r = .025$, $p = 0.422$). No correlation between the early years curriculum general description and minimum time for science-based laboratory practice in the curriculum was found, either (Spearman's rho $r = .076$, $p = 0.606$).

Table 6.7: Early years curriculum general description | n = 65

	Frequency	(%)
Wholly general science, with very little pharmacy practice component	17	26.2
Mostly general science orientation, with small/moderate pharmacy practice components	29	44.6
A mix of general science and pharmacy practice	19	29.2
Total:	65	100.0

6.4.8 Quality assurance and accreditation mechanisms

6.4.8.1 **Licensure**

80 valid responses were collected for this section: three European countries (Denmark, Estonia, and Slovenia) declared having no licensure system to practice pharmacy in their countries, and 77 countries and territories (96.3%) declared having some kind of licensure to practice pharmacy (e.g., license, registration or other authorisation).

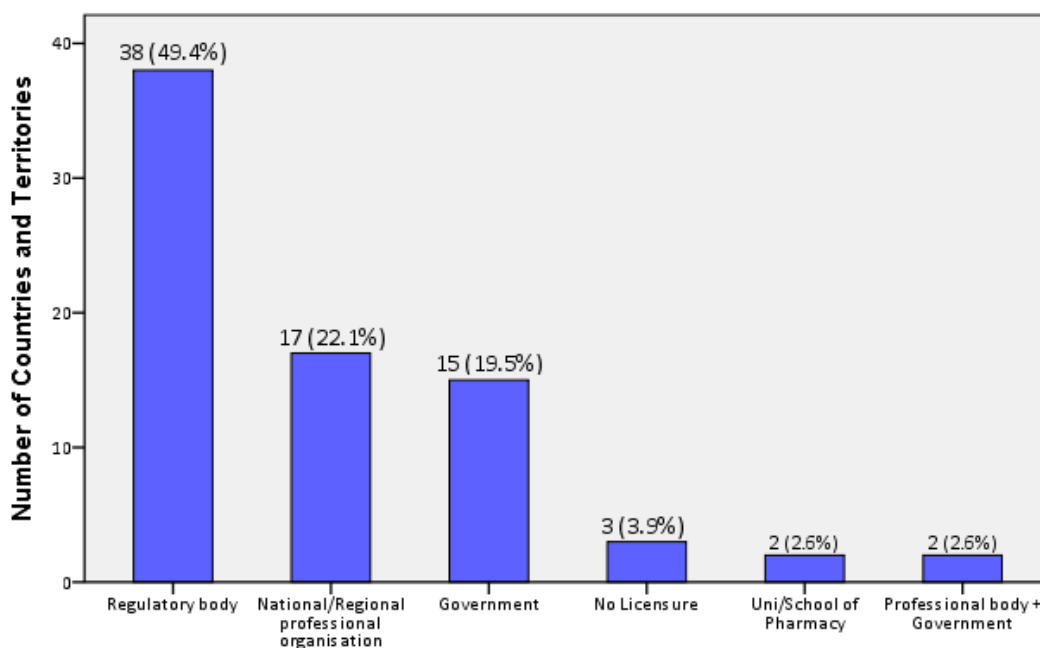
78 countries and territories (70.9% of this sample) provided information regarding the minimum requirement for a licensure to practice pharmacy. One country (Slovenia) declared having no licensure of practice in the country and another country (India) answered as it depends on each degree course. Table 6.8 shows the distribution of minimum requirements for practicing pharmacy (n = 76).

Table 6.8: Distribution of minimum requirements for practicing pharmacy | n = 76

Graduation from certain HEI programme	Further exam after graduation	A period of practical experience after graduation	A period of mandatory social services after graduation	Frequency	Response %
○				35	46.05
○	○			11	14.47
○		○		6	7.89
○	○	○		21	27.63
○	○	○	○	1	1.32
○		○	○	1	1.32
○			○	1	1.32
Total				76	100.00

Of the 77 countries and territories (70% of this sample) providing information on licensing authority giving a license/registration to practice pharmacy, about half of them (n = 38, 49.4%) having regulatory body to authorise the licensure to keep the quality of the profession, followed by national/regional professional organisations (n = 17, 22.1%), as shown in Figure 6.16. The government category includes Ministry of health, Ministry of education, and other governmental bodies.

Figure 6.16: Distribution of licensing authority to practice pharmacy | n = 77



There is still 3 countries (3.9%) do not have a system for licensure, and 2 countries (2.6%) considers graduation from a certain pharmacy programme itself as a license.

6.4.8.2 Quality Assurance and accreditation system

Respondents were asked to provide QA and accreditation mechanisms of IPPE programme at a country level.

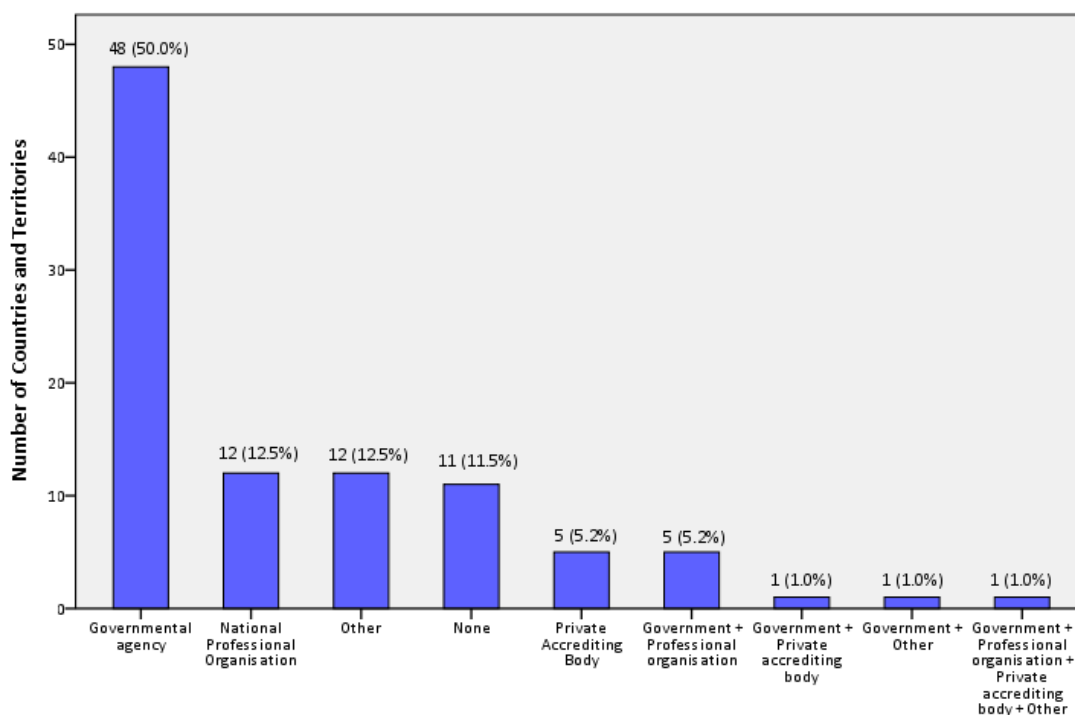
Among the 100 countries and territories (90.9% of this sample) providing the information about the use of periodic accreditation process by an external body, 80 (80.0%) declared having some sorts of accreditation process conducted by an external body regularly. There was no significant relationship between the economic levels and the establishment of the accreditation system ($p = 556$ Fisher's Exact Test). However, according to Table 6.9, the lower income countries are less likely to have the accreditation system.

Table 6.9: The establishment of the accreditation system compared by the World Bank Income Level | (n = 100)

		The establishment of the accreditation system (% within the World Bank Income Level)	
Income Level	Sample n	No	Yes
Low	15	4 (26.7%)	11 (73.3%)
Lower Middle	22	6 (27.3%)	16 (72.7%)
Upper Middle	27	5 (18.5%)	22 (81.5%)
High	36	5 (13.9%)	31 (86.1%)
Total	100	20 (20%)	80 (80%)

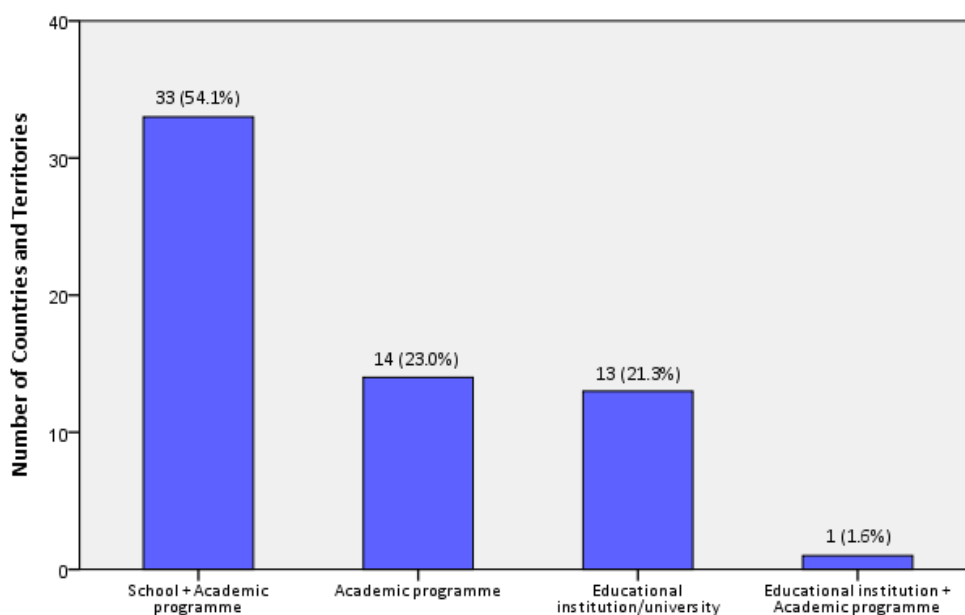
The responsible accrediting body was reported by the 96 countries and territories (98.0% of countries and territories which declared any faculty or school of pharmacy exists) and the relative number and proportion of accrediting bodies can be found in Figure 6.17. Eight countries reported more than one agency responsible for their quality assurance, which their governments involve to some extent. In total, more than half of countries and territories claimed that their governments involve the accreditation mechanisms (valid n = 56, 58.3%). There is still eleven countries (11.5%) claimed no accreditation system for QA of IPPE.

Figure 6.17: Responsible accrediting bodies | n = 96



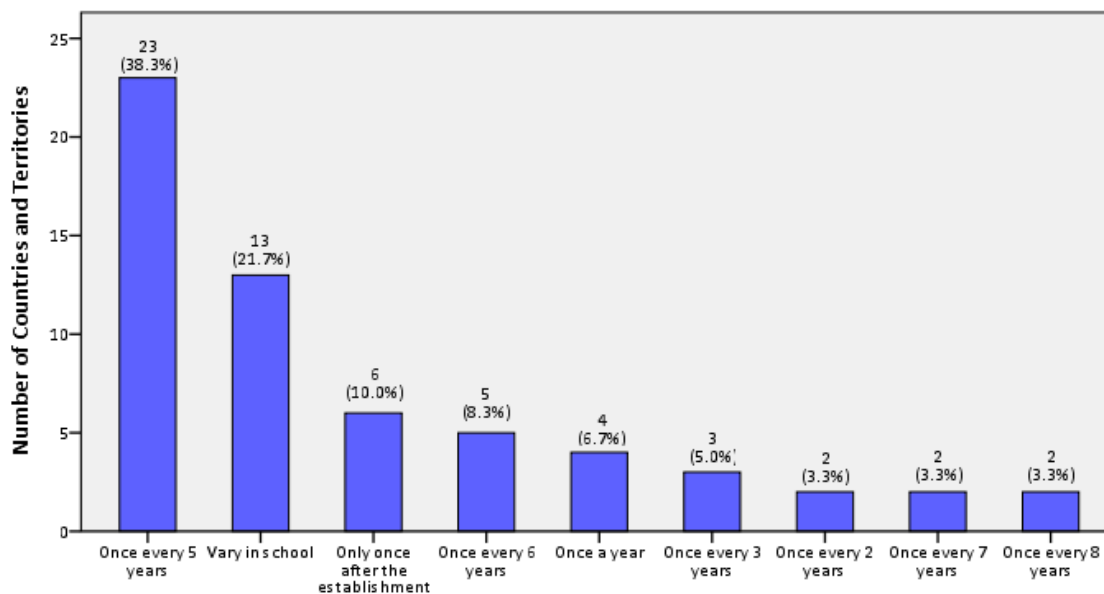
61 countries and territories reported objects that are accredited in their QA mechanisms (Figure 6.18). More than half ($n = 33$, 54.1%) claimed that the schools/faculty of pharmacy plus their academic programmes are accredited. 13 countries and territories (21.3%), however, reported the accreditation mechanism covers the educational institution/university including all other disciplines. This may indicate that there is still a need to ensure the quality of IPPE specifically.

Figure 6.18: Accredited objects | $n = 61$



Additionally, 60 countries and territories reported how often accreditation is conducted (Figure 6.19). 23 countries (38.3%) declared that accreditation is conducted once every 5 years, which is the highest proportion reported by the sample countries. Six countries stated that accreditation is conducted only once after the establishment, which indicates that although accreditation is given, quality is not assured fully if the programme or structure is altered. These six countries included two low income level countries, two lower middle-income level countries and two high-income level countries.

Figure 6.19: Frequency of accreditation | n = 60

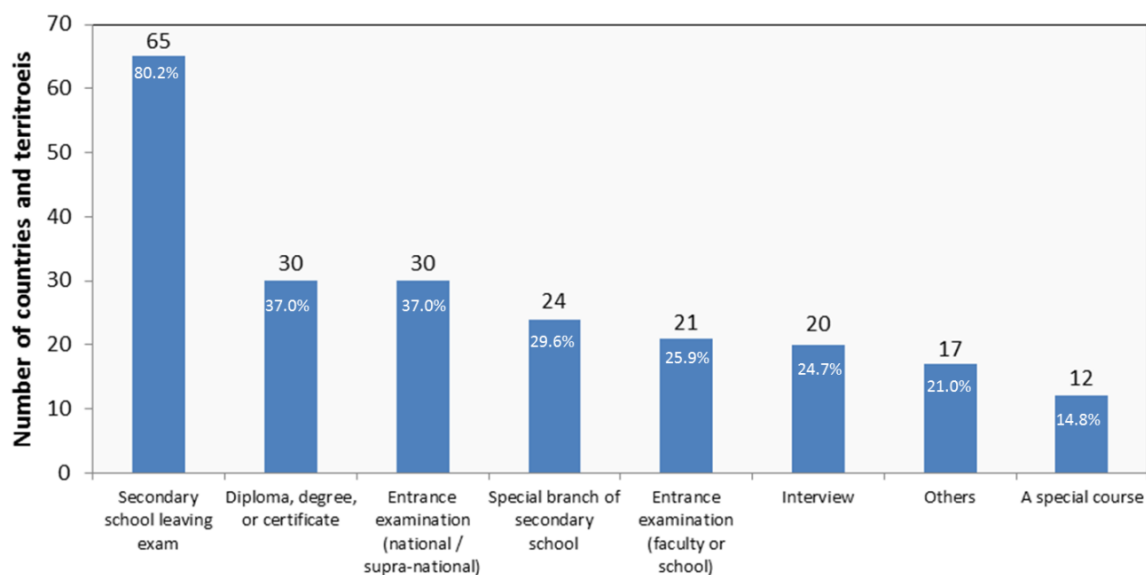


6.4.8.3 Requirements for admission

Minimum requirements to enter an IPPE academic degree programme (i.e., the degree related to pharmacy, which leads to the registration as a pharmacist in the sample country or territory) were sought.

81 countries and territories provided the information on the minimum requirements for the admission to the IPPE programme. Figure 6.20 illustrates requirements reported by the sample countries. 65 countries and territories declare that some kind of secondary school leaving exam needs to be passed before admission to an IPPE degree programme. Additionally, 24 countries and territories reported that applicants need to undergo special branch of secondary school, mainly science, mathematics, and physics.

Figure 6.20: Minimum requirements for admission to a pharmacy degree programme



30 countries and territories also reported a certain diploma, degree or certificate, and 12 reported a special course to enter a pharmacy degree programme. According to additional information provided with this answer, this includes diplomas or degrees in some kinds of science, pharmacy, and vocational programmes in pharmacy, or offers for graduate entry. The additional diploma, degree, certificate, or a special course prior to the pharmacy degree is not associated with the academic pharmacy programme length (Diploma, degree or certificate, Spearman's rho $r = .189$, $p = 0.155$; A special course, Spearman's rho $r = -.105$, $p = 0.431$).

Entrance examination was used in total 45 countries and territories to screen applicants for admission both or either at a national/supra-national and/or at faculty/school level. 6 countries used both national / supra-national and faculty / school level entrance examinations, 24 used national / supra-national examination, and 15 used faculty/school level examination.

Although 20 countries and territories reported interview as one of the requirements for admission, 11 expressed as a non-mandatory requirement in the country as it can depend on the decision of each faculty or school of pharmacy.

Others include file or reference review, additional requirements for graduate or overseas entry, substantial experiences in pharmacy, and physical examinations.

6.4.9 Biases and limitations

This is the survey used self-completed questionnaire, which means that there might be biases

affected by respondents due to misunderstandings of the questions and definitions of categories. Further, sampling bias may have affected collected data or countries due to purposive sampling scheme used in this study. Some analyses were conducted on the WHO regional basis; however, it may not express enough of the regional characteristics because even in the same region, country characteristics and contexts probably differ. In addition, the questionnaire may not cover all aspects of structures and processes of IPPE; thus, further in-depth research would be needed. Finally, the findings here in this study is limited within the sample countries since the contexts and systems vary in each country.

6.5 Discussion and summary of the chapter

This survey allows a global comparison of current situation and trends of IPPE globally in terms of institutional structures and processes at a country level. The Pharmacy Education Survey (chapter 5) addressed three of the principal research questions (chapter 2, 2.1.2, v, vi, and vii), regarding the variances in IPPE across nations in terms of the capacities, provisions, regulation mechanisms and systems for QA.

The Pharmacy Education Survey (chapter 5) involved a questionnaire survey attached via emails using the online network to address the research questions proposed. It provides the evidence of the variances in IPPE in many aspects which enable a better understanding of current IPPE practices globally.

The data collected in this study covers total 110 countries and territories though there is still a gap in sample countries to examine a whole picture of global IPPE. The descriptive data resulted from the data collected covers over 175,000 graduating students per annum through over 2,500 pharmacy and pharmaceutical education institutions. This study revealed that there is a strong correlation between total numbers of pharmacists and graduated per annum as well as the WHO African regional countries tend to have fewer pharmacists and corresponding smaller production capacity compared to the other regions.

6.5.1 Capacity

Descriptive and inferential statistics were conducted on the retrieved data from the survey in response to one of the research questions (chapter 2, 2.1.2, v) concerning the capacities of IPPE globally.

Strong correlations between the number of pharmacists and annual graduate production per

country provided a certain prediction of pharmacy workforce supply with workforce planning (Figure 6.2). The graph also brings out the lack of capacity development in the African region in response to the workforce shortage compared to the other countries and regions, as the *FIP Pharmacy Workforce Report* (2012) identified. The South East Asian region displays a certain trend in the workforce development against the workforce shortage as the number of graduates is greater than predicted by the number of pharmacists according to global trends identified by the survey.

The variance in the number of schools or faculties of pharmacy was also found across nations. When the figures were standardised per population, lower populated nations became higher ranked although there was only one school or faculty of pharmacy in the country. Of the 110 countries and territories where data were collected, 12 countries stated that there was no institution providing IPPE. However, some of those countries without an IPPE institution reported that certain pharmacy graduates were being produced by strategically sending students to foreign countries where established IPPE to supply pharmacy workforce for their own home countries. Education costs and it would be difficult to work out national resource to establish IPPE for lower populated countries. However, it left some questions concerning the discrepancies between national or regional health needs. IPPE is supposed to be established to meet national health needs, if students are sent to other countries to complete IPPE degree programme, there may be some differences in the abilities that the pharmacy graduates need to acquire to serve in their local society in their home country.

Furthermore, when the regional mean numbers of graduates and schools (Figure 6.4 and Figure 6.7) were compared, the Pan American region displays greater mean schools per population. It may indicate that a fewer number of students were engaged per study year in the Pan American region relative to the other regions.

A global tendency of feminisation in the profession was also found by comparing the proportion of female pharmacists of on-going graduates and current workforce. However, more data would be needed to clarify the trend in the Eastern Mediterranean and South East Asia regions.

The financing spent for a student also varies according to the country level economic data. The greater the cost per student (i.e., direct tuition plus public funding for each student) spent, the higher the country economic level is. The educational infrastructure and content establishment for IPPE are presumably considered as requiring a huge budget, which is problematic for countries where national resources are limited. To establish high and equitable quality of IPPE worldwide,

global alliance and collaboration are inevitable.

6.5.2 Provision

To answer the principal research question concerning how the IPPE provision models vary globally (chapter 2, 2.1.2, vi), findings through the survey will be discussed below.

IPPE programmes award a variety of titles associated with programme length, ranging from Diploma to PharmD, and from 2 to 6 years duration. Some programmes were offered only for postgraduate entry. The survey found a significant correlation between the academic degree title and programme length, which may indicate that there is a common idea about the requirements for the degree titles.

In addition, the survey revealed the variance in the length and the responsibility of the practical training for IPPE. Of the 66 countries and territories that stated if the practical training is integrated into the main academic programme or separated, 38% of the 66 sampled countries declared that the practical training is conducted outside of the main academic programme, though it is mandatory to be a pharmacist in the subsequent country. In those countries where the practical training is delivered outside of the academic degree, the students' learning experiences depend on the workplace allocated, which may raise the variances in the quality of learning outcomes. Great Britain is undergoing reform of the IPPE structure to integrate the pre-registration training into the academic degree, which, is thought to, instil in students more contextualised knowledge and skills between academic and practical environments while these separated settings become jointly responsible for the delivery of the IPPE programme (Smith & Darracott, 2011).

Of the 66 countries and territories that replied about the nationally agreed core curriculum or syllabus, 59% of countries and territories declared the use of the nationally agreed core curriculum, syllabus, or standardised learning outcomes as requirements to be a pharmacist in the subsequent country. It may imply that about 60% of countries across nations have a nationally agreed idea about the vision for current and future pharmacy and pharmaceutical workforce. These nationally agreed visions for pharmacists may affect the variance in the weightings of both science and practice in the curriculum, which were revealed in the survey, as there is a difference in the minimum proportion of time spent for science-based laboratory practice, although further research is required to find the association.

The extent that the science and pharmacy practice component are integrated in early years of the IPPE curriculum varied across nations, although the differences are not associated with the WHO

regional settings. The description for early years in the IPPE curriculum is prefixed by three categories, including ‘wholly general science, with very little pharmacy practice component’, ‘mostly general science orientation, with small/moderate pharmacy practice components’, and ‘a mix of general science and pharmacy practice’. The extent of integration of science and practice in early years of the curriculum might reflect on the general education system of each country, depending on how much students learn science components before entering the pharmacy degree. It should be noted, however, that this description is a subjective impression on their education by respondents, which may not directly reflect on the actual educational practice.

6.5.3 Regulation mechanisms for quality assurance

The response to the principal research question regarding the QA of the IPPE in terms of the implementation and variance (chapter 2, 2.1.2, vi) will be addressed through the discussion below.

Two quality issues will be discussed in this subchapter; mechanisms and processes to assure the quality of pharmacy professions and its education.

Licensure of pharmacists is a process to ensure the ability of entry-level pharmacists to provide care and services to a wide variety of patients and public (CCP, 2014). The survey revealed that there is a variance in minimum requirements to obtain a license for practicing pharmacy across nations, and three countries, of 80 valid responses for this issue, declared that there is no licensure system in these countries. Although there is little evidence available about the impact of the licensure on the quality improvement of the care for patients (Sutherland & Leatherman, 2006), the WHO alerts possible harm to populations without minimum qualification requirements to entering the healthcare environments because populations may be exposed to incompetent healthcare professionals or to misrepresenting individuals as qualified professionals (WHO, 2013a). Graduation itself from a certain academic programme is the most popular requirement to practice pharmacy in the subsequent country, followed by further examination after the graduation, and a period of practical experience after the graduation. From this finding, there is a clear idea that IPPE is a foundation of the pharmacy profession across nations.

The QA systems vary across nations in terms of the responsible accrediting bodies, accredited objects, and frequency of accreditations. In addition, the information on the requirements for admission to the initial pharmacy education was collected to explore how enrolment management is operated as one of the key quality assurance processes, which exhibits the variance in the enrolment procedures over the world through the survey.

Of the 96 countries that provided information on the responsible accrediting bodies, 12% of the nations and territories stated that there is no accrediting body responsible for the quality of initial pharmacy education, which is a concern to aim for the high and equitable quality of IPPE across nations. Half of the countries stated the information on this issue reported the governmental agency as a responsible accrediting body. The QA agency is considered to be ideally free from unnecessary political or sectoral influences and to have a certain autonomy in decision-making on the development and adoption of standards, policies, and procedures to be clearly understood by all stakeholders (FIP, 2014). These countries involving the governmental agency to accredit the IPPE should be aware of the need for the transparent decision-making processes, free from irrelevant political influences. Moreover, 13% of the sampled countries ($n = 12$) stated the national professional organisation is solely responsible for accrediting the IPPE. The standards and criteria for IPPE accreditation need to be a profession-wide consensus (FIP, 2014). Accreditation solely by the professional organisation may not be able to cover broad-based stakeholder input, which should be prevented for the quality advancement nationally and internationally.

Approximately 20% of countries declared that educational institution or university is the accredited object in the country. To achieve a better quality of IPPE, specifically academic curriculum for pharmacy should be evaluated if it meets population health needs. Thus, there is still a need for accrediting an academic programme in this case.

Regarding the frequency of accreditation, 10% of the sample countries ($n = 6$) stated that accreditation is conducted only once after the establishment of the IPPE. Furthermore, of the six countries declared having the accreditation only once after the establishment, four is low or lower middle income level countries. Pharmacy practice and healthcare system have kept evolving according to the ever-changing health needs of the population and medical breakthroughs. IPPE needs to be transformed accordingly, fit for purpose. Therefore, accreditation only once after the establishment is obviously not enough to sustain the quality of IPPE. The awareness of this issue and resources to conduct the accreditation procedure would be one of the barriers to proceeding to an appropriate QA system all over the world.

The survey also revealed varying student enrolment procedures in pharmacy schools between countries and territories. More than a third of countries declared that some special abilities are additionally required together with passing secondary school leaving exams. Among 81 countries and territories which provided information on the minimum requirements for the admission to the IPPE, the majority of the sample countries (80%, $n = 65$) declared that passing the secondary school leaving exam is used as a requirement to enter IPPE programme. Additionally, about 30% of the

sample countries require applicants to graduate from a special branch of the secondary school. Moreover, 37% stated the need of a certain diploma, degree, or certificate to enter the pharmacy programme, and 15% require the completion of a special course prior to the IPPE programme. The use of entrance examination is also popular to manage the number and the level of students. However, this finding probably indicates that there may be certain characteristics of applicants who can be successfully pharmacists through IPPE programme. The WHO (2013a) describes that the recruitment of the right type of students for the profession is one of the keys to building stronger education institutions and questions the way to recruit them. The identified findings for admission requirements to IPPE programmes across nations would be a fundamental bottom-up recommendation from global experiences.

Overall, this study allows global comparisons of some aspects of institutional structures and process of IPPE, though it may not cover all issues due to the nature of data collection methods and sampling scheme. There still be some gaps remaining in the data set, and more data needs to be collected from the countries and territories which this study was not able to capture in the future research.

Chapter 7: Pharmacy Curricula Comparison Study

7.1 Introduction to the chapter

This chapter will describe in detail the methods used for comparing curricula of IPPE and training across nations. This project investigates the similarities and differences between curricula globally, and seeks relative weighting and trend in pharmacy curricula, following the research question proposed in chapter 2, 2.1.2, viii and ix:

- viii. How do curricula of IPPE differ across nations?
- ix. Are there any relative trends and weights in IPPE curricula globally?

7.2 Study design

This project comprises of two phases: method selection and an exploratory study for comparing curricula (Figure 2.1 and Figure 2.2).

Phase 1, method selection, involves literature review to explore existing methods to compare curricula in higher education for selecting the most suitable methods for this project.

Phase 2, an exploratory study for comparing curricula, involves textual document analyses for comparing curricula of IPPE and training globally in order to explore global patterns and trends of IPPE.

7.3 Phase 1: Method selection

The curriculum is illustrated as the *blueprint* for educational practice by Fish & Coles (2005). The blueprint has several aspects of structuring the educational programme: aims and goals, content/syllabus/topics, teaching/learning methods, assessment methods, and actual time-scheduling (chapter 1, 1.5.2.1.1). In this phase, a literature review was conducted to summarise methods available for curricular comparison and to identify the most suitable methods to compare a variety of the IPPE curricula between countries.

7.3.1 Aim and objectives

The aim of this phase was to search the most suitable methods to compare curricula in the higher

education settings.

The objectives were:

- To search and identify existing methodologies used to compare curricula in higher education settings;
- To compare the advantages and disadvantages of the identified methodologies; and
- To determine the most suitable method to apply for this project.

7.3.2 Methods

A literature review was conducted, aiming to identify and summarise the existing methodologies used in the published articles and to select the most appropriate methods to be used in this curricular comparison project.

Articles were searched in the electronic databases, including the EMBASE, Ovid MEDLINE, PsycINFO, SCOPUS, and Web of Science without the limit of the period as of October 2013. The search term used was 'curriculum comparison'. 2703 articles were retrieved by the search mentioned. Of the 2703 articles retrieved, 2655 were excluded due to the following exclusion criteria:

- Pre-university curriculum;
- Showcase of one certain curriculum;
- Investigation only on the students' attainments; and
- Article languages neither in English nor in Japanese.

7.3.3 Results

47 articles were identified for the purpose of this review. Additional three articles were identified by manually searching and reviewing the reference lists. A total of 50 articles were included in this review.

7.3.3.1 Narrative account: overviews

Of the 50 articles identified in this review, six articles describe overviews of certain states of curricula with narrative accounts, although no precise methods and no information sources are mentioned by authors (Wu *et al.*, 2010; Chur-Hansen *et al.*, 2008; Martinho, 2012; Bos *et al.*, 2007; Lambert *et al.*, 2004a; Ten Have, 1995).

This descriptive narrative account method has been used in the literature of healthcare professional fields, such as dental education (Wu *et al.*, 2010), medical education (Chur-Hansen *et al.*, 2008; Martinho, 2012; Bos *et al.*, 2007; Ten Have, 1995), and nursing education (Lambert *et al.*, 2004a).

Mostly this method is used to present an overview of the state of each curriculum at different levels (e.g., country, region, and school) and to identify differences and similarities of the sample curricula. One article employs this method to identify the advantage and disadvantage of each curriculum model for the suggestion of an ideal programme (Ten Have, 1995).

The analytical method was not stated in the articles of this category; however, the comparisons were done thematically and qualitatively.

7.3.3.2 Literature review

Three articles were identified using the literature review as a method to compare curricula of particular courses in higher education degrees (Halpem *et al.*, 2004; Lloyd-Williams & MacLeod, 2004; Pachana *et al.*, 2010). Curricula are compared by this method to describe the development of emergency medicine in medical education (Halpem *et al.*, 2004), and to determine the available evidence on the delivery of current curricula (Lloyd-Williams & MacLeod, 2004; Pachana *et al.*, 2010).

This method gives an idea of the published phenomena; however, the identified curricula are sometimes out of date due to the publication process. In addition, many curricula have not been published. Finally, Lloyd-Williams and MacLeod (2004) found in their systematic literature review that the type of information in the curricula was limited due to the information available in the searched article.

7.3.3.3 Interview

This literature review found that six articles used the interview or dialogue with experts as a method to compare curricula (Cater-Steel *et al.*, 2010; Yi, 2004; Sramkova *et al.*, 2004; Lambert *et al.*, 2004b; Adejumo & Ehlers, 2001; Urbaniec *et al.*, 2003). This method in the identified six articles was applied for the comparison between only two countries or even only two universities, and four of them used as a part of combined methods (e.g., documents/web search and survey). The disadvantage of this method can be the time-consuming issue, which will enable the comparisons between only the small numbers of countries. Due to the narrative manners in this method, the details of curricular contents were not discussed in these identified projects. On the other hand, this method would be useful for the triangulation of a study in order to check the results in a mixed methods approach. The identified findings were compared thematically, and mostly presented in tables.

7.3.3.4 Survey

The questionnaire survey approach was found in 24 articles in this literature review. Of the 24 articles, four used the survey as a part of triangulation, 20 as a stand-alone methodology. The distribution methods differ: Of the 20 articles using the survey as a stand-alone method, two distributed the surveys by telephone (Cole & Berensen, 2005; Hopayian *et al.*, 2007), ten by posting (Brems & Johnson, 1996; Fox, 1989; Osborn *et al.*, 1999; Mindell *et al.*, 2011; Brinkhaus *et al.*, 2011; Fagerberg & Gilje, 2007; Saleh *et al.*, 2006; Lee, 2004; Clarke, 1996; Nusberg, 1987), one by online (Lazarou *et al.*, 2011), five by email electronically (Lucchetti *et al.*, 2012; Norris *et al.*, 2009; Nolan & Brimblecombe, 2007; Willatt & Mason, 2006; Thobaben *et al.*, 2005), two by combined ways such as email and posting (Pachana *et al.*, 2010), and email, fax, and posting (Gerber, 2001); and four articles using the survey as a part of triangulation approached by different distribution way, such as posting (Richard-Greenblatt *et al.*, 2012), email (Yi, 2004), a combination of posting and handing (Adejumo & Ehlers, 2001), and no precise distribution method written (Cumyn & Harris, 2012).

Telephone surveys often used the semi-structured interview. Hence, similar advantage and disadvantage of the interview method derived from the use of telephone survey. Both two telephone surveys explored a particular course in a degree programme in one sample country (Cole & Berensen, 2005; Hopayian *et al.*, 2007). As mentioned in the Interview part, both studies did not investigate the detailed contents of the sample curricula. They raised several limitations of their studies with the use of telephone survey as recall bias, personal bias and limited strict adherence to the standardized script.

Other than the telephone survey, the survey methods with all kinds of distribution manners identified above have been used in many projects focusing on different aspects to compare curricula. Of the 22 identified articles with the survey method except with telephone survey, three studies focused on the whole degree of undergraduate or postgraduate, while 19 on particular course or programmes in the higher education degree. The detailed curricular contents were investigated by only one study focusing on the PhD programmes comparing between clinical and counselling psychology (Brems & Johnson, 1996), which is one of the three studies focusing on the whole degree of higher education. The other two studies focusing on the whole degree limit the research objectives within the overview and the structure of the degree programmes. The other 19 studies focusing on some particular course or programmes in the higher education degree tend to investigate the extent of emphasis on the certain area in the degree programme, and teaching/assessment methods of the specific study field.

The survey method was also used to obtain the consensus of the core curriculum in Canada

(Lazarou *et al.*, 2011; Cumyn & Harris, 2012). Two of them focused on the particular area in the undergraduate medical degree in Canada, and the modified Delphi approach was used to validate the curricular contents in their areas.

Collected data were analysed in a descriptive manner for the numbers, and in the quantitative content analysis for the texts. The quantitative content analysis was used for the comparison of curricular contents in the literature using free-text answers (Cole & Berensen, 2005; Richard-Greenblatt *et al.*, 2012; Brems & Johnson, 1996; Lucchetti *et al.*, 2012; Pachana *et al.*, 2010). The curricular contents were coded and sorted into its respective categories. Then, the organised contents were compared in descriptive manners, mostly presented in tables. The survey using restricted answers conducted descriptive analysis directly from the previously coded reply (Osborn *et al.*, 1999).

7.3.3.5 Documents/Web search

Document review or web search was used to collect the data to compare particular curricula in 17 articles of this literature review. Of the 17 identified articles, twelve studies used this method as a stand-alone approach to the data collection, while five as a part of triangulation. The resources where the curricular data was retrieved differ in the 17 identified articles: five retrieved the data from the website of sample schools/organisations (Gow & Sutherland, 2004; Richard-Greenblatt *et al.*, 2012; Cobb *et al.*, 2004; Wang *et al.*, 2010; Yi, 2004), six from written curricular documents, including the reading lists for the particular course (Walker *et al.*, 2012; Mittelmark *et al.*, 2000; French *et al.*, 1996; Ahmadi-Esfahani & Galabawa, 1990; Quinn *et al.*, 1997; Cumyn & Harris, 2012), one from a specific database that was constructed previously (Kampov-Polevoi & Hemminger, 2011), one from published curricular instruction in sample countries (Baozhi & YuHong, 2003), and four from various sources including websites, written documents, and student study guides (Phillips, 2008; Jain *et al.*, 2012; Sramkova *et al.*, 2004; Urbaniec *et al.*, 2003).

When the comparison expanded internationally, the studies used diverse sources to collect the data. For example, Phillips (2008) compared the medical undergraduate curricula between Australia, European countries, and North America by a variety of sources such as published literature, national and international organisations, medical schools, and accreditation bodies aiming to address their research questions. Jain and colleagues (2012) also used many different kinds of sources to compare USA, Canada, the UK, India, and Nigeria.

Some studies requested the people who are in charge of or direct the course/degree to send the published curricula documents. Quinn and colleagues (1997) contacted and requested the course

leaders to send detailed programme documentation including contents, syllabus, assessment methods, teaching methods, accreditation and any other relevant information in order to compare postgraduate clinical pharmacy programmes in the UK. French and colleagues (1996) first made the research team including at least one member from each sample country; then, requested them to collect the data from their published documents for the comparison of undergraduate nursing education globally.

To compare the curricular contents, the comparative content analysis was used in most of the identified articles (Gow & Sutherland, 2004; Richard-Greenblatt *et al.*, 2012; Kampov-Polevoi & Hemminger, 2011; Cobb *et al.*, 2004; Wang *et al.*, 2010; Yi, 2004; Urbaniec *et al.*, 2003; Mittelmark *et al.*, 2000; French *et al.*, 1996; Ahmadi-Esfahani & Galabawa, 1990; Quinn *et al.*, 1997; Cumyn & Harris, 2012; Sramkova *et al.*, 2004). After the content analysis of curricula, descriptive statistics was applied to quantitatively compare the sample curricula. Of the identified 17 articles in this category, four studies did not use content analysis to compare their sample curricula. The study comparing the medical curricula between China and the USA, the content analysis was not mentioned in their article, but analysed in descriptive manners (Baozhi & YuHong, 2003). Phillips (2008) compares the medical curricula between Australia, European and North American countries by using the thematic analysis approach. The differences and similarities were compared narratively. Jain and colleagues (2012) also used thematic analysis to compare psychiatry residency training between USA, Canada, the UK, India, and Nigeria. The collected information was synthesized into the respective themes and presented in the table. Finally, Walker and colleagues (2012) did not compare the curricular contents but compare core competencies of two different medical trainings qualitatively.

7.3.3.6 Others

One article used the students' log to compare the educational contents at the clinical educational settings (Carney *et al.*, 2004). Carney and colleagues (2004) used the previously developed computer documentation system and collected the data on the educational practice that students' experienced from the log that students have entered. The comparison of the contents was conducted within one medical school in the USA, and this data source allows comparison only between the schools using the same systems. The collected information was analysed with descriptive statistics.

7.3.4 Phase 1 Discussion and conclusion

Considering that present project aims to compare the IPPE curricula globally, the method needs to be applicable for the comparison between multiple countries. In addition, the other two projects

investigate the country-level structure and process as well as the curricular effectiveness by exploring students' learning experiences. Thus, this project focuses on the differences and similarities of curricular contents between nations.

As a result of literature review, the documents/web search seems to be applicable to the present project because the study focuses on a comparison between multiple countries looking at the global trends of IPPE curricula. Although the comparison of the detailed curricular contents was conducted by using both survey method and documents/web search, the curricula comparison between multiple countries was carried out only by using the documents/web search. In addition, the data sources should not be restricted to one type: the literature review identified that diverse sources of data help illustrate the comprehensive state of higher education curricula.

Along with the documents/web search of curricular contents globally, the content analysis and descriptive analysis are considered to be applicable to this study. It is because these analysis approaches are the most popular to compare detailed curricular contents in the documents/web search, and these will help understand the differences and similarities of global IPPE curricula.

7.4 Phase 2: Exploratory study for comparing curricula

In this phase of the Pharmacy Curricula Comparison Study, the curricula used in the IPPE were compared globally to provide evidence of the curricular contents orientation to understand current IPPE practice across nations.

7.4.1 Aim and objectives

This phase aimed to seek the differences and commonalities, and relevant weighting and trends in initial pharmacy curricula globally.

The objectives were:

- To compare regulated IPPE programmes across nations; and
- To explore relative trends and weighting of curricula in IPPE globally.

7.4.2 Methods

7.4.2.1 Sampling

Purposive sampling approach was applied for this study. Sampling was conducted simultaneously with another study (the Pharmacy Education Survey, chapter 5) in order to collect representative curricula or syllabuses in the sampled countries. One question (Q23 in Appendix 11) is allocated to

request to respondents for sending those nationally agreed core curriculum or syllabuses with completed survey questionnaire. An additional collection of relevant documents was conducted using purposive sampling approach within the FIP Education Initiative network to gather data in order to examine regional comparison.

To compare at a global level, some samples (Japan, Great Britain, and the USA) were additionally collected purposively via the *FIPed* network.

7.4.2.2 Data collection and analysis

The relevant documents were collected from 24th January 2013 till the end of April 2013 through the Pharmacy Education Survey (chapter 5). Additional sample collection was conducted by the end of 2013. The data were collected in multiple languages and translated into English to conduct statistical analyses.

A mixed approach of the content analysis and framework analysis was applied to explore and analyse collected data. The framework analysis was employed in the process of coding and rearranging the data into the previously developed framework, and content analysis was utilised as a general principle of the analytical approach of this study, using for simplifying and measuring the data to fulfil the aim and objectives addressed above.

The framework applied for the study is the PHARMINE project guidelines (Pharmine, 2011). The PHARMINE project guideline is a list of seven curriculum clusters used in the PHARMINE project which aimed to harmonise European IPPE curricula. The curriculum clusters were used to organise and map syllabi of IPPE in European countries in order to develop evidence-based European IPPE syllabus. The seven curriculum clusters in the guidelines can be found in Table 7.1.

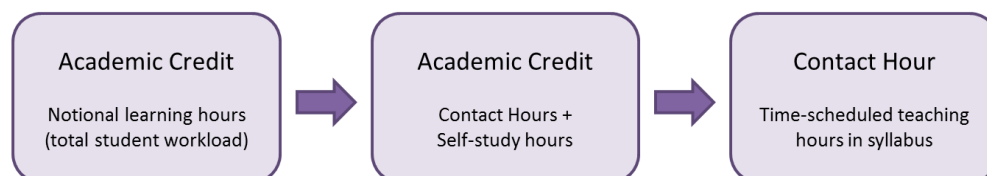
Table 7.1: A list of curriculum clusters and its descriptions

Cluster	Description
CHEM	Chemical Science (Pharmaceutical Chemistry and Biochemistry)
MATH	Maths and Physics
MED	Pharmacology and Medicinal Science
PHAR	Pharmaceutics, Technology, and Formulation
BIO	Biological Sciences
PRAC	Pharmacy Practice, Pharmaceutical Care, Clinical Pharmacy, Law and Social Pharmacy
GEN	Generic

To value the categorised syllabus content data, contact hours were used in the study. However, the contact hour was not a universal unit to value to a subject/course/module across the globe. Some

countries used academic credits based either on time-scheduled teaching contact hours or on total student workload expected to require for achieving specific learning outcomes in the course (i.e., *notional learning hours* (QAA, 2011)). In the study, the different values of subjects in sampled documents were standardised into the contact hours as Figure 7.1 shows. Academic credits based on notional learning hours were converted to the academic credit based on contact hours by using guidelines that governments or universities of samples produced. Furthermore, the academic credits based on contact hours were calculated into contact hours as time-scheduled teaching hours in the syllabus. For calculation convenience, the calculation was carried out based on the lecture/seminar credit hours. Table 7.2 describes the summary of information used for the calculation, and Table 7.3 shows the contact hour conversions used for this project.

Figure 7.1: Standardisation process of academic credits and contact hours



For measuring the tendency of self-directed learning in curricula, provided academic credits were also converted to the expected learning hours in and outside of classrooms. The expected learning hours conversions used for this project is in Table 7.4.

Table 7.2: Summary of information for academic credits to convert into contact hours

	US		China Taiwan	Japan	European countries	Great Britain	Uruguay
Credits	Semester Calendar Credit	Quarter Calendar Credit	Institutional Credit	National Credit	European Credit Transfer and Accumulation System (ECTS)	UK Academic Credit	Institutional Credit
Basis of credit	Contact hours (GHK, 2011)	Contact hours (GHK, 2011)	Contact hours	Contact hours	Total student workload (GHK, 2011)	Total student workload (QAA, 2008)	Total student workload (Universidad de Deusto, 2013).
Term length	Two semesters of 15-16 weeks' duration (USDoE, 2008)	Three terms of 10-11 weeks' duration (USDoE, 2008)	Two semesters of 9 weeks' duration (ISEP, 2013)	Two semesters of 15 weeks' duration (MPU, 2013)	Depending on each school or country	Three terms of 8-16 weeks' duration	Two semesters of 15-16 weeks' duration (ISEP, 2013)
Total credits in full academic year	30 credits (GHK, 2011)	-	24 credits (ISEP, 2013)	30 credits (MEXT, 2010)	60 ECTS (European Communities, 2009)	120 UK credits (QAA, 2008)	80 or 90 credits (Universidad de Deusto, 2013)
Weight of a credit	Lecture/seminar: 1 credit = 15 hours of scheduled lecture class/seminar plus 30 hours of student preparation time.	About two-thirds of a semester credit hour (USDoE, 2008).	1 credit = 18 contact hours of class (ISEP, 2013).	Lecture/seminar: 1 credit = 30 hours of lecture/seminar plus 15 hours of student self-study. (MPU, 2013)	1 credit = 25-30 hours of student total workload. (European Communities, 2009).	1 credit = 10 hours of student total workload (QAA, 2008)	1 credit = 15 hours of student total workload (Universidad de Deusto, 2013).
Credit conversion	-	1 semester credit = 1.5 quarter credits (UCSF School of Pharmacy, 2014).	6 US semester credits (9 quarter credits) = 5 Taiwanese credits.	1 Japanese credit = 2 US semester credits (3 US quarter credits).	1 ECTS credit = 0.5 semester credit (0.75 quarter credit) (Thompson, 2005)	2 UK credits = 1 ECTS (QAA, 2008)	1 Uruguayan credit ≈ 2 ECTS.

Table 7.3: Contact hours conversions

	Contact hours per credit (hours)					
	15	30	45	60	75	90
US semester credit	1	2	3	4	5	6
US quarter credit	1.5	3	4.5	6	7.5	9
China Taiwan	0.83	1.67	2.5	3.33	4.17	5
Japan	0.5	1	1.5	2	2.5	3
ECTS	2	4	6	8	10	12
Great Britain	4	8	12	16	20	24
Uruguay	1	2	3	4	5	6

Table 7.4: Expected learning hours conversions

	Learning hours per credit	Expected learning hours per credit (hours)					
		10	20	30	40	50	60
US semester credit	45	0.22	0.44	0.67	0.89	1.11	1.33
US quarter credit	30	0.33	0.67	1	1.33	1.67	2
Japan	45	0.22	0.44	0.67	0.89	1.11	1.33
ECTS	25	0.4	0.8	1.2	1.6	2	2.4
Great Britain	10	1	2	3	4	5	6
Uruguay	15	0.67	1.33	2	2.67	3.33	4

The collected subject labels with contact hours were categorised into seven clusters of the PHARMINE project guidelines for standardisation (Pharmine, 2011) for comparative content analyses. Syllabus headings grouped in the clusters can be found in Appendix 19. The categorised data were collated and cleaned in the Microsoft Office Excel 2010. The cleaned data were eventually transferred into the SPSS version 21 to perform statistical analyses.

Normality of distributions was examined by investigating histograms of the seven clusters. Comparisons were conducted using the descriptive analysis, measuring the minimum, maximum, mean values, and correlational statistics, together with exploring the graphical comparisons.

A probability level of $p < 0.01$ was used to identify significant associations and $p < 0.05$ to highlight weak associations throughout the analysis to ensure robustness of the results.

7.4.3 Results

7.4.3.1 Demographic data

Documents of Curricula and syllabuses were collected in 16 countries which are summarised in Table 7.5 together with the total number of pharmacy schools in their countries and its study years in the regulated IPPE programme. The sample distribution in the WHO regions is summarised in Table 7.6.

Table 7.5: The number of samples collected and the total number of pharmacy schools in sampled countries

Country	Sample	Total no. of pharmacy schools	Study years
Austria	1	3	4.5
Bosnia & Herzegovina	1	2	5
China Taiwan	1	7	5
Croatia	1	1	5
Czech Republic	1	1	5
Great Britain	1	26	5
Hungary	1	4	5
Iceland	1	1	5
India	National Curriculum	1026	6
Japan	1	74	6
Malawi	1	1	4
Malta	1	1	5
Namibia	1	1	4
Pakistan	National Curriculum	41	6
Uruguay	1	1	5
USA	1	129	6

Table 7.6: Summary of samples in WHO regions

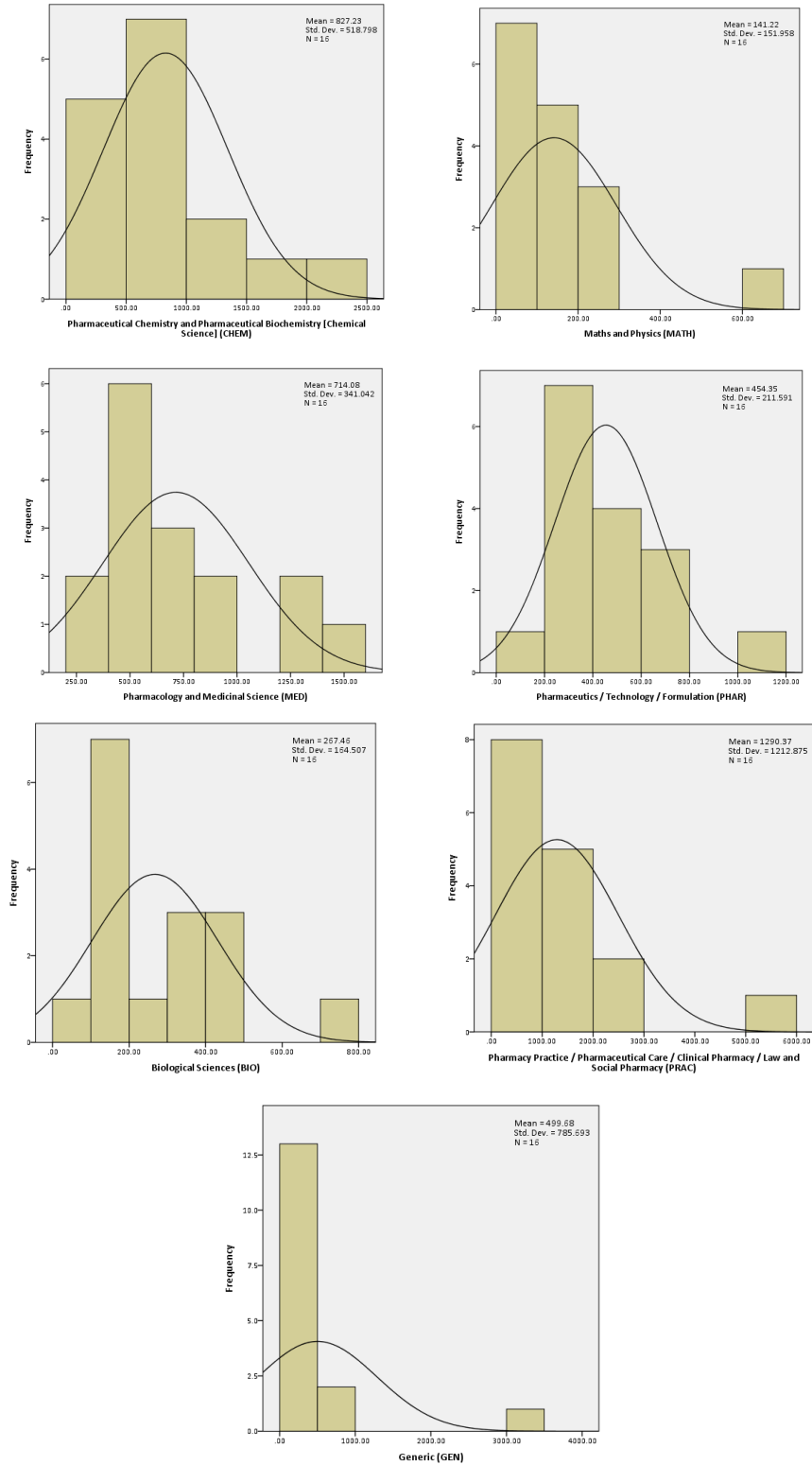
	Sample	Sample %
Africa	2	12.50
Americas	2	12.50
Eastern Mediterranean	1	6.25
Western Pacific	2	12.50
South East Asia	1	6.25
Europe	8	50
Total	16	100

Of the 16 sample documents collected, four samples provide contact hours allocated for each subject (India, Malawi, Namibia, and Pakistan), three (China Taiwan, Japan, and USA) include the information on allocated academic credits based on time-scheduled teaching contact hours, and nine (Austria, Bosnia & Herzegovina, Croatia, Czech Republic, Great Britain, Hungary, Iceland, Malta, and Uruguay) on defined academic credits based on total student workload in notional learning hours. Furthermore, conversion from academic credits to expected students' learning hours was possible for 11 nations (Austria, Bosnia & Herzegovina, Croatia, Czech Republic, Great Britain, Hungary, Iceland, Japan, Malta, Uruguay, and the USA) which the information about total student workload is available.

Figure 7.2 shows the histograms illustrating the distribution of data in scale clusters of curriculum subjects, indicating all scales were not distributed normally; thus, non-parametric tests should be

used in inferential analyses.

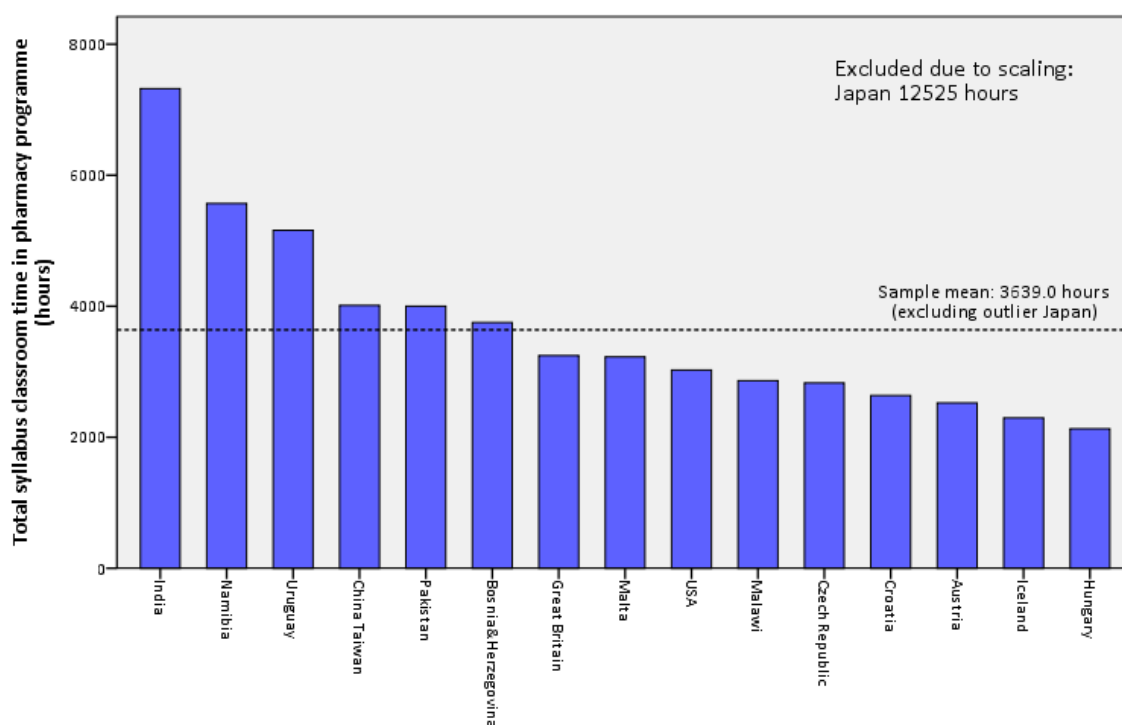
Figure 7.2: Histograms of the seven curriculum clusters



7.4.3.2 Global overview

The study years in a programme leading to registration as a licensed pharmacist range from 4 to 6 years (Table 7.5). Total syllabus time spent in an IPPE programme in the sample countries are compared in Figure 7.3, showing that the sample mean is 3639.0 hours (excluding outlier: Japan) ranging from 2130 to 12525 hours.

Figure 7.3: Total timetabled syllabus time offered in pharmacy programme (hours)



Average syllabus time spent in a year also vary among the sampled curricula. A sample mean of average syllabus time per year is 727.8 hours/year (excluding outlier: Japan), ranging from 382.5 to 2087.5 hours/year (Figure 7.4). It can be inferred that pharmacy degree programmes in these countries where fewer contact hours spent on average in a year tend to be designed for students to have more self-study in the study years.

Figure 7.4: Average timetabled syllabus time offered in a year of pharmacy programme (hours)

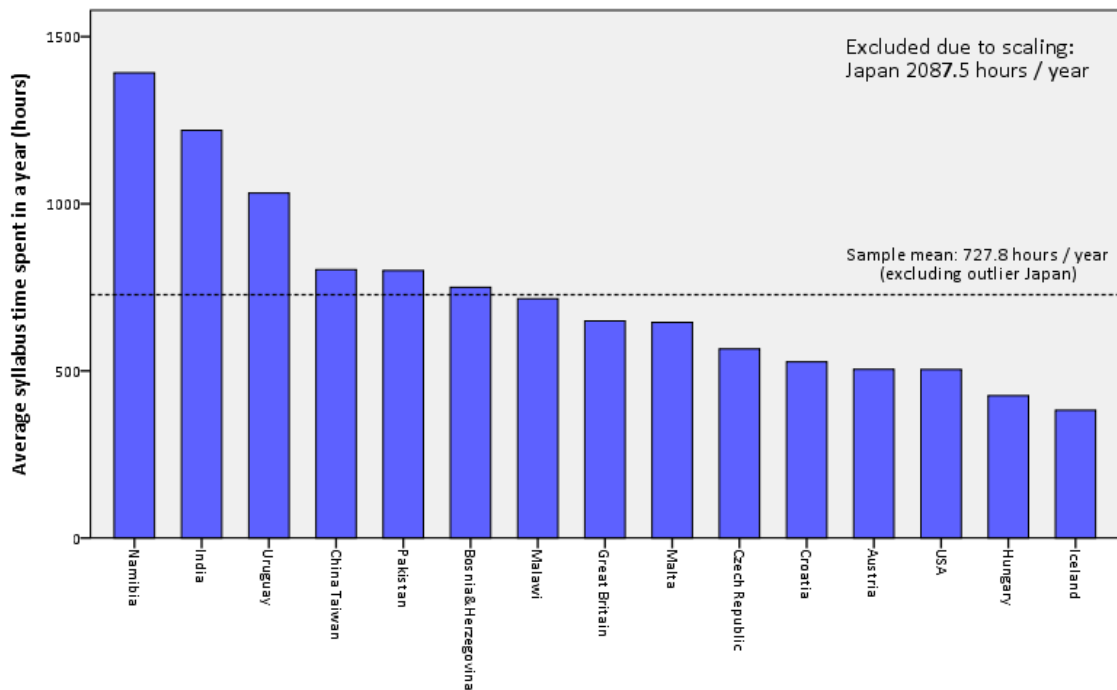
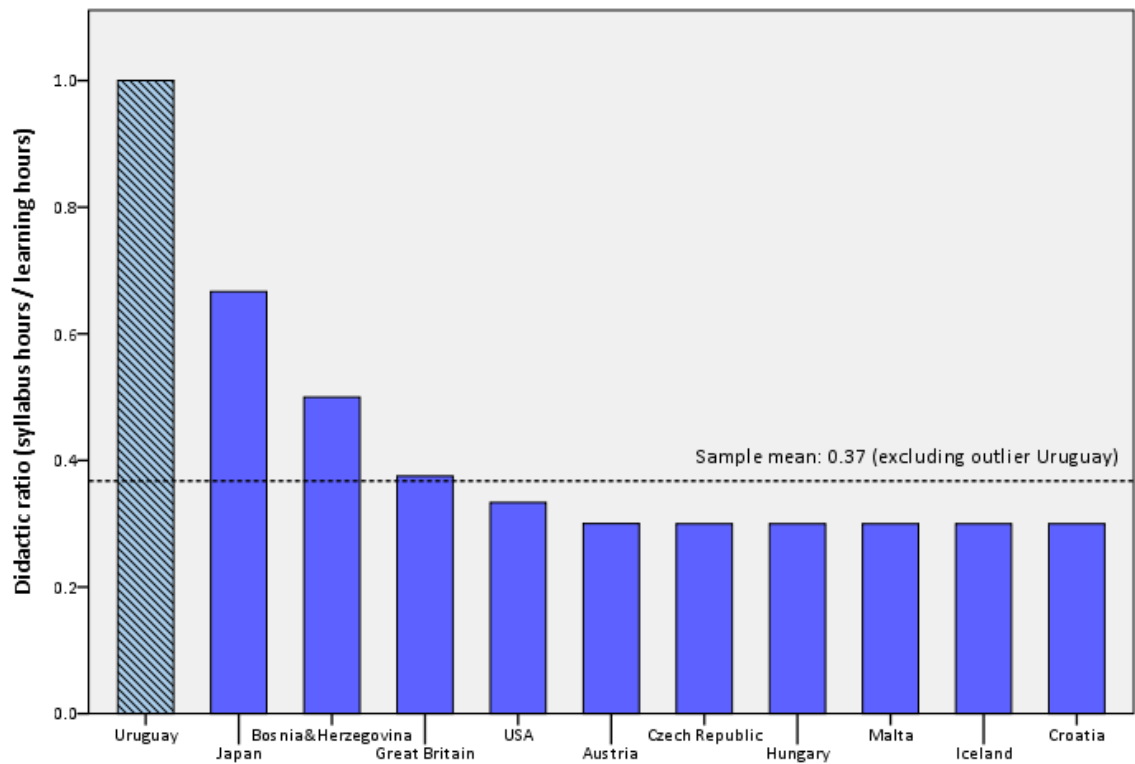


Figure 7.5 shows that the ratio of timetabled syllabus classroom hours against total expected learning hours in eleven countries or territories which the information of total expected learning hours is available. This describes the variance in aggregated educational offerings within the total learning hours expected for registration as a pharmacist in the sample countries or territories. It means that as the didactic ratio increases, the programme provides more timetabled classroom time compared to self-directed learning, and if the programme is structured as more self-directed learning, the didactic ratio decreases.

The didactic ratio of Uruguay is 1.0 because, although the academic credit indicates the total student workload expected in a programme, the programme is designed for providing classroom time as total learning hours expected as a whole.

The sample ratio mean is 0.37, excluding outlier of Uruguay, ranging from 0.3 to 0.67. In this dataset, Japan is the most didactic, and the most of the European countries are more self-directed learning oriented.

Figure 7.5: Didactic ratio | N=11



7.4.3.3 Curriculum tendency

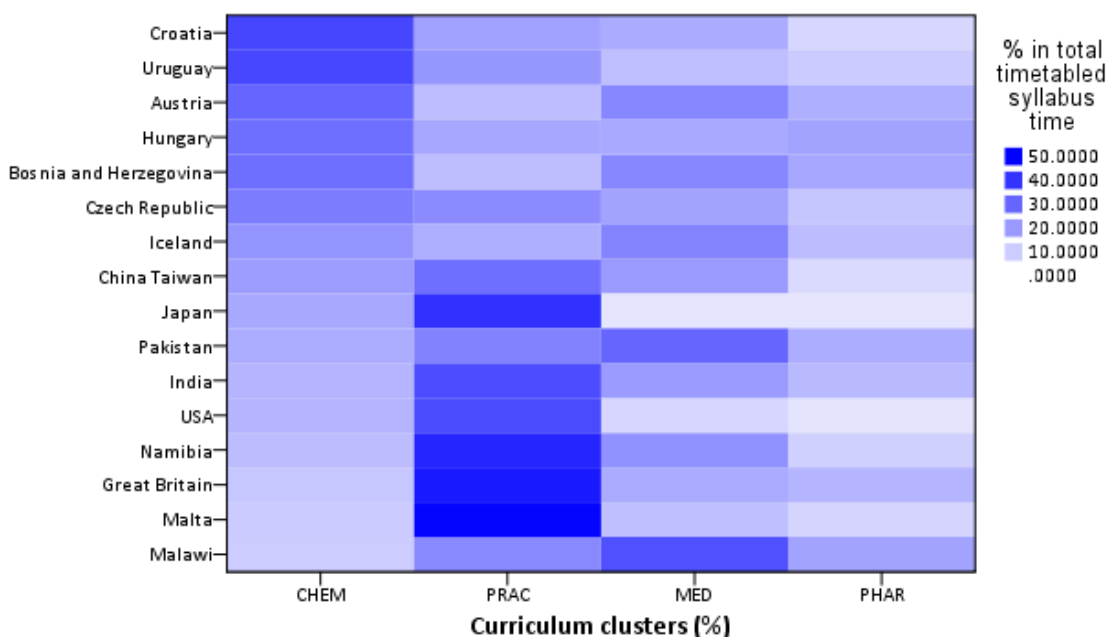
Syllabus time spent on each curriculum cluster also varies (Table 7.7). There is the most variance in the PRAC cluster among samples (ranging from 49.3% to 12.8%), as opposed to the MATH cluster (ranging from 12.2% to 0.0%).

Table 7.7: Proportion of each curriculum cluster in total syllabus time of sampled pharmacy programme

	Proportion of curriculum cluster in total syllabus time in a pharmacy programme (%)						
	CHEM	MATH	MED	PHAR	BIO	PRAC	GEN
China Taiwan	19.3	2.7	19.7	7.2	17.9	28.3	4.9
Croatia	36.3	4.3	16.5	8.0	11.7	18.5	4.8
Czech Republic	25.7	0.8	18.3	11.1	5.3	22.8	15.9
Iceland	20.9	5.2	24.2	13.1	6.5	15.7	14.4
Malawi	10.0	1.6	34.3	18.2	4.0	23.4	8.5
Namibia	13.2	1.1	21.6	9.2	5.5	42.8	6.6
Malta	10.2	2.3	12.6	8.4	4.7	49.3	12.6
Bosnia and Herzegovina	28.4	6.0	23.6	17.2	8.0	12.8	4.0
Uruguay	36.0	12.2	12.5	10.2	8.1	20.6	0.3
USA	14.7	6.9	8.1	5.3	9.3	35.5	20.2
Japan	17.0	2.3	5.0	5.0	3.4	40.4	26.9
Austria	30.2	1.5	23.5	15.6	6.5	12.9	9.8
Hungary	28.5	4.9	16.9	18.3	4.2	17.3	9.9
India	14.8	2.2	19.7	13.7	5.5	35.0	9.3
Pakistan	16.0	1.5	30.0	16.0	3.5	24.5	8.5
Great Britain	11.0	0.0	16.7	14.4	5.2	45.1	7.6
Maximum	36.3	12.2	34.3	18.3	17.9	49.3	26.9
Minimum	10.2	0.0	5.0	5.0	3.4	12.8	0.3
Mean	20.8	3.5	18.9	11.9	6.8	27.8	10.3

Figure 7.6 illustrates the variance in the proportion of the four clusters (the CHEM, PRAC, MED, and PHAR) in total syllabus time in the sampled pharmacy programmes. This heat map expresses which cluster is emphasised in the sampled programme. These selected four clusters dominant the three quarter of the total syllabus time. Significant negative correlation between the PRAC clusters and CHEM cluster: as the proportion of the PRAC syllabus time increases, the proportion of the CHEM syllabus time decreases (Spearman's $r = -.77$ and $p < 0.0001$). Further, significant positive correlation between the MED and PHAR clusters was found (Spearman's $r = .66$, $p = 0.005$). This indicates that the MED and PHAR clusters are closely linked in curriculum development.

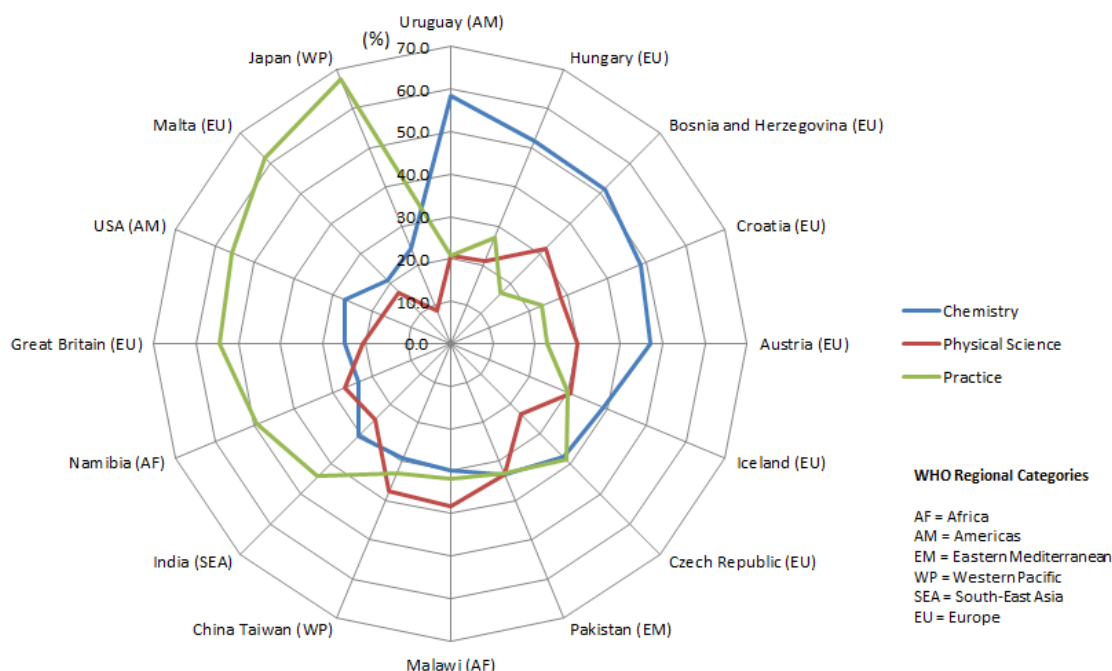
Figure 7.6: Proportion of the four curriculum clusters (the CHEM, PRAC, MED, and PHAR) in total syllabus time in pharmacy programme by sampled countries



Seven curriculum clusters are further categorised into three to examine the tendency between science and practice in the sample. Chemistry group includes the CHEM (Pharmaceutical Chemistry and Biochemistry), PHAR (Pharmaceutics / Technology / Formulation), and MATH (Maths and Physics). Physical Science group includes the BIO (Biological Sciences) and MED (Pharmacology and Medical Science). Finally, practice group includes the PRAC (Pharmacy Practice / Pharmaceutical Care / Clinical Pharmacy / Law and Social Pharmacy) and GEN (Generic).

Figure 7.7 shows the variances of the proportion of three groups in pharmacy degree programme (chemistry, physical science, and practice) by samples. This indicates that, of 16 countries collected, six samples (Uruguay, Hungary, Bosnia and Herzegovina, Croatia, Austria, and Iceland) have the tendency of chemistry-focused curriculum, while another six (India, the USA, Great Britain, Japan, Namibia, and Malta) tend to have practice-focused curricula. Four (Czech Republic, Pakistan, Malawi, and China Taiwan) tend to include all aspects in the similar proportions. Of these four, Malawi and China Taiwan focus more on Physical science in their curricula compared to the other groups. There was no significant correlation with the WHO region categories found.

Figure 7.7: Proportion of three categories in the whole contact hours in pharmacy programme by sampled countries



7.4.4 Biases and limitations

Findings from this study may not be generalisable due to the extent of representation of the countries. Contact hours and learning hours calculated for comparative content analysis are considered as only the relative weight of the subject and how much the programme offer to students: the units for academic credits used for the calculation converted to contact/learning hours may not be exactly the same as the actual contact hours spent for students.

Coding reliability may affect analyses of the dataset: coding was conducted by one researcher, in the case there is the ambiguity of the subject label, the subject description was sought from the relevant document or website of the faculty in order to decide which category is the most suitable.

7.5 Discussion and summary of the chapter

This study allows a world-wide comparison of IPPE curricula, showing a large variance in the contact hours spent leading to a registration as a pharmacist in the sampled countries, the orientation of sampled curriculum designs, the weighting of syllabus time between countries and correlations between curriculum clusters. It is the first study of its kind to provide a global comparison of IPPE curricula. The study addressed two of the principal research questions (chapter 2, 2.1.2, viii and ix),

concerning the global variances and trends in IPPE curricula.

7.5.1 Variation in pharmacy curricula

The study found variation in the syllabus time scheduled in the IPPE programme between the sampled sixteen countries. The differences in the average syllabus time scheduled per year can infer the variation in approaches to teaching and learning set in the sampled curricula. The less syllabus time scheduled in a year may indicate more self-directed learning approach in the curriculum.

The study also allows a global comparison of the curricular contents, which revealed variation in the proportion of each of the seven curriculum clusters in the total syllabus time. The pharmacy practice cluster has the biggest variance in the proportion of the total syllabus time between the sampled countries. The variability among the pharmacy curricula is welcomed by Atkinson (2014) in the study examining the heterogeneity among European pharmacy education through the PHARMINE project, as the variability allows academic freedom to develop other teaching and learning approaches in the programme.

7.5.2 Trends and weighting in pharmacy curricula

The study identified the negative correlation between the proportion of chemical science and pharmacy practice syllabus times, as well as the positive association between medicinal science and pharmaceuticals syllabus times. The difference in the orientation of the pharmacy curricula, as practice, science-focused, or balanced, may indicate the variance in, or emphasis on, the role of pharmacists in the studied countries.

Moreover, the difference in the curriculum orientation may indicate the variance in the extent of development of IPPE curricula. IPPE has traditionally focused on medicinal products, emphasising chemistry, pharmaceuticals, and the regulation of medicine procurement systems. According to the demographic changes, medical and pharmaceutical breakthroughs, and evolving healthcare systems, the role of pharmacists has broadened and shifted towards a more clinically oriented role. IPPE has been challenged globally to be transformed to prepare graduates to meet diverse healthcare needs, enabling them to work well in healthcare teams. Thus, IPPE has been reformed across nations, although the speed varies beyond and within the countries.

The study revealed that the variance in the curriculum orientation; however, it is unclear if there are any tendencies with regional contexts due to the sample size. Nevertheless, the study methodology enabled the global comparison of IPPE curricula, showing the feasibility of another study with the bigger sample size.

Further research would be needed with a larger variety of samples so as to see a clearer global tendency in IPPE degree programme.

Chapter 8: Discussion of key findings

8.1 Introduction to the chapter

This chapter will discuss the key findings of the present research, together with the implications of the results for high quality IPPE, and the impact on the IPPE practice globally. General limitations will be addressed at the end of the chapter for sensible interpretation of the findings. This chapter will conclude with suggestions for possible further work based on the present work.

The research project has explored the quality attributes of IPPE globally using a mixed methods approach in order to provide a global insight of IPPE as a basis for the global IPPE practice improvement. Pursuing the aim and objectives proposed, three studies were conducted: the Student Learning Experience Survey (chapter 5) examining the quality factors focusing on students' personal aspects in IPPE; Pharmacy Education Survey (chapter 6) investigating the institutional aspects of the quality of IPPE; and Pharmacy Curricula Comparison Study (chapter 7) comparing the curricular contents of IPPE between countries. These are the largest studies of their types to date, focusing on IPPE in a global context. The research conception overviews were illustrated in Figure 2.1 and Figure 2.2. The findings from each study will be discussed jointly in this chapter. This will allow the researcher to analyse and discuss key findings by triangulating the results from different aspects of IPPE towards providing a better understanding of the quality of IPPE in a global context.

8.2 Key findings

8.2.1 Proxy indicators for quality IPPE

There are a number of different approaches to the quality in a higher education setting, so are the ways to measure the quality (Green, 1994; Frazer, 1994). It is because the term 'quality' is a relative concept in which different groups or stakeholders have different priorities and focus (Green, 1994). However, the concept of the quality in a healthcare professional education setting needs to be linked with global, national and local health needs and the health systems in order for health workforce to response to current and future health needs and demands for enhancing global and national health.

For the purpose of this research, the quality of IPPE was defined as the characteristics of IPPE which sustainably supply a competent and capable pharmacy workforce who have competencies to meet current and future health needs and demands of the population that they will serve. Developing

high quality IPPE across nations is a key to achieving universal health coverage and quality health care, which in turn, leading to the global health improvement (WHO, 2013b).

The quality health professionals require competencies to provide healthcare services meeting health needs and demands of the population (WHO, 2013b). A set of competencies for pharmacy workforce differs between or within countries regarding the health needs and service provision. Nevertheless, the WHO states that all health professionals should obtain the capability (1) to work in a healthcare team, (2) to adapt the changes, (3) to introduce the changes where needed, and (4) to learn in a self-directed and continuous way (WHO, 2013a). These four competencies were used as the benchmark for quality pharmacy workforce worldwide that should attain in the research.

According to a literature review in the introduction (section 1.5), there are several key factors influencing the quality of IPPE to supply quality pharmacy workforce. These included students' factors and institutional and teaching factors. Table 8.1 summarises the indicators that were found and explored in this research.

Table 8.1: Key factors and associated proxy indicators for quality IPPE

Factors	Indicators	
Student's Factors	Students' Approaches to Learning (SAL)	
	Students' Learning Experiences	
Institutional and Teaching Factors	Capacity	Stewardship and infrastructure of educational institutions
		Financing
	Provision	Curriculum / curricular contents
		Contact/Study hours
	Regulations	Licensure
		Accreditation
Admission policy for recruitment and selection of students		

These indicators were used for exploring the quality of IPPE in a global context. They were useful for identifying a global basis of the quality of IPPE, and for understanding the current conditions of the IPPE worldwide. There was no comprehensive information available for providing an insight of the quality of IPPE globally. Hence, the findings from comparing and exploring these data collected in a comprehensive process can fill the gaps in the literature, which will assist developing international IPPE recommendations for shaping the present and future pharmacy workforce development across nations.

It should be acknowledged that these quality indicators may vary if the context is different, such as at national, individual HEI, or departmental levels. The quality measurements should be used according to the purpose of the process as each HEI has different missions and operate in different environments (Ball & Wilkinson, 1994). However, the missions and goals of IPPE in any country should reflect the national environment and health needs so that educated pharmacy workforce is able to meet current and future societal needs and expectations (FIP, 2014). Thus, for enhancing the quality of IPPE and identifying the quality indicators, health needs assessment and the national and local health environments are essential as described in the cycle of the *WHO-UNESCO-FIPed Needs-based Education Model* (FIPed, 2013)(Figure 1.8).

8.2.2 Global variances in the quality of IPPE

The research found a variety of variances in the quality attributes of IPPE globally, which likely expresses that there are countries and territories having issues in the quality of IPPE to prepare pharmacy workforce to have necessary competencies to respond the societal needs. This situation is consistent with the report by Frenk *et al.* (2010). In many countries, health professional educations have some difficulties in keeping the pace up with ever-changing health needs and systems, and in preparing healthcare professionals to meet the societal needs and expectations (Frenk *et al.*, 2010).

The quality of IPPE is a multi-faceted entity. The variances among the countries and territories that found in the research can underline the issues that should be globally, regionally, or nationally tackled. The variances will be discussed based on geographical and economic aspects.

8.2.2.1 Geographical variances in the quality of IPPE

A wide range of geographical variances in the quality attributes of IPPE were found in the research. The differences were analysed and discussed at the WHO regional and country levels.

8.2.2.1.1 Capacity and students' learning experiences

In the Student Learning Experience Survey (chapter 5), the aggregated data of the SAL and their learning experiences for regional comparisons revealed a variance in the quality of learning in IPPE between the WHO regions. Among the six regions, African and South East Asian students showed a greater tendency of the deep approach adoption and richer learning experiences (Figure 5.6 and Figure 5.7). In the Pharmacy Education Survey (chapter 6), of these two regions, the Africa had a low capacity of pharmacy workforce supply compared to the other regions.

These findings may indicate a variance in the level of abilities and motivations of the students who

entered IPPE between regions. Against the national populations, the number of African students who enter HEIs to study pharmacy can be lower than the other regions due to the capacity problems. Hence, the average of the students' abilities in learning may become higher than those of the other regions. Furthermore, because entering IPPE can be competitive in the low-capacity countries (i.e., African countries), the motivation of African IPPE students towards learning and the profession might be higher than those of students in the other regions.

8.2.2.1.2 Curriculum delivery and students' learning experiences

The Pharmacy Curricula Comparison Study (chapter 7) found that there is no correlation between the WHO regions and curricular orientations when contrasting science and practice components (Figure 7.7). However, regarding the country level comparison, the curricular orientation may correlate with the level of the SAL and their learning experiences. Countries using practice-oriented curricula (i.e., Japan, USA, and Great Britain) tended to declare the deeper level of the SAL and richer learning experiences compared to countries using science-oriented curricula (i.e., Croatia and Czech Republic). However, although IPPE curriculum in Japan used practice-oriented approach, the level of the 'Deep Approach' and learning experiences scores were lower than the other countries using practice-oriented curricula. It may imply the influence of the amount of contact hours in the degree programme, which indicating that the higher didactic ratio may influence more of the level of the SAL and learning experiences than the curricular orientation.

8.2.2.2 Economical variances in the quality of IPPE

The Student Learning Experience Survey (chapter 5) and Pharmacy Education Survey (chapter 6) revealed variances in the quality of IPPE regarding the economic levels of the countries and territories.

8.2.2.2.1 Value for money

The Student Learning Experience Survey (chapter 5) discovered that lower income countries the IPPE students study in, the deeper approach they adopt during their learning and higher levels of the 'Generic Skills' and 'Emphasis on Independence' they declared about their learning experiences (Figure 5.13). Whilst, the Pharmacy Education Survey (chapter 6) revealed that the higher income countries charge the higher direct student tuition fees per annum for a domestic student in public universities (Figure 6.13).

These findings may imply that the quality of learning in IPPE can partly be affected by the judgement of the student on the 'value for money' of the IPPE and assess the effectiveness of the learning environments according to the value that they perceived (Frazer, 1994). The 'value for

money' is one of the quality measurements according to Harvey and Green (1993). This notion often relates to the political views and social accountability: HEIs require the efficiency and effectiveness approach to funding to be accountable to the government and the users of services (Harvey & Green, 1993). However, bringing the value for money in students' learning is likely to lower the quality of their learning. Concerning the value for money in their learning likely leads students to adopt a surface approach to learning, expecting to gain satisfaction and high-level qualification for minimal time and effort. The survey that investigated the students' perceptions of the value for money in higher education in the UK (Darian, 2014) revealed that three in ten undergraduate students reported their concerns about the value for money in terms of their higher education experience, although overall satisfaction was high. Thus, concerning the value for money influence their perceptions of their learning environments, which affect the level of approaches to learning.

8.2.2.2.2 *Professional areas*

The Student Learning Experience Survey (chapter 5) also found the influence of the country-level economic status on the relationship between the level of the 'Deep Approach' scores and students' desired pharmacy professional areas (Figure 5.17). A global trend that the survey showed (Figure 5.16) was that the students who desired to work in the Academia and Research area tended to adopt a deeper approach to learning compared to the other areas. However, when it is analysed together with the World Bank Income level, it is found that the students in lower income countries showed a tendency that students who would like to work in the Community Pharmacy area are likely to adopt a deep approach to learning.

The finding may describe the possible influence of the student's perception of the pharmacy professional areas on the SAL and their learning experiences, which in turn, the extent of the achievement of competencies. This is consistent with the study results regarding the relationship among the students' experiences and perceptions of the future work, the degree of authenticity of assessment, and the level of the SAL (Gulikers *et al.*, 2008; Lizzio & Wilson, 2004b; Dochy & McDowell, 1997). Lizzio and Wilson (2004b) found the relationship between how the student perceives the relevance of competencies to future work and their level of personal interest in developing the competencies. Gulikers *et al.* (2008) and Dochy and McDowell (1997) also revealed that the student's experience and perception of the future work are likely to influence their perception of the relevance of the assessment to real professional practice (i.e., authenticity), affecting the level of the SAL. According to the evidence, in IPPE, the student's experiences and perceptions of the pharmacy professional areas can affect the awareness of the authenticity of assessment. Then, if the student identifies the assessment as being authentic, their motivation to

develop the competencies evaluated in the assessment increases, which leads to the adoption of a deeper approach.

The finding above, therefore, might express that students in lower income countries are aware of community pharmacy practice. In addition, IPPE in those countries well reflects the real practice on the IPPE. This can occur possibly because community pharmacy practice is a frontline health provider and often the first point of contact in lower income countries, which made community pharmacy practice more aware to the public and students. In higher income countries, wider pharmacy professional areas tend to be developed, which may become difficult to reflect all the professional areas and necessary competencies on IPPE.

8.2.2.2.3 *Quality assurance mechanism*

The Pharmacy Education Survey (chapter 6) revealed that there is a variance in the establishment and mechanism of the quality assurance system between countries (section 5.4.8.2). Although there was no statistically significant relationship between the country level income level and their establishment of the periodic accreditation system, the study found the possibility that the less accreditation system was established in lower income countries (Table 6.9). In addition, regarding the frequency of accreditation, lower income countries may have a financial problem to go through accreditation process as four of the six countries that declared having accreditations only once after the establishment of the accredited object were low or lower income level countries (Figure 6.19).

These findings indicate that lower income level countries may have a financial issue about the use of accreditation system as the quality assurance mechanism. However, this cannot be a reason not to assure the quality. There are many different systems towards assuring the quality of IPPE which have both advantages and disadvantages (FIP, 2014). Thus, as long as the purpose of the quality assurance is understood, the 'fit for purpose' mechanism and process should be selected.

8.2.3 International model for fostering a deep approach to learning in IPPE

The Student Learning Experience Survey (chapter 5) revealed a path model delineating the influence of the students' perceptions of situational factors in IPPE on the adoption of a deep approach to learning (Figure 5.22). The deep approach to learning mediates the achievement of qualitative learning outcomes that pharmacy workforce requires to obtain, including the capabilities to work in a health team, to adopt the change, to introduce the change where needed, and to learn in self-directed and continuous approach. This is supported by evidence, showing the association with student's better understanding of subjects (Trigwell & Sleet, 1990), with

development of students' own conceptions of subjects (Prosser & Millar, 1989), with greater development of transformative skills (Lizzio *et al.*, 2002; Lizzio & Wilson, 2004b), and with becoming independent lifelong learners (Wilson & Fowler, 2005; Candy, 1991). Thus, identifying how these students' perceptions affect their employment of deep approach to learning is a key to IPPE curriculum design and delivery.

Path model D (Figure 5.22) was the best fit model to explain the effects of learning experience factors on a deep approach adoption by IPPE students. This model delineates no direct effect from 'Good Teaching' scale on the deep approach to learning. This is consistent with recent movement in policy on higher education as acknowledging that the excellence in student learning may not require excellent teaching if the conditions for learning are right and there is an input of intellectual expertise (Elton, 2001; Little *et al.*, 2007).

However, it is important to note the indirect effect of the 'Good Teaching' towards a deep approach to learning through linkage with 'Clear Goals', 'Generic Skills', and 'Emphasis on Independence'. This indirect effect can influence the variance in the deep approach adoption by 8.1% in 'Deep Motive' and 6.0% in 'Deep Strategy'. The finding may indicate the notion of 'Good Teaching' may shift from the characteristics of lecturers as measured by the CEQ 'Good Teaching' scale to more student-centred orientation using facilitating approach to foster quality learning, assisting students to develop generic skills and become independent learners (Elton, 2001, 1998).

The finding also relates to the shift of the role of HEIs. As addressed in section 1.4.2, the role of HEIs for health professionals are recommended to change from where information and knowledge were absorbed to where develop competencies through vast forms of learning (Figure 1.4). In order to foster a deep approach to IPPE student's learning the HEIs should play a role in providing quality learning experiences of students based on the identified path model.

This may draw an attention to the IPPE curriculum design, especially in resource-limited countries. The finding expresses that the resource limitation can be overcome by the way of organising the IPPE delivery, focusing on the students' learning experiences. However, there is still a need of further evidence to underline a practical linkage between students' learning experiences, the SAL and achievement of competencies, which can further facilitate the IPPE development and assist the resource-limited countries for pharmacy workforce development.

8.2.4 Recommendations for improving the quality of IPPE globally

As a result of the discussion above and in each study, the recommendations were formulated as

following:

i. To periodically evaluate the quality of IPPE by using multi-dimensional attributes

The research assisted developing an understanding of the multi-dimensional quality of IPPE. The quality indicators used for this research provided in-depth information about the current IPPE practice in terms of quality, which can identify a gap to improve the quality in any country. Evaluating the multi-dimensional quality attributes regularly will bring about opportunities and time to strategically tackle issues to improve the quality of IPPE, which in turn enhance national health by the quality pharmacy workforce (i.e., pharmacy workforce who attains and maintains necessary competencies to meet health needs of the population). Hence, periodic assessment of the quality of IPPE using multi-dimensional quality attributes is required and recommended internationally, nationally, and locally.

ii. To update the WHO framework for education excellence in health professional educations

The research identified that the student's perception of their learning environments and the learning processes that the student adopts during their learning influence their achievement of necessary competencies of IPPE students globally. Furthermore, key findings in the previous section (section 8.2.1) underline the influence of geographical and economic levels on the students' approaches to learning. This implies that the quality of pharmacy workforce can be different depending on a number of the quality attributes affecting students' perceptions and the SAL even when the same approach to teaching and institutional organisation between countries.

Considering the influence of the SAL and their learning experiences on the quality of IPPE and pharmacy workforce who graduates the IPPE, any framework for pharmacy workforce development, even for all healthcare professional, should advocate the need for improving the SAL and their learning experiences in initial professional education.

The guidelines for '*transforming and scaling up health professional's education and training*' (WHO, 2013a) provide some recommendations to enlarge and enhance the IPPE for improving the quantity, quality and relevance of healthcare workforce. However, the recommendations do not include the guidance to improve students' learning experiences and process, although specific pedagogical strategies were recommended.

The WHO also published a report called '*A Universal Truth: No Health Without A Workforce*' (WHO, 2013b), informing cases which put the healthcare workforce in the heart of a journey to

universal health coverage. This report assessed current conditions of human resources for health globally using proxy indicators that the WHO defined. It assessed the quality of healthcare workforce by investigating the existences of mechanisms regarding the accreditation of training institutions, regulation of the profession, and licensure system. With regard to human resources for health governance, it also examined the existences of policy related to population health needs, initial professional education, and the performance of workforce. However, this report did not state the importance of students' factors in initial professional education to improve the quality of performance outcomes, either.

To progress the education excellence in health professional education globally for global health improvement, the frameworks by the international organisations related to the health professions should mention the importance of curriculum design and delivery related to the SAL and their learning experiences in order to enhance the quality of healthcare workforce.

iii. To adapt periodical health needs assessment and competency-based IPPE for aspiring excellence

IPPE required preparing pharmacy workforce to have a right skill-mix to meet health needs and demands in any country. Reflecting health needs-based service provision in a local context on IPPE is likely to affect the level of the SAL and their learning experiences. Otherwise, the discrepancy between a skill set of the educated pharmacy workforce and health needs of the population that they will serve may occur. For example, Murabaruka *et al.* (2005) found that in the African region, over 50% of in-service healthcare training institutions had no or inadequate immunisation training programme although there is a problem about the national immunisation coverage rates in the region.

IPPE programme in Tanzania showed an example of international collaboration to tackle IPPE curriculum reform towards health needs-based and competency-based IPPE (Youmans *et al.*, 2012). Their health needs assessment identified the similar health needs in the USA. The health needs-based pharmaceutical care has already been integrated into the IPPE programme of the University of California San Francisco. Hence, the Muhimbili University of Health and Allied Science in Tanzania collaborated with the university in the USA to develop health needs-based and competency-based IPPE in order to supply more competent pharmacy workforce who have the right skill mix to respond to health needs of the national and local population. The health needs assessment is a tool for change in healthcare service provision and IPPE development and delivery.

The example from Tanzania draws an attention to the common aspects of the role of pharmacy workforce globally. Identifying the necessary pharmaceutical services based on health needs of the population can assist recognising the common role of pharmacists all over the world, which the challenges and experiences can be shared to improve the IPPE internationally.

Moreover, identifying the health needs regularly is paramount for aspiring excellence in IPPE. This is because the health needs can change rapidly in this globalised and ever-changing health systems and the quality of IPPE should be evaluated according to the extent of the IPPE meeting to the health needs of the population (FIP, 2014). This is also delineated by the cycle of the *WHO-UNESCO-FIPed Needs-based Education Model* (Figure 1.8), which connects the health needs assessment with service provision and competency-based IPPE. Therefore, adapting the health needs assessment together with competency-based IPPE is recommended.

iv. To establish IPPE that highlights setting clear goals and standards, helping students to develop generic skills and emphasising independent learning in conjunction with good teaching to foster the student's adoption of deep approach to learning

The path model (Figure 5.22) delineates the effect of the student's perception of the clear goals and standards, generic skills development, and independent learning as well as good teaching towards the adoption of a deep approach to learning in an IPPE setting in any country. This model expresses the importance of these aspects of learning environments to employ a deep approach to learning in IPPE, which assist the better achievement of benchmark competencies that all health care professionals need to obtain. Establishing IPPE following this model can assist developing higher quality IPPE, which can contribute to global health improvement through the supply of more competent pharmacy workforce.

This strategy will also draw an attention on the IPPE development in resource-limited countries. Low-resource approaches to teaching and assessment focusing on the situational factors addressed above may still improve the level of the SAL of IPPE students.

v. To develop educational strategy for enhancing the quality of IPPE by collaborating among international organisations, HEIs, health providers, and regulators

The concept of the quality of IPPE is complex. The research explored the students' personal factors and institutional and teaching factors regarding the quality of IPPE, which indicates the importance of interplay among international organisations, HEIs for IPPE, health providers, and regulators in order to strategically tackle the complex issues for enhancing the quality of IPPE.

In this globalised world aspiring universal health coverage and quality health care across nations, evidence-based global visions for quality IPPE is required. The current global research provides a basis for identifying any gaps to improve the quality of IPPE and opportunities to share experiences to tackle any common challenges between countries. The international vision enables to guide national organisations to prioritise the issues for enhancing the IPPE quality. The factors affecting the quality of IPPE overlap the HEIs, health providers, and regulators which should collaborate to develop an educational strategy to shape future IPPE delivery and quality.

The importance of multi-sector engagement is also described in the cycle of the *WHO-UNESCO-FIPed Needs-based Educational Model* (Figure 1.8)(FIPed, 2013) and in the '*FIP Global Framework for Quality Assurance*' (FIP, 2014). IPPE in any country should be developed based on current and anticipated future health needs and demands including global, regional, national, and local perspectives. To achieve higher quality worldwide, the educational strategy which can be adapted according to local contexts is required, and the findings in the research can assist developing the strategy.

8.3 Implications for practice

High quality IPPE refers in this research to the pre-service pharmacy education which prepares pharmacy graduates with the capacity of team-working ability and transferable and adaptable knowledge and skills in a continuous process of self-directed learning and adapting their competencies for meeting the health needs of the population that they will subsequently serve. The high quality IPPE is an essential component for global health improvement and public health delivery in order to sustainably supply a competent pharmacy workforce.

To achieve better and equitable quality in the IPPE globally, the present work provides the evidence contributing to the development of a multi-dimensional understanding of IPPE from both institutional and personal aspects, which can eventually facilitate shaping the present and future pharmacy workforce development globally. The contribution in pharmacy workforce development presented by the current work will have an impact on the activities of policy-makers regarding pharmacy professions, pharmacy and pharmaceutical educators, and pharmacy students and future pharmacy practitioners; the improvement of global health consequently happens through prospective pharmacy workforce development.

8.3.1 Policy-makers on pharmacy professions

The findings from the study are particularly relevant to describing the current IPPE practice globally, which can assist in identifying gaps in a single setting with global patterns, enhancing the pharmacy workforce development plan or policy at all levels of pharmacy profession regulation and policy-making decisions.

Data in the Pharmacy Education Survey (chapter 6) was especially utilised to strengthen the Global Atlas on the health workforce of the WHO. The up-to-date pharmacy workforce data assists in tackling challenges in healthcare workforce development with a systematic approach, and raises opportunities to tackle any challenges strategically.

Policy-makers also include national and international health authorities, professional regulatory bodies, professional leadership organisations, accreditation agencies, and all stakeholders related to the policy-making relevant to the pharmacy profession and education. These policy-makers can utilise the findings from the study to address workforce imbalances, new challenges, and set priorities, which will help to radically transform the initial pharmacy education in countries to improve national health, based on evidence-based decisions by transparent methods.

The findings and key recommendations from this research can aid the development of frameworks for quality IPPE at national and international levels. The pharmacy model of students' learning process towards the achievement of the quality learning outcomes, and the global patterns of the capacity, provision, QA, and IPPE curricula identified throughout the current research will vitalise the development process in a coherent way.

8.3.2 Pharmacy education institutions and educators

Pharmacy and pharmaceutical education institutions and educators are crucial components to achieve high quality IPPE. Furthermore, every HEI is responsible for assuring the quality of IPPE (Green, 1994). The present study suggests that the students' perceptions of the clear goals and standards, generic skills, and emphasis on independence in their provided educations directly affect their adoption of the deep approach to learning, and the good teaching indirectly affects the deep approach to learning through the direct influence of the other factors. Such awareness can allow IPPE institutions and educators to incorporate the identified educational strategies into the current curricula or to develop new curricula in order to enhance student experience and quality learning outcomes which eventually improve national and global health in the future through pharmaceutical services provided by the prospective competent pharmacy practitioners.

Furthermore, the recommendations suggested by the current work can enhance the quality of IPPE at an institutional level by collaborating stakeholders relating to the pharmacy profession. Periodical health needs assessment and adapting competency-based IPPE jointly with international organisations, health providers and regulators helps the strategic improvement of the quality of IPPE.

8.3.3 Pharmacy students and future pharmacy practitioners

The development of the national and global IPPE policies will have an impact directly on pharmacy students and future pharmacy practitioners. The adoption of the deep approach to learning is associated with the *students' perceptions* of the educational factors including the good teaching, clear goals, generic skills, and emphasis on independence, as well as some motivational factors. A student-centred approach to IPPE development is likely to have a positive influence on the consequent contribution of the future pharmacy practitioners to provide better quality health care to the population.

Furthermore, the capable and competent pharmacy practitioners supplied through high quality IPPE are also expected to further develop pharmacy profession in a continuous process of their professional development, which enables the continuous contribution to the prosperity of national and global health.

8.4 General limitations

There are general limitations to the three studies presented in this research project; sample representativeness can be criticised, associated with the sampling methods. The Student Learning Experience Questionnaire (chapter 4) utilised the snowballing sampling method which may limit the sampling network in which groups of respondents are interested in and more enthusiastic to the pharmacy profession and its education. Furthermore, the survey did not capture a good number of responses in some countries, which may have affected the aggregated country-, regional- and global interpretation. The Pharmacy Education Survey (chapter 5) and Pharmacy Curricula Comparison Study (chapter 6) used the purposive sampling method, which also raises a limitation of the sample representativeness. Some countries and territories were not captured in these studies, which made some findings unlikely to be generalisable.

Moreover, although some analyses were conducted at aggregated regional level in two surveys, country and local differences need to be acknowledged. The analyses of the aggregated country and regional data provide evidence to develop an insight of global IPPE at a service entry level;

however, the implications of these aggregated data to local practices have to be done carefully with local sensitivity.

Due to the use of self-completion questionnaires in two global surveys, some respondent bias may be possible. To minimise this limitation, multi-language versions were used, with the definition of the terms in the questionnaire. Furthermore, by avoiding open-ended questions in the questionnaires, the findings may not cover all aspects to answer the principal questions. This was minimised by using previously validated questionnaires (the Student Learning Experience Survey; chapter 4) and developing questionnaires with experts in the field (the Pharmacy Education Survey; chapter 5).

Another limitation in the Pharmacy Curricula Comparison Study (chapter 6) was the coding reliability as coding was conducted by one researcher. This was minimised by double-checking ambiguity in coding with subject description and explanation from the documents and official website.

Key findings were discussed using the mixed methods approach combining the findings from each study. The aggregated data to interpret at country-, regional and economic levels may not represent the same institutions or settings.

Despite these limitations, with a careful attempt to minimise limitations as much as possible, results from the present research project do offer significant new insights and extend our existing knowledge in initial professional pharmacy education in a global context.

The biases and limitations specific to each stage of the present research project are described at the end of each stage of each study.

8.5 Further work

There is still some works that can be done to effectively describe and deepen the insight of IPPE globally, which will further inform the current IPPE practice for the development of the professional role and workforce. Three main areas for further work relating to this study can be addressed. The first area is around institutional and teaching structures and processes. The second is students' approaches to learning in terms of the quality learning outcomes. The third is the practical link between institutional and personal attributes regarding the quality IPPE.

More comprehensive global trends can be identified with more data from the countries where the present study was not able to capture. The variance in education provision models including academic degree title and programme lengths suggests further work to investigate the commonalities and differences in the educational outcomes associated with the variety of degree titles and lengths. The data collected for pharmacy curricula comparison was limited with regards to regional and country representatives. Larger sample sizes will enable more explicit global trends in IPPE practice across nations.

County-level detailed comparisons of student learning experiences and approaches to learning with larger sample sizes will deepen the insight of the current findings in the student learning experiences and approaches to learning in the IPPE setting. Moreover, additional investigations for the validation of the path model identified in the present study will provide solid strategies in IPPE to enhance the quality learning outcomes which will eventually enhance the global health.

The associations between personal and institutional factors were not sought by this research. More detailed data on structures and processes at institutional level will enable the investigation into possible practical links between institutional and personal attributes to enhance the quality learning outcomes, which can further assist developing global educational guidelines for high quality IPPE as conceptualised in Figure 2.2.

8.6 Summary of the discussion

There is a growing interest in the quality of IPPE as a foundation of pharmacy profession due to the evolving patient-oriented role of pharmacists shifting from mainly product-oriented works, a global shortage of pharmacy workforce, and skill-mix imbalances to provide efficient pharmaceutical care. Evidence-based global recommendations are warranted for developing and improving the quality IPPE across nations; hence, evidence to provide a global insight of the IPPE is required. The purpose of the present research, therefore, was to explore the quality attributes of IPPE in a global context for developing a multi-dimensional understanding of IPPE, which can assist shaping the future pharmacy workforce development across nations.

The present research includes three global studies involving teaching, institutional and personal attributes regarding IPPE involving multi countries. These studies are the Student Learning Experience Survey (chapter 5), Pharmacy Education Survey (chapter 6), and Pharmacy Curricula Comparison Study (chapter 7), which are the largest studies of their types to date, focusing on IPPE in a global context. This chapter discussed key findings together with the implications of the results

for enhancing the quality of IPPE, and the impact on the IPPE practice globally. This chapter also provides possible recommendations for improving the quality of IPPE across nations.

Key findings that this chapter discussed using a mixed methods approach combining the findings from each study included proxy indicators for quality IPPE, variances in the quality of IPPE globally based on geographical and economical aspects, and global model to foster a deep approach to learning in IPPE. The discussion above brought about the development of possible recommendations for enhancing the quality of IPPE, which can be interpreted at global, national, and individual HEI levels.

The implications of the findings for practice were discussed at three different levels, including policy-makers, pharmacy education institutions and educators, and pharmacy students and future pharmacy practitioners. The findings of the present research will have an impact on the pharmacy workforce development through developing and improving pharmacy-related policy and educational strategies, which would consequently enable the improvement of national and global health.

General limitations of the present research project were addressed with used measures to minimise the influence of the limitations to the findings.

Further works around the present research were discussed in three areas including institutional structures and processes, students' approaches to learning, and a practical link between institutional and personal attributes regarding the quality of IPPE.

Chapter 9: Conclusion

9.1 Introduction to the chapter

This chapter will draw conclusions from the findings and discussion of this research project, together with addressing the principal research questions proposed. The value of the present research will also be presented as the contribution of the project to knowledge below.

9.2 Contribution to knowledge – Value of the research

Aimed to establish evidence on the global attributes of the current IPPE practice for assisting the development and improvement of the quality of IPPE across nations, the present research project explored both personal and institutional factors related to the quality learning outcomes of pharmacy students as summarised in Figure 2.1 and Figure 2.2.

The research project includes three studies which generated several novel findings to existing knowledge (Table 9.1). Although there is a global awareness that IPPE is a foundation of the pharmacy profession, there is little evidence providing multi-faceted comprehensive insight of IPPE in a global context to utilise as a basis for further development and improvement. Through the identified previous research evidence, deliberate design of the study, selection and development of instruments, and analyses and interpretations of the collected data, the present studies filled in the gap in present knowledge available and generated the first global map of the multi-dimensional attributes of IPPE.

The research project found global patterns and trends in the learning processes and experiences that pharmacy students go through during the offered IPPE programmes, and differences in the capacity, provision, regulation mechanisms and processes, and curricular orientations of IPPE globally. It is the largest of its type to date, featuring global perspectives both on institutional and personal factors specifically in an IPPE setting, supported by and collaborating with international stakeholders. Furthermore, the discussion which combined the findings from three studies identified key issues to enhance the quality of IPPE globally, and provided possible recommendations to achieve higher quality IPPE across nations.

The findings can be implicated at all levels, for identifying gaps and challenges and enhancing educational strategies for improving global, national, and local health through strengthening IPPE in

different settings. However, the implication of the findings needs a caution and may face difficulties due to the unique features of the present research projects.

Table 9.1: Summary of study contributions to knowledge

State of knowledge	Novel study contributions
Students' approaches and experiences in their learning in initial pharmacy education	
<ul style="list-style-type: none"> ● There is no literature investigating a global pattern of the SAL in IPPE ● There is no evidence to underline the correlations between the SAL and learning experiences of students in IPPE in a global context 	<ul style="list-style-type: none"> ● This is the first study conducted at a global level to see the SAL with the students' perceptions of their learning environments. ● 7 different language versions encouraged borderless participations of students across nations, which captured global perspectives. ● Pharmacy path model was developed for the first time to support producing students with quality learning outcomes mediated through fostering the adoption of the deep approach to learning.
Institutional and teaching factors in global initial pharmacy education	
<ul style="list-style-type: none"> ● Limited literature and evidence are available in the IPPE field. Even the only available one is not comprehensively constructed at a global level. 	<ul style="list-style-type: none"> ● This is the first comprehensive global exploration of the capacity, provision, and regulation mechanisms and processes on the QA, specifically in the IPPE setting.
Initial pharmacy education curricula	
<ul style="list-style-type: none"> ● Most of the literature available for IPPE curricula expresses only comparisons within a single country. ● A single study was found for comparing multiple-country IPPE curricula focused on the European comparison, which shows a variance between countries (Pharmine, 2011). ● There is no literature available comparing the curricula in IPPE in a global context. 	<ul style="list-style-type: none"> ● This is the first study comparing IPPE syllabus contents from a global perspective. ● Using a combined method of content and framework analyses, a comprehensive and systematic comparison was conducted. ● The global variation in the curriculum orientation when comparing science and practice was expressed for the first time.

(The table continued to next page)

State of knowledge	Novel study contributions
Implications of the findings to practice	
<ul style="list-style-type: none"> ● Only patchy and non-comprehensive information was available related to the quality of IPPE world-wide. ● There is no literature and data available to be a global basis to implicate any strategy to establish or improve the quality of IPPE. 	<ul style="list-style-type: none"> ● Recommendations were developed which can assist enhancing the quality of IPPE globally. ● The findings can be implemented at all levels of the development and improvement processes of the IPPE, institutionally, nationally, and internationally. ● The findings can strengthen a Global Atlas on pharmacy workforce, which can also assist global scaling up and transformation of the healthcare professional education endorsed by the WHO.

9.3 Conclusions

This research project sought to explore the multi-dimensional attributes of IPPE across nations to develop a global insight of IPPE for pharmacy workforce development. Along with the purpose above, nine principal research questions were proposed in chapter 2, which were answered through a series of quantitative and qualitative studies to assist improving global health through the support in shaping the present and future pharmacy workforce development across nations.

Three studies were conducted, which allowed comparative explorations and analyses of IPPE in a global context. The studies provided evidence to develop and extend global understanding of IPPE, and to foster building an educational strategy to strengthen the supply of a competent pharmacy workforce to enable meeting population health needs.

The Student Learning Experience Survey (chapter 5), a cross-sectional anonymous online questionnaire survey, was conducted to respond to the principal research questions i, ii, iii and iv concerning the global overviews of IPPE that pharmacy students experience. Global variances were described in students' learning experiences and their approaches to learning, personal and situational factors affecting the deep approach adoption, and magnitudes of each factor affecting the adoption of the deep approach to learning.

A global overview of IPPE students experienced was provided, responding to the first research question. Higher levels of the deep approach and lower levels of the surface approach to learning that pharmacy students reported described that global IPPE works well to prepare students to attain better quality learning outcomes, by fostering the deep approach in their education. Furthermore, IPPE globally supports students well to develop generic skills. The findings also identified global challenges, for example, assessment procedures, workload, and independent learning, as lower scores were reported.

Addressing the second research question, the variances in the approaches to learning that students adopt and the students' perceptions of their learning experiences during IPPE were proved at country and regional levels, which indicated the use of varying educational structures, teaching and learning approaches and learning environment globally.

Personal and situational factors affecting the deep approach adoption of pharmacy students during IPPE were sought to respond to the third research question. Particular situational factors that students perceive during IPPE and some personal factors were proved to have associations with the deep approach adoption by pharmacy students. The findings provided specific factors that were involved in the deep approach adoption in the specific IPPE settings in a global context, which need to be taken into account where developing and improving the sustainable supply of competent pharmacy graduates globally.

To answer the fourth research question, a pharmacy-specific path model for influencing the deep approach adoption and the extent of each effect of identified factors towards the deep approach adoption were identified. The model explained 70% of the students' adoption of the deep approach to learning in IPPE globally. The findings provided variance of the educational strategies to improve the quality learning outcomes specifically for IPPE.

The Pharmacy Education Survey, a cross-sectional global questionnaire survey using email online format, addressed the principal research questions v, vi and vii, regarding the variances in the capacity, provision models, and regulation mechanisms for QA for IPPE.

Concerning the fifth research question, the variances in the capacity of IPPE across nations were displayed. The findings expressed the gaps in the capacity of supply of pharmacy graduates at country and regional levels, and maldistribution of IPPE institutions globally, which enhanced the Global Atlas to pharmacy workforce production.

The variances in the IPPE provision models were identified to address the sixth research question. The diversity in provision models for IPPE generated an insight of the current IPPE practice in a global context.

Addressing the seventh research question, the variances in some key regulation mechanisms and processes for QA in IPPE were revealed. The findings identified the gaps to assure the quality of IPPE across nations.

The Pharmacy Curricula Comparison Study, a qualitative content analysis of textual documents about IPPE curricula and syllabi across nations, was conducted to answer the principal research questions viii and ix, concerning the variances and relative trends in IPPE globally.

Responding to the eighth research question, the global variances in IPPE curricula were revealed using predefined seven curriculum clusters. The findings illustrated the possible differences in competencies that students acquire towards one profession as a pharmacist globally.

The ninth research question was addressed by investigating the global trends in IPPE curricula. Science, practice-focused, and balanced curriculum orientations were found, which likely displayed the variances in and emphasised the role of pharmacists globally.

Key findings were discussed while combining the findings from each study. The key findings included the proxy indicators for quality IPPE, variances in the quality of IPPE across nations in geographical and economical aspects, and international model for fostering a deep approach to learning in IPPE. The discussion led to developing possible recommendations for enhancing the quality of IPPE globally.

The findings of the research, the answers to the research questions and recommendations for high quality IPPE addressed above can be implicated at all levels of development and improvement of IPPE across nations, although the interpretation of the research findings to individual local model needs a caution due to the unique research designs of the research.

More detailed comparisons can be made with larger sample size and extended country data that the present research was not able to capture. Furthermore, practical links between personal and institutional factors may need to seek as conceptualised in Figure 2.1 and Figure 2.2 for further improvement of the quality of IPPE in the future.

Overall, the research provided the first evidence to construct the global map of the quality attributes of the IPPE for developing a multi-dimensional understanding of the IPPE in a global context, for pharmacy workforce development and fostering the development and further improvement of IPPE across nations.

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Appendix 1: Workshop proposal for the 58th IPSF World Congress

58th IPSF World Congress 2012 [4th August 2012 in Hurghada, Egypt]

Workshop: Transnational Pharmacy Education - Reasons & Motivations for Studying Pharmacy

Bruno, A. and Arakawa, N.

FIP Collaborating Centre, University College London, School of Pharmacy

Introduction:

There is increasing interest in quality and standards of professional pharmacy education as global health policies become more focussed on the extended roles of pharmacists in providing more effective medicines-related health services. Students are at the centre of pre-service education and their input is important in the development of educational policies and practices.

The role of the pharmacist is to ensure that medicines are accessible, safe, and used rationally by patients and providers. To create practitioners worldwide with the skills to perform these roles requires coordinated educational effort. Since 2008 the Global Pharmacy Education Taskforce (PET), the World Health Organisation (WHO), and the International Pharmaceutical Federation (FIP and FIP Education Initiatives) have undertaken a collaborative programme to develop evidence-based guidance and frameworks through which to facilitate the sustainable development of higher education for the pharmacy workforce.

“FIPed PET-IPSF Student Learning Experience Questionnaire” is one of the ongoing projects and is the continuation of the successful IPSF Moving On II project, which had a principal focus on the perceptions and experiences of students about their degree. This project has now been revised to include the students’ approaches of studying about their degree as well as the original Moving On II questionnaire. Students’ motivations and reasons in choosing to study pharmacy, which will be included in the questionnaire, will affect their learning experiences during their degree and approaches to learning. Therefore, to survey students’ motivations and reasons in enrolment in pharmacy schools, there is a need to construct a global common category list of motivations and reasons in choosing to study pharmacy.

Aim of the workshop:

Participants will gain insight into the FIPed projects, tools and processes developed by PET to support the development of needs-based pharmacy education and also make a common category list of all relevant motivations experienced by students who have chosen to study pharmacy at a university.

Learning Objectives:

- To collate a valid list of motivations.
- To collate a valid list of experiences that has affected choice of pharmacy as a career.
- To rank the motivations with the IPSF workshop participants.
- To know and understand the work undertaken by PET.

- To provide feedback about the future collaborations between IPSF and FIPeD in the area of pharmacy education.

Description of workshop activities:

1. The facilitators will introduce the FIPeD PET-IPSF Student Learning Experience Questionnaire and the history and background of the project, including an introduction to previous results of the MO II.
2. Using small group methods, the facilitators will ask questions *and list answers about*; (1) what motivations did you have to study pharmacy? and; (2) what are your expectations/contributions when graduated/licensed?
3. Within each group, all possible answers will be collect and participants will group these into common emergent themes.
4. All groups will reconvene for (feedback and produce a common list of motivations & reasons in choosing pharmacy.
5. Participants will engage in a round of consensus methods to identify the most popular categories within the group.

Appendix 2: Forward-back translation of the Student Learning Experience Survey (Arabic)

Original SLEQ	Forward translation	Back translation	Final translated SLEQ
2013/14 FIPeD-IPSF Student Learning Experience Questionnaire	استبيان تجارب الطلاب في التعليم 14/2013 FIPeD-IPSF	2013/14 FIPeD-IPSF Student Learning Experience Survey	استبيان تجارب الطلاب في التعليم 14/2013 FIPeD-IPSF
There is much interest in quality and standards of professional pharmacy education as health policy world-wide becomes more focussed on extending the roles of pharmacy practitioners to provide more effective medicines-related health services.	يوجد اهتمام كبير بجودة ومعايير التعليم الصيدلي الرسمي وذلك لان القوانين الصحية العالمية اصبحت تركز على اعطاء الصيادلة دور اكبر في توفير خدمات صحية ذات جودة عالية خصوصا في مجال الأدوية.	There is a great interest in quality and standards of professional pharmacy education as global health policy becomes focused on expanding the roles of pharmacist to provide high standards health services especially in medicines.	يوجد اهتمام كبير بجودة ومعايير التعليم الصيدلي الرسمي وذلك لان القوانين الصحية العالمية اصبحت تركز على اعطاء الصيادلة دور اكبر في توفير خدمات صحية ذات جودة عالية خصوصا في مجال الأدوية.
To achieve higher and equitable quality, the global infrastructure for pharmacy education needs to be mapped to the required competencies of pharmacy practitioners in order to meet the given health needs in any country.	للحصول على جودة عالية ومتساوية ، البنى التحتية للتعليم الصيدلي تحتاج الى تخطيط من أجل الحصول على الكفاءات المطلوبة من الصيادلة لتوفير الاحتياجات الصحية في كل بلد.	For high standards and equal education, the global infrastructure for pharmacy education needs to plan for the required competencies of pharmacists to provide the health needs in each country.	للحصول على جودة عالية ومتساوية ، البنى التحتية للتعليم الصيدلي تحتاج الى تخطيط من أجل الحصول على الكفاءات المطلوبة من الصيادلة لتوفير الاحتياجات الصحية في كل بلد.
As students are at the centre of pre-service education, their input is important in the development of educational policies and practices.	بما أن الطلاب هم الفئة التي تتلقى التعليم الصيدلي فان اراءهم مهمة جدا لتطوير سياسات التعليم والممارسة الصيدلية .	Since students are the category that receives Pharmacy Education, their opinion is very important for the development of educational policies and pharmacy practice.	بما أن الطلاب هم الفئة التي تتلقى التعليم الصيدلي فان اراءهم مهمة جدا لتطوير سياسات التعليم والممارسة الصيدلية .
It is of interest to survey the student learning experience.	الهدف من هذا الاستبيان هو الحصول على آراء الطلاب في اساليب التعلي	The aim of this survey is to obtain the views of students in teaching methods.	الهدف من هذا الاستبيان هو الحصول على آراء الطلاب في اساليب التعلي
“FIPeD-IPSF Student Learning Experience Questionnaire” is the continuation of Moving On II, which was a project with the main focus on the pharmacy students’ perceptions on their degree (data being collected since 2004 by IPSF) and now was revised to include the students’ ways of studying about their degree as well as the original Moving On II questionnaire.	استبيان تجارب التعليم الخاص بالقسم التعليمي في اتحاد الصيادلة الفدرالي العالمي هو استكمال لاستبيان السابق باسم الاستمرار 2 الذي ركز على آراء الطلاب في درجتهم العلمية (جمع المعلومات بدا في 2004 بواسطة اتحاد طلاب الصيدلة الفدرالي العالمي) والآن تمت مراجعته وازداده طرق المراجعة التي يستخدمها الطلاب بالاضافة الى الاستبيان الاصلي (الاستمرار 2).	FIPeD-IPSF Student Learning Experience Questionnaire is a continuation of “moving on 2” questionnaire which focused on pharmacy students’ views on their degree (data collection started in 2004 by IPSF) and now was reviewed to include the students’ methods of studying about their degree as well as the original Moving On 2 survey.	استبيان تجارب التعليم الخاص بالقسم التعليمي في اتحاد الصيادلة الفدرالي العالمي هو استكمال لاستبيان السابق باسم الاستمرار 2 الذي ركز على آراء الطلاب في درجتهم العلمية (جمع المعلومات بدا في 2004 بواسطة اتحاد طلاب الصيدلة الفدرالي العالمي) والآن تمت مراجعته وازداده طرق المراجعة التي يستخدمها الطلاب بالاضافة الى الاستبيان الاصلي (الاستمرار 2).
The new additions to the questionnaire	الاضافات الجديدة للاستبيان ستتيح الفرصة للحصول على آراء الطلاب حول تجربتهم في التعلم خلال	New additions to the questionnaire would	الاضافات الجديدة للاستبيان ستتيح الفرصة للحصول على آراء الطلاب حول تجربتهم في التعلم خلال سنوات

will enable the retrieval of better evidence on how students perceived their learning experiences throughout their degree.	سنوات دراستهم.	provide an opportunity to get the views of students about their experiences in learning during their studies.	دراستهم.
Therefore, this "FIPEd-IPSF Student Learning Experience Questionnaire" allows world-wide comparisons and mapping of the learning experiences and the quality of learning of students enrolled in pharmacy programmes.	لذلك استبيان تجارب التعليم الخاص بالقسم التعليمي في اتحاد الصيدلة الفدرالي العالمي سوف يسمح بمقارنة وتخطيط التجارب التعليمية وجودة التعليم التي يتلقاها طلاب الصيدلة. يعتبر هذا الاستبيان اكبر استبيان من نوعه حتى الان.	Therefore, FIPEd-IPSF Student Learning Experience Questionnaire allows global comparisons and planning the learning experiences and the quality of learning of students joined pharmacy programmes.	لذلك استبيان تجارب التعليم الخاص بالقسم التعليمي في اتحاد الصيدلة الفدرالي العالمي سوف يسمح بمقارنة وتخطيط التجارب التعليمية وجودة التعليم التي يتلقاها طلاب الصيدلة. يعتبر هذا الاستبيان اكبر استبيان من نوعه حتى الان.
It is the largest study of its type to date.	يعتبر هذا الاستبيان اكبر استبيان من نوعه حتى الان.	It is the biggest study of its type to date.	يعتبر هذا الاستبيان اكبر استبيان من نوعه حتى الان.
Data collected will provide an evidence for education advancement.	المعلومات التي سوف يتم جمعها ستكون بمثابة دليل على تطور التعليم.	Data gathered will provide an indication for education development.	المعلومات التي سوف يتم جمعها ستكون بمثابة دليل على تطور التعليم.
This is a global project, supported by FIP Education Initiatives (FIPEd) Development Team (http://www.fip.org/pharmacy_education) and International Pharmaceutical Students' Federation (IPSF: http://www.ipsf.org/).	هذا المشروع عالمي يتم دعمها من قبل اتحاد الصيدلة الفدرالي العالمي (http://www.fip.org/pharmacy_education) واتحاد الصيدلة الفدرالي العالمي للطلاب (http://www.ipsf.org/)	This is a global project, supported by international pharmaceutical federation union http://www.fip.org/pharmacy_education and International Pharmaceutical Students' Federation http://www.ipsf.org/	هذا المشروع عالمي يتم دعمها من قبل اتحاد الصيدلة الفدرالي العالمي (http://www.fip.org/pharmacy_education) واتحاد الصيدلة الفدرالي العالمي للطلاب (http://www.ipsf.org/)
Click here to start.	اضغط هنا للبدء	Click here to start.	اضغط هنا للبدء
Thank you for your contribution.	شكرا لتعاونكم	Thank you for your corporation.	شكرا لتعاونكم
For further information or if you have any enquiries about this questionnaire please contact Marouen Ben Guebila (education@ipsf.org) or Naoko Arakawa (naoko.arakawa.11@ucl.ac.uk).	لمزيد من المعلومات او الاستفسارات بشأن الاستبيان الرجاء مراسلة Marouen Ben Guebila (education@ipsf.org) أو Naoko Arakawa (naoko.arakawa.11@ucl.ac.uk).	For further information or if you have any questions about this survey please contact Marouen Ben Guebila (education@ipsf.org) or Naoko Arakawa (naoko.arakawa.11@ucl.ac.uk).	لمزيد من المعلومات او الاستفسارات بشأن الاستبيان الرجاء مراسلة Marouen Ben Guebila (education@ipsf.org) أو Naoko Arakawa (naoko.arakawa.11@ucl.ac.uk).
Instructions	التعليمات	Instructions	التعليمات
Please think about your pharmacy degree and your ways of studying about your degree in general.	الرجاء فكر في فترة دراستك لبرنامج الصيدلة وفي الطرق التي اتبعتها للمذاكرة اثناء فترة دراستك.	Please think of your pharmacy degree and in ways that you followed to study.	الرجاء فكر في فترة دراستك لبرنامج الصيدلة وفي الطرق التي اتبعتها للمذاكرة اثناء فترة دراستك.
Think about your whole degree and not just about individual subjects, topics or teachers/lecturers when answering this questionnaire.	فكر في دراستك بشكل عام وليس في مادة معينة او اموضوع معين او محاضر او دكتور معين اثناء اجابتك للاستبيان التالي.	Think about your degree in general and not in a particular subject, lecturers or teacher when you answer this questionnaire.	فكر في دراستك بشكل عام وليس في مادة معينة او اموضوع معين او محاضر او دكتور معين اثناء اجابتك للاستبيان التالي.
This is an anonymous questionnaire and	هذا الاستبيان مجهول ولايمكن لأحد التعرف عليك.	This questionnaire is anonymous and you	هذا الاستبيان مجهول ولايمكن لأحد التعرف عليك.

no one will be able to identify you.		will not be identified.	
Please answer honestly.	الرجاء الأجابة بصراحة.	Please answer honestly.	الرجاء الأجابة بصراحة.
Your responses are confidential and will not be seen by your teachers or university.	جميع الأجابات ستعامل بسرية تامة ولن تعرض على جامعتك أو أساتذتك.	All responses will be confidential and it will not be shown to your university or your teachers.	جميع الأجابات ستعامل بسرية تامة ولن تعرض على جامعتك أو أساتذتك.
Please follow the directions and answer all questions.	الرجاء اتباع التعليمات واجب على الأسئلة التالية.	Please follow the instructions and answer the following questions.	الرجاء اتباع التعليمات واجب على الأسئلة التالية.
This questionnaire should take no more than 10-15 minutes of your time.	الأسئتيان يستغرق 10 الى 15 دقيقة من وقتك..	This questionnaire should take 10 to 15 minutes of your time.	الأسئتيان يستغرق 10 الى 15 دقيقة من وقتك..
Your contribution is highly valued, and we appreciate your time and effort.	مشاركتك مهمة لدينا ونقدر لك جهدك ووقتك	Your participation is crucial and we appreciate your effort and your time.	مشاركتك مهمة لدينا ونقدر لك جهدك ووقتك
The Demographic Questions	الأسئلة الديمغرافية	The demographic questions:	1. الأسئلة الديمغرافية.
1. Country of birth	مكان الولادة	The country of birth	مكان الولادة
● Please select	الاختيار الرجاء	Please select	الاختيار الرجاء
● Enter if not listed	الخيار وجود عدم حال في الكتابة الرجاء	Enter if not listed	الخيار وجود عدم حال في الكتابة الرجاء
2. Country of study	مكان الدراسة	Country of study	مكان الدراسة
3. University	اسم الجامعة	University	اسم الجامعة
4. University in English	الانجليزية باللغة الجامعة اسم	University in English	الانجليزية باللغة الجامعة اسم
5. Faculty	الكلية	Faculty	الكلية
● If applicable	مناسبا كان اذا	If applicable	مناسبا كان اذا
6. Age	العمر	Age	العمر
7. Gender	الجنس	Gender	الجنس
● Female	أنثى	Female	أنثى
● Male	ذكر	Male	ذكر
8. Year of Study (consider 7 as internship/pre-registration)	السنة الدراسية (اختر رقم 7 اذا كنت في فترة التدريب أو الامتياز)	Year of study (select 7 if you are doing internship/ pre-registration)	السنة الدراسية (اختر رقم 7 اذا كنت في فترة التدريب أو الامتياز)
9. Do you hold a previous degree?	هل يوجد لديك شهادة علمية سابقة؟	Do you have a previous degree?	هل يوجد لديك شهادة علمية سابقة؟
● Yes	نعم	Yes	نعم
● No	لا	No	لا
10. Do you have a part time job while also studying?	هل لديك وظيفة بدوام جزئي أثناء الدراسة؟	Do you have a part time job while studying?	هل لديك وظيفة بدوام جزئي أثناء الدراسة؟
11. Has gender influenced your decision to study Pharmacy?	هل اثر الجنس (ذكر, انثى) في اختيارك لتخصص الصيدلة؟	Has your gender (male, female) influenced your decision to study pharmacy?	هل اثر الجنس (ذكر, انثى) في اختيارك لتخصص الصيدلة؟

● Positive influence	تأثير ايجابي	Positive influence	تأثير ايجابي
● Negative influence	تأثير سلبي	Negative influence	تأثير سلبي
● No influence	لا يوجد تأثير	No influence	لا يوجد تأثير
12. Have you always wanted to be a pharmacist? (e.g., did you consider becoming a pharmacist at high school?)	هل كنت ترغب دائما في ان تكون صيدلانيا (هل كانت رغبت في دراسة الصيدلة منذ الثانوية)	Have you always wanted to be a pharmacist? (was it your wish to study pharmacy when you were at high school?)	هل كنت ترغب دائما في ان تكون صيدلانيا (هل كانت رغبت في دراسة الصيدلة منذ الثانوية)
13. Do you have any family member or close friend who is a pharmacist?	هل احد افراد اسرتك او اصدقائك المقربين صيدلانيا ؟	Do you any family member or close friend who is a pharmacist?	هل احد افراد اسرتك او اصدقائك المقربين صيدلانيا ؟
14. Were you encouraged by your family to study pharmacy?	هل شجعتك اسرتك على دراسة الصيدلة؟	Did your family encourage you to study pharmacy?	هل شجعتك اسرتك على دراسة الصيدلة؟
15. At the moment, in which area of the professional practice would you most like to work?	حاليا ماهو المجال الذي ترغب في العمل فيه؟	Currently, which professional area of pharmacy would you like to work at?	حاليا ماهو المجال الذي ترغب في العمل فيه؟
● Community pharmacy	صيدلية المجتمع	Community pharmacy	صيدلية المجتمع
● Hospital pharmacy	صيدلية المستشفيات	Hospital pharmacy	صيدلية المستشفيات
● Industry/wholesale/marketing	الصيدلة صناعية, الجملة, التسويق	Industry, wholesale, marketing	الصيدلة صناعية, الجملة, التسويق
● Academia + Research	المجال الاكاديمي والابحاث	Academia, research	المجال الاكاديمي والابحاث
● Outside the profession (not pharmacy related)	خارج مجال الصيدلة (لا علاقة له بالصيدلة)	Outside the profession of pharmacy (not related to pharmacy)	خارج مجال الصيدلة (لا علاقة له بالصيدلة)
● Other (pharmacy related)	اخر (له علاقة بالصيدلة)	Other (related to pharmacy)	اخر (له علاقة بالصيدلة)
16. Please choose THREE categories which best represent your motivations to study pharmacy.	الرجاء اختيار ثلاث اختيارات تصف سبب اختيارك لمجال الصيدلة ؟	Please select three choices which describes your motivations to study pharmacy.	الرجاء اختيار ثلاث اختيارات تصف سبب اختيارك لمجال الصيدلة ؟
1) Interest in science	اهتمام بالعلوم	Interest in science	اهتمام بالعلوم
Interest in, like of, and aptitude for science, biology, and math, for example	اهتمام او حب او موهبة في العلوم, الأحياء, الرياضيات على سبيل المثال	Interest in, like of, and skills in science, biology, math for example	اهتمام او حب او موهبة في العلوم, الأحياء, الرياضيات على سبيل المثال
2) Contribution to healthcare	المساهمة في الرعاية الصحية	Contribution to healthcare	المساهمة في الرعاية الصحية
Desire to help people; and interest in healthcare and in teamwork with other health professionals	رغبة في مساعدة الآخرين, اهتمام بالرعاية الصحية والرغبة في العمل مع بقية الفريق الطبي	Desire to help people, interest in healthcare and desire to work with other healthcare professionals	رغبة في مساعدة الآخرين, اهتمام بالرعاية الصحية والرغبة في العمل مع بقية الفريق الطبي
3) Financial and economic aspects	جوانب مالية واقتصادية	Financial and economic aspects	جوانب مالية واقتصادية
Opportunities for earning a good salary and material rewards	فرص للحصول على رواتب مغرية ومكافآت مادية	Opportunities to get well-paid jobs and rewards	فرص للحصول على رواتب مغرية ومكافآت مادية
4) Work-life balance expectation	توقع الموازنة بين الحياة والعمل	Expectation of life-work balance	توقع الموازنة بين الحياة والعمل

Balancing a personal and family life with a career; flexibility of work situations in pharmacy; and workload expectation in pharmacy school	الموازنة بين الحياة الشخصية والعائلية مع الحياة الوظيفية، المرونة في مهنة الصيدلة والضغط الوظيفي المتوقع من خلال دراسة الصيدلة	Balancing between personal and family life with career. Flexibility in the profession of pharmacy and expected workload in pharmacy school	الموازنة بين الحياة الشخصية والعائلية مع الحياة الوظيفية، المرونة في مهنة الصيدلة والضغط الوظيفي المتوقع من خلال دراسة الصيدلة
5) Professional and vocational career	الحياة الوظيفية والمهنية	Professional and occupational career	الحياة الوظيفية والمهنية
Social prestige; respected profession; and professional status	هيبه الاجتماعية؛ مهنة محترمة، المكانة المهنية	Social prestige, respected profession, professional status	هيبه الاجتماعية؛ مهنة محترمة، المكانة المهنية
6) Future career opportunities	الفرص الوظيفية في المستقبل	Future employment opportunities	الفرص الوظيفية في المستقبل
Job security; variety of career opportunities; and a desire to own their own business	الأمن الوظيفي؛ تنوع الفرص الوظيفية، والرغبة في امتلاك مشاريع خاصة	Job security, variety of job opportunities, desire in sitting up own business	الأمن الوظيفي؛ تنوع الفرص الوظيفية، والرغبة في امتلاك مشاريع خاصة
7) Personal and family influences	التأثيرات الشخصية والعائلية	Personal and family influences	التأثيرات الشخصية والعائلية
Influence from family, other relatives, personal friends, college instructor/advisor, high school counsellor, role models pharmacists, or other healthcare professionals; personal experiences; and previous job experiences	تأثير من الأسرة، وغيرهم من الأقارب والأصدقاء الشخصيين، مدرب او مستشار الكلية، مستشار المدرسة الثانوية،تأثيرالصيداللة النماذج، أو المتخصصين في الرعاية الصحية الأخرى؛ التجارب الشخصية، والخبرات السابقة العمل	Family influence, and other relatives and personal friends	تأثير من الأسرة، وغيرهم من الأقارب والأصدقاء الشخصيين، مدرب او مستشار الكلية، مستشار المدرسة الثانوية،تأثيرالصيداللة النماذج، أو المتخصصين في الرعاية الصحية الأخرى؛ التجارب الشخصية، والخبرات السابقة العمل
8) Personal development and fulfilment	تحقيق الذات وتطويرها	Personal fulfilment and development	تحقيق الذات وتطويرها
Being independent; continuing professional development; job satisfaction; achievement in life; and fulfilment to enter higher education	أن تكون مستقلا، ومواصلة التطوير المهني، الرضا الوظيفي، والإنجاز في الحياة، وتحقيق لدخول التعليم العالي	Being independent, continual professional development, job satisfaction, life achievements, achieving entering higher education	أن تكون مستقلا، ومواصلة التطوير المهني، الرضا الوظيفي، والإنجاز في الحياة، وتحقيق لدخول التعليم العالي
For each of the following statements, please choose ONE category which the most appropriately reflects your response.	لكل من العبارات التالية، يرجى اختيار فئة واحدة والتي تعكس ردكم بشكل مناسب	For each statement below, please choose one category that reflects your response most appropriately.	لكل من العبارات التالية، يرجى اختيار فئة واحدة والتي تعكس ردكم بشكل مناسب
Please note that the word "degree" refers to your university course, degree, or diploma to be a pharmacist in your country.	يرجى ملاحظة أن كلمة "درجة" تشير برنامج جامعتك سواء كان بكالوريوس أو دبلوم لتكون صيدلي في بلدك	Please note that the word "degree" refers to your university course, degree or diploma to be a pharmacist in your country.	يرجى ملاحظة أن كلمة "درجة" تشير برنامج جامعتك سواء كان بكالوريوس أو دبلوم لتكون صيدلي في بلدك
Experience	تجارب	Experience	تجارب
Strongly agree	أوافق بشدة	Strongly agree	أوافق بشدة
Agree	أوافق	Agree	أوافق
Neither agree nor disagree	لا أوافق ولا أرفض	Neither agree nor disagree	لا أوافق ولا أرفض

Disagree	لا أوافق	Disagree	لا أوافق
Strongly disagree	لا أوافق بشدة	Strongly disagree	لا أوافق بشدة
1) It is always easy to know the standard work expected for my degree.	من السهل دائما معرفة مستوى العمل المتوقع لشهادتي	It is always easy to know the standard work expected for my degree	من السهل دائما معرفة مستوى العمل المتوقع لشهادتي
2) This degree has helped me to develop my problem-solving skills.	ساعدتني هذه الدرجة لتطوير مهارة حل المشاكل	This degree has helped me to develop problem-solving skill	ساعدتني هذه الدرجة لتطوير مهارة حل المشاكل
3) There are NOT many opportunities (in terms of optional subjects/elective courses) to choose particular areas to study.	ليست هناك العديد من الفرص (من حيث المواد الاختيارية / المقررات الاختيارية) لاختيار مناطق معينة للدراسة	There is not much opportunities (in terms of optional subjects/ elective courses) to choose specific areas to study	ليست هناك العديد من الفرص (من حيث المواد الاختيارية / المقررات الاختيارية) لاختيار مناطق معينة للدراسة
4) The teachers of this degree motivate students to do their best work.	معلمو هذه الدرجة يحفزون الطلاب للقيام بعمل أفضل ما لديهم	Teachers of this degree motivate students to do their best	معلمو هذه الدرجة يحفزون الطلاب للقيام بعمل أفضل ما لديهم
5) The workload is too heavy.	العبء الدراسي ثقيل جدا	The work-load is very heavy	العبء الدراسي ثقيل جدا
6) This degree has improved my analytical skills.	حسنت هذه الدرجة مهاراتي التحليلية	This degree has improved my analytical skills	حسنت هذه الدرجة مهاراتي التحليلية
7) Teachers here frequently give the impression they have nothing to learn from the students.	المعلمون هنا كثيرا ما يعطون انطباعا بأن ليس لديهم ما يتعلمونه من الطلاب	Teachers here often give an impression that they have nothing to learn from students	المعلمون هنا كثيرا ما يعطون انطباعا بأن ليس لديهم ما يتعلمونه من الطلاب
8) You usually have a clear idea of where you are going and what is expected of you.	عادة ما يكون لديك فكرة واضحة عن اين انت ذاهب وعن ماهو متوقع منك	Usually you have a clear idea where are you going and what is expected of you	عادة ما يكون لديك فكرة واضحة عن اين انت ذاهب وعن ماهو متوقع منك
9) Teachers at my university put in a lot of time on feedback of student's work.	المعلمون في جامعتي يقضون الكثير من الوقت لتزويد الطلاب بملاحظات على أداءهم (اسباب حصولهم على تقدير محدد)	Teachers in my university spend a lot of time on providing feedback on students' work	المعلمون في جامعتي يقضون الكثير من الوقت لتزويد الطلاب بملاحظات على أداءهم (اسباب حصولهم على تقدير محدد)
10) To do well on this degree all you really need is a good memory.	للحصول على تقدير جيد في هذه الدرجة كل ما تحتاجه حقاً هو ذاكرة جيدة	To achieve good results in this degree all what you need is a good memory	للحصول على تقدير جيد في هذه الدرجة كل ما تحتاجه حقاً هو ذاكرة جيدة
11) This degree has helped to develop my ability to work as a team member.	ساعدتني هذه الدرجة لتطوير قدرتي على العمل كعضو في فريق	This degree has helped me to improve my ability to work within a team	ساعدتني هذه الدرجة لتطوير قدرتي على العمل كعضو في فريق
12) As a result of doing this degree, I feel more confident about approaching/solving unfamiliar problems.	نتيجة للقيام بهذه الدرجة، أشعر بمزيد من الثقة حول الأقتراب / حل المشاكل غير المألوفة	As a result of doing this degree I feel more confident about approaching/ solving unfamiliar problems	نتيجة للقيام بهذه الدرجة، أشعر بمزيد من الثقة حول الأقتراب / حل المشاكل غير المألوفة
13) This degree has improved my written communication skills.	ساعدتني هذه الدرجة على تطوير مهارات الاتصال الكتابي	This degree has helped me to improve my written communication skills	ساعدتني هذه الدرجة على تطوير مهارات الاتصال الكتابي

14)	It seems to me that the curriculum content tries to cover too many topics.	يبدو لي أن محتوى المناهج يحاول تغطية عدة مواضيع	It seems to me that the content of the curriculum covers many topics	يبدو لي أن محتوى المناهج يحاول تغطية عدة مواضيع
15)	The degree has encouraged me to develop my own academic interests as far as possible.	شجعتني هذه الدرجة على تطوير اهتماماتي الأكاديمية الخاصة قدر الإمكان	This degree has motivated my to develop my own academic interests as much as possible	شجعتني هذه الدرجة على تطوير اهتماماتي الأكاديمية الخاصة قدر الإمكان
16)	Students have a great deal of choice over how they are going to learn in this degree.	الطلاب لديهم قدر كبير من حرية الاختيار حول كيفية طريقة التعلم في هذه الدرجة	Students have a great deal of freedom on learning methods in this degree	الطلاب لديهم قدر كبير من حرية الاختيار حول كيفية طريقة التعلم في هذه الدرجة
17)	Teachers seem more interested in testing what you have memorised than what you have understood.	المعلمون يبدوون اهتماما اكبر في اختبار ما حفظت مما فهمت	Teachers seem interested more in examining what you have memorised than what you have understood	المعلمون يبدوون اهتماما اكبر في اختبار ما حفظت مما فهمت
18)	It is often hard to discover what is expected of you in this degree.	غالبا ما يكون من الصعب اكتشاف ما هو متوقع منك في هذه الدرجة	It is often difficult to find out what is expected of you in this degree	غالبا ما يكون من الصعب اكتشاف ما هو متوقع منك في هذه الدرجة
19)	We are generally given enough time to understand the things we have to learn.	عادة يكون لدينا متسع من الوقت لفهم ماتعلمناه	We are normally given sufficient time to comprehend the things we have to learn	عادة يكون لدينا متسع من الوقت لفهم ماتعلمناه
20)	The teachers at my university make a real effort to understand difficulties students may be having with their work.	المعلمون في جامعتي يبذلون جهدا حقيقيا لفهم الصعوبات التي يواجهها الطلاب في عملهم	The teachers at my university make a real effort to understand students' difficulties that they might be having with their work	المعلمون في جامعتي يبذلون جهدا حقيقيا لفهم الصعوبات التي يواجهها الطلاب في عملهم
21)	Students here are given a lot of choice in the work they have to do.	يتم منح الطلاب هنا قدر كبير من حرية اختيار العمل الواجب عليهم	Students here are given a great deal of choice on the work they have to do	يتم منح الطلاب هنا قدر كبير من حرية اختيار العمل الواجب عليهم
22)	Teachers at my school normally give helpful feedback on how you are doing.	المعلمون في مدرستي يعطون عادة ملاحظات مفيدة حول اداء الطلاب	Teachers at my school usually give student useful feedback on their performance	المعلمون في مدرستي يعطون عادة ملاحظات مفيدة حول اداء الطلاب
23)	Our teachers are extremely good at explaining things to us.	المعلمون لديهم قدرة جيدة للغاية في شرح الأمور لنا	The teachers are extremely good at explaining things to us	المعلمون لديهم قدرة جيدة للغاية في شرح الأمور لنا
24)	The aims and objectives of this degree are NOT very clear.	أهداف وغايات هذه الدرجة ليست واضحة جدا	The aims and objectives of this degree are not very clear	أهداف وغايات هذه الدرجة ليست واضحة جدا
25)	Teachers at my university work hard to make subjects interesting.	المعلمون في جامعتي يعملون بجد لجعل مواضيع الدراسة ممتعة	Teachers at my university work hard to make the subjects interesting	المعلمون في جامعتي يعملون بجد لجعل مواضيع الدراسة ممتعة
26)	Too many teachers ask us just about the facts.	العديد من المعلمين يسألون عن الحقائق فقط	A lot of our teaches ask us only about facts	العديد من المعلمين يسألون عن الحقائق فقط
27)	There is a lot of pressure on you as a student here.	هناك الكثير من الضغوط عليك كطالب هنا	There is a lot of pressure on us as students here	هناك الكثير من الضغوط عليك كطالب هنا
28)	This degree has helped me develop	ساعدتني هذه الدرجة على التخطيط لاعمالي	This degree has helped me to develop	ساعدتني هذه الدرجة على التخطيط لاعمالي

the ability to plan my own work.		planning my own work	
29) Feedback on student work is usually provided ONLY in the form of marks and grades.	الملاحظات على عمل الطلاب تكون عن طريق العلامات والتقارير فقط	Feedback on students' work is provided only via marks and grades	الملاحظات على عمل الطلاب تكون عن طريق العلامات والتقارير فقط
30) We often discuss with our teachers how we are going to learn in this degree.	في كثير من الأحيان نتناقش مع مدرسينا طرق التعلم في هذه الدرجة	We usually discuss with our teachers how are we going to learn in this degree	في كثير من الأحيان نتناقش مع مدرسينا طرق التعلم في هذه الدرجة
31) Teachers at my university show no real interest in what students have to say.	المعلمون في جامعتي لا يظهرون اهتماما حقيقيا في آراء الطلاب	Teachers at my university do not show a real interest in what students have to say	المعلمون في جامعتي لا يظهرون اهتماما حقيقيا في آراء الطلاب
32) It would be possible to get through this degree just by working hard around exam times.	من الممكن الحصول على هذه الدرجة عن طريق العمل الجاد في فترات الامتحانات فقط	It would be possible to pass this degree only by working hard around examination times	من الممكن الحصول على هذه الدرجة عن طريق العمل الجاد في فترات الامتحانات فقط
33) This degree really tries to get the best out of all its students.	هذه الدرجة تحاول الحصول على أفضل النتائج من جميع طلابها	This degree tries to get the best results out of all its students	هذه الدرجة تحاول الحصول على أفضل النتائج من جميع طلابها
34) There is very little choice in this degree in the ways you are assessed.	طرق التقييم في هذه الدرجة محدودة جدا	Assessment methods in this degree are very limited	طرق التقييم في هذه الدرجة محدودة جدا
35) The teachers at my university make it clear right from the start what they expect from students.	المعلمون في جامعتي تجعل كل ما هو متوقع من الطلاب واضحا جدا منذ البداية	Teachers at my university make what is expected from students very clear from the beginning	المعلمون في جامعتي تجعل كل ما هو متوقع من الطلاب واضحا جدا منذ البداية
36) The amount of work you have to get through in this degree means you cannot comprehend it all in detail.	حجم العمل الذي تقوم به للحصول على هذه الدرجة يعني أنك لا تستطيع فهم كل شيء بالتفصيل	The amount of work in this degree means that you can not understand it all in details	حجم العمل الذي تقوم به للحصول على هذه الدرجة يعني أنك لا تستطيع فهم كل شيء بالتفصيل
37) Overall, I am satisfied with the quality of this degree.	عموما، أنا راض عن جودة هذه الدرجة	Overall, I am satisfied with the quality of this degree	عموما، أنا راض عن جودة هذه الدرجة
38) While I am studying, I often think of real life situations to which the material that I am learning would be useful.	اثناء دراستي، كنت في كثير من الأحيان افكر في مواقف الحياة الحقيقية التي تكون فيها الاشياء التي اتعلمها مفيدة	While I am studying, I always think of real life scenarios to which the material that I am learning could be of benefits	اثناء دراستي، كنت في كثير من الأحيان افكر في مواقف الحياة الحقيقية التي تكون فيها الاشياء التي اتعلمها مفيدة
39) I chose my present degree largely with a view to the job situation when I graduate rather than their intrinsic interest to me.	اخترت تخصصي الحالي اخذا بعين الاعتبار أوضاع العمل عندما اخرج أكثر من رغبتني فيها	I chose my current degree taking into consideration the job situation when I graduate rather than my desire to study it	اخترت تخصصي الحالي اخذا بعين الاعتبار أوضاع العمل عندما اخرج أكثر من رغبتني فيها
40) I find that at times studying gives me a feeling of deep personal	أجد أن في بعض الأحيان ان الدراسة تعطيني شعور بالغ بالرضا الشخصي	I feel that sometimes studying gives me a high personal satisfaction feeling	أجد أن في بعض الأحيان ان الدراسة تعطيني شعور بالغ بالرضا الشخصي

satisfaction.			
41) I want top grades in most or all of my degree, courses, and classes so that I will be able to select from among the best positions available when I graduate.	أريد الحصول على أعلى المعدلات في تخصصي وأعلى الدرجات في معظم أو كل المواد والفصول بحيث أكون قادر على اختيار أفضل الوظائف المتاحة عندما أخرج	I want to get the top grades in most or all of my degree, courses and classes. Therefore, I will be able to choose between the best available jobs when I graduate	أريد الحصول على أعلى المعدلات في تخصصي وأعلى الدرجات في معظم أو كل المواد والفصول بحيث أكون قادر على اختيار أفضل الوظائف المتاحة عندما أخرج
42) I think browsing around is a waste of time, so I only study seriously what's given out in class or in course outlines.	أعتقد أن التصفح مضيعة للوقت، لذلك أنا أدراس بجدية ما يعطى في الصف أو في الخطة الدراسية	I think that browsing is just a waste of time, that's why I only study seriously what is given in class or in the course outline	أعتقد أن التصفح مضيعة للوقت، لذلك أنا أدراس بجدية ما يعطى في الصف أو في الخطة الدراسية
43) I try to work consistently throughout the term and review regularly when the exams are close.	وأنا أحاول أن اعمل باستمرار طوال الفصل الدراسي وارجع بانتظام عندما تقترب الامتحانات	I try to work regularly throughout the term and I review regularly near the exams times	وأنا أحاول أن اعمل باستمرار طوال الفصل الدراسي وارجع بانتظام عندما تقترب الامتحانات
44) I would see myself basically as an ambitious person and want to get to the top, whatever I do.	أنا أرى نفسي كشخص طموح وارغب في الحصول على أعلى المراتب في كل ما أقوم به	I see myself as an ambitious person and I want to get the top in whatever I do	أنا أرى نفسي كشخص طموح وارغب في الحصول على أعلى المراتب في كل ما أقوم به
45) I find that I have to do enough work on a subject so that I form my own point of view before I am satisfied.	لا بد ان اقوم بعمل كافي على مادة معينة لدرجة حتى تتشكل وجهة نظري الخاصة وأكون مقتنعا بها	I have to do enough work on a certain subject in order to formulate my own personal views before I am satisfied	لا بد ان اقوم بعمل كافي على مادة معينة لدرجة حتى تتشكل وجهة نظري الخاصة وأكون مقتنعا بها
46) I try to do all of my assignments as soon as possible after they have been set.	أحاول القيام بكل واجباتي في أقرب وقت ممكن بعد أن يتم تحديدها	I try to do all of my assessments as soon as they are given to us	أحاول القيام بكل واجباتي في أقرب وقت ممكن بعد أن يتم تحديدها
47) I find that studying academic subjects can at times be as exciting as a good novel or film.	أجد أن دراسة المواد الأكاديمية يمكن في بعض الأحيان أن يكون مثيرا مثل قراءة رواية جيدة أو مشاهدة فيلم جيد	I find that studying academic subjects sometimes can be as interesting as a good novel or movie	أجد أن دراسة المواد الأكاديمية يمكن في بعض الأحيان أن يكون مثيرا مثل قراءة رواية جيدة أو مشاهدة فيلم جيد
48) I usually become increasingly absorbed in my work the more I do.	عادة اصبح منغمسا في عملي كلما اكثرت من القيام به	I mostly become increasingly absorbed in my work the more I do	عادة اصبح منغمسا في عملي كلما اكثرت من القيام به
49) I generally restrict my study to what is specially set as I think it is unnecessary to do anything extra.	عادة احصر دراستي بالمنهج واعتقد ان ليس من الضرورة القيام بأي شي اضافي	I usually restrict my study on what is taught and I think it is not necessary to do anything extra	عادة احصر دراستي بالمنهج واعتقد ان ليس من الضرورة القيام بأي شي اضافي
50) I almost resent having to do further years studying after leaving school, but feel that the end results make it all worthwhile.	لقد شعرت بشيء من الحزن لأنني سوف ادرس لعدة سنوات بعد انتهائي من المدرسة ولكن النتيجة تستحق العناء	I felt a bit of sadness because I will study for several years after I finished school, but the result is worth the effort	لقد شعرت بشيء من الحزن لأنني سوف ادرس لعدة سنوات بعد انتهائي من المدرسة ولكن النتيجة تستحق العناء

51) I see getting high marks as a kind of competitive game, and I play it to win.	أرى الحصول على علامات عالية كلعبة تنافسية، وألعب لكي الفوز	I see getting high marks as a competitive game and I play to win it	أرى الحصول على علامات عالية كلعبة تنافسية، وألعب لكي الفوز
52) I find it best to accept the statements and ideas of my teachers and question them only under special circumstances.	أجد أنه من الأفضل أن أقبل التصريحات والأفكار من أساتذتي وسؤالهم فقط تحت ظروف خاصة	I find it better to accept the statements and ideas of my teachers and ask them only under special circumstances	أجد أنه من الأفضل أن أقبل التصريحات والأفكار من أساتذتي وسؤالهم فقط تحت ظروف خاصة
53) Whether I like it or not, I can see that further education is for me a good way to get a well-paid or secure job.	سواء أحببت ذلك أم لا، أستطيع أن أرى أن التعليم العالي هو وسيلة مضمونة للحصول على وظيفة جيدة الأجر أو أمانة	Whether I like it or not, I can see that further education a good way to get a well-paid or secure job	سواء أحببت ذلك أم لا، أستطيع أن أرى أن التعليم العالي هو وسيلة مضمونة للحصول على وظيفة جيدة الأجر أو أمانة
54) I try to relate new material, as I am reading it, to what I already know on the subject.	أحاول أن أربط المواد الجديدة، أثناء قرأتي لها، إلى ما سبق لي معرفته بالموضوع	I try to relate new materials, when I am reading it, to what I already know on the subject	أحاول أن أربط المواد الجديدة، أثناء قرأتي لها، إلى ما سبق لي معرفته بالموضوع
55) I keep neat, well organised notes for most subjects.	أبقي محاضرات المواد المختلفة في دافتر مرتبة وانيقة	I keep well-organized and neat notes for the most of subjects	أبقي محاضرات المواد المختلفة في دافتر مرتبة وانيقة
Please feel free to add any comments that you consider useful.	لا تتردد في إضافة أي تعليق تراه مفيدا	Please do not hesitate to add any comments that you consider helpful	لا تتردد في إضافة أي تعليق تراه مفيدا
Please click to submit. [submit]	اضغط هنا لتسليم الاستبيان	Please click here to submit the survey	اضغط هنا لتسليم الاستبيان
For further information or for any enquiries about the questionnaire please contact Marouen Ben Guebila (education@ipsf.org) or Naoko Arakawa (naoko.arakawa.11@ucl.ac.uk).	لمزيد من المعلومات أو للاستفسار عن الاستبيان يرجى الاتصال على Marouen Ben Guebila (education@ipsf.org) or Naoko Arakawa (naoko.arakawa.11@ucl.ac.uk).	For further information or enquiries about the questionnaire please contact Marouen Ben Guebila (education@ipsf.org) or Naoko Arakawa (naoko.arakawa.11@ucl.ac.uk)	لمزيد من المعلومات أو للاستفسار عن الاستبيان يرجى الاتصال على Marouen Ben Guebila (education@ipsf.org) or Naoko Arakawa (naoko.arakawa.11@ucl.ac.uk).
Your data has been processed.	لقد تم حفظ بياناتك بنجاح.	Your data has been processed.	لقد تم حفظ بياناتك بنجاح.
Thank you for your contribution.	شكرا لتعاونكم	Thank you for your corporation.	شكرا لتعاونكم

Appendix 3: Forward-back translation of the Student Learning Experience Survey (French)

Original SLEQ	Forward translation	Back translation	Final translated SLEQ
2012/13 FIPeD Development Team - IPSF Student Learning Experience Questionnaire	2013/14 Équipe de développement FIPeD - IPSF Questionnaire sur l'expérience d'apprentissage des étudiants	2013/14 Development team FIPeD - IPSF Student learning experience questionnaire	2013/14 Équipe de Développement FIPeD – IPSF Questionnaire sur l'expérience D'apprentissage des Étudiants
There is much interest in quality and standards of professional pharmacy education as health policy world-wide becomes more focussed on extending the roles of pharmacy practitioners to provide more effective medicines-related health services.	Il y a de plus en plus d'intérêt pour la qualité et les normes de l'enseignement professionnel de la pharmacie, car de manière générale, la politique de santé dans le monde entier donne plus d'importance au pharmacien et mise sur l'extension des rôles des praticiens de la pharmacie pour fournir des services de santé liés aux médicaments ,plus efficacement.	There is more and more interest in the quality of professional pharmacy education norms, due to the fact that , in a general way, health policies all over the world gives more and more importance to pharmacists and emphasis the functions of practitioners in order to extend efficiently the healthcare services.	Il y a un intérêt grandissant à réfléchir sur la qualité et les normes de l'enseignement aux étudiants en pharmacie, car de manière générale, la politique de santé dans le monde entier donne de plus en plus d'importance au pharmacien et mise sur l'extension de ses rôles afin d'améliorer l'efficacité de ses services.
To achieve higher and equitable quality, the global infrastructure for pharmacy education needs to be mapped to the required competencies of pharmacy practitioners in order to meet the given health needs in any country.	Pour obtenir une qualité plus élevée et équitable, l'infrastructure mondiale pour l'éducation en pharmacie doit être mise en correspondance avec les compétences exigées des praticiens de la pharmacie afin de répondre aux besoins de santé offerts dans tous les pays.	In order to ensure a good and equal quality, the pharmacy education global infrastructure must be coherent with the competency expected from pharmacists today, to provide all healthcare services needed in all countries.	Pour améliorer uniformément la qualité, les formations des étudiants doivent correspondre aux attentes de santé publique qu'a la population envers les pharmaciens dans les différents pays.
As students are at the centre of pre-service education, their input is important in the development of educational policies and practices.	Comme les étudiants sont au centre de la formation initiale, leur contribution est importante dans le développement des politiques et des pratiques éducatives.	Students are in the heart of the academic environment, their contribution is important in the development of policies and educational improvement.	Comme les étudiants sont au centre de la formation initiale, leur contribution est importante dans le développement des politiques et des pratiques futures.
It is of interest to survey the student learning experience.	Il est intéressant d'étudier l'expérience d'apprentissage des étudiants.	It is of interest to survey the student learning experience.	Il est donc intéressant d'analyser les formations étudiantes.
"FIPeD Development Team - IPSF Student Learning Experience Questionnaire" is the continuation of Moving On II, which was a project with the main focus on the pharmacy students' perceptions on their degree (data being collected since 2004 by IPSF) and now was revised to include the students' ways of studying about	" Equipe de développement FIPeD - IPSF Questionnaire sur l'expérience d'apprentissage des étudiants " est la continuation de Moving On II (avancer II), qui était un projet mettant l'accent principal sur la perception des étudiants en pharmacie concernant leur diplôme (données recueillies depuis 2004 par IPSF) et qui a été maintenant révisé pour	"Development team FIPeD - IPSF Student learning experience questionnaire" resumes the project Moving on II, which put an emphasis on how students evaluated their curricula (data furnished by IPSF in 2004). This questionnaire is revised but the objective stays the same.	"Equipe de développement FIPeD - IPSF Questionnaire sur la l'expérience des étudiants" est la continuation de <i>Moving On II</i> , qui était un projet regroupant la perception des différents étudiants en pharmacie de leur diplôme (données recueillies depuis 2004 par l'IPSF) et qui a été maintenant amélioré pour rajouter le

their degree as well as the original Moving On II questionnaire.	comprendre les moyens d'étude des étudiants concernant leur diplôme. Le questionnaire Moving On II vient dans la même optique.		ressenti des étudiants lors de leurs études.
The new additions to the questionnaire will enable the retrieval of better evidence on how students perceived their learning experiences throughout their degree.	Les nouveaux ajouts au questionnaire permettront une récupération de données plus fiables sur la façon dont les étudiants perçoivent leurs expériences d'apprentissage tout au long de leur cursus.	The elements revised allow to get information in a more efficient way on the way students consider their curricula.	Les nouveaux ajouts au questionnaire permettront la récupération de données plus fiables sur la façon dont les étudiants perçoivent leur formation tout au long de leur cursus.
Therefore, this "FIPed Development Team-IPSF Student Learning Experience Questionnaire" allows world-wide comparisons and mapping of the learning experiences and the quality of learning of students enrolled in pharmacy programmes.	Par conséquent, cette "équipe de développement FIPed - IPSF questionnaire sur l'expérience d'apprentissage des étudiants" permet des comparaisons dans le monde entier et la cartographie des expériences d'apprentissage et la qualité de l'apprentissage des étudiants inscrits dans des programmes de pharmacie.	This way, "FIPed-IPSF development team student learning experience" allows to compare and to locate learning experiences from students enrolled in pharmacy degrees.	Par conséquent, l'"Équipe de Développement FIPed - IPSF questionnaire sur l'expérience d'apprentissage des étudiants" permet la comparaison dans le monde entier et la cartographie des expériences d'apprentissage et de la qualité de l'apprentissage des étudiants inscrits dans des études de pharmacie.
It is the largest study of its type to date.	Il s'agit de la plus importante étude de ce type à ce jour.	This is the most important study of this type to date.	Il s'agit de la plus importante étude de ce type à ce jour.
Data collected will provide an evidence for education advancement.	Les données recueillies fourniront une preuve pour l'avancement de l'éducation.	The data collected will furnish a basis to improve pharmacy education worldwide.	Les données recueillies fourniront une preuve pour l'avancement de l'éducation.
This is a global project, supported by FIP Education Initiatives (FIPed) Development Team (http://www.fip.org/pharmacy_education) and International Pharmaceutical Students' Federation (IPSF: http://www.ipsf.org/).	Il s'agit d'un projet international, soutenu par des initiatives d'éducation FIP, Équipe de développement FIPed(http://www.fip.org/pharmacy_education) et la Fédération internationale des étudiants en pharmacie (IPSF: http://www.ipsf.org/).	This is a global project, supported by FIP education initiatives, FIPed development team (http://www.fip.org/pharmacy_education) and the International Pharmaceutical Students' Federation (IPSF : http://www.ipsf.org/).	Il s'agit d'un projet global, soutenu par des initiatives d'éducation FIP, Équipe de développement FIPed (http://www.fip.org/pharmacy_education) et la Fédération internationale des étudiants en pharmacie (IPSF: http://www.ipsf.org/).
Click here to start.	Cliquez ici pour commencer	Click here to start.	Cliquez ici pour commencer
Thank you for your contribution.	Nous vous remercions de votre contribution.	Thanks for your contribution	Nous vous remercions de votre contribution.
For further information or if you have any enquiries about this questionnaire please contact Marouen Ben Guebila (education@ipsf.org) or Naoko Arakawa	Pour de plus amples informations ou si vous avez des questions à propos de ce questionnaire s'il vous plaît contactez Marouen Ben Guebila (education@ipsf.org) ou	To get more information or if you have questions, please do not hesitate to send an email to Marouen Ben Guebila (education@ipsf.org) or Naoko Arakawa	Pour de plus amples informations ou si vous avez des questions à propos de ce questionnaire, veuillez contacter Marouen Ben Guebila

(naoko.arakawa.11@ucl.ac.uk).	Naoko Arakawa (naoko.arakawa.11 @ ucl.ac.uk).	(naoko.arakawa.11@ucl.ac.uk)	(education@ipsf.org) ou Naoko Arakawa (naoko.arakawa.11 @ ucl.ac.uk).
Instructions	Instructions	Instructions	Instructions
Please think about your pharmacy degree and your ways of studying about your degree in general.	S'il vous plaît pensez à votre diplôme en pharmacie et vos façons d'étudier au cours de votre cursus en général.	Please think about your pharmacy degree and your ways of studying during your studies in general.	S'il vous plaît lorsque vous répondez à ce questionnaire, veuillez penser de manière générale.
Think about your whole degree and not just about individual subjects, topics or teachers/lecturers when answering this questionnaire.	Pensez à votre cursus entier et pas seulement sur les différents sujets, des thèmes ou des enseignants / chargés de cours en répondant à ce questionnaire.	Think about your whole curriculum and not only on different subjects, themes or teachers / lecturers in this questionnaire.	Pensez à votre cursus et vos études comme un tout et ne vous focalisez pas sur un simple aspect individuel, une matière ou un professeur en particulier.
This is an anonymous questionnaire and no one will be able to identify you.	Il s'agit d'un questionnaire anonyme et personne ne sera en mesure de vous identifier.	This is an anonymous questionnaire and no one will be able to identify you.	Il s'agit d'un questionnaire anonyme et personne ne sera en mesure de vous identifier.
Please answer honestly.	S'il vous plaît répondez honnêtement.	Please answer honestly.	Merci de répondre honnêtement.
Your responses are confidential and will not be seen by your teachers or university.	Vos réponses sont confidentielles et ne seront pas visibles par vos professeurs ou universitaires.	Your answers are confidential and will not be visible to your professors or university.	Vos réponses sont confidentielles et ne seront pas visibles par vos professeurs ou universitaires.
Please follow the directions and answer all questions.	S'il vous plaît suivez les instructions et répondez à toutes les questions.	Please answer all the questions with regards to the instructions.	Merci de suivre les instructions et de répondre à toutes les questions.
This questionnaire should take no more than 10-15 minutes of your time.	Ce questionnaire ne devrait pas prendre plus de 10-15 minutes de votre temps.	This questionnaire won't take more than 10-15 min of your time.	Ce questionnaire ne devrait pas prendre plus de 10-15 minutes à remplir.
Your contribution is highly valued, and we appreciate your time and effort.	Votre contribution est très appréciée, et nous vous remercions de votre temps et effort.	Your contribution is very much appreciated, et we thank you for your effort and time.	Votre contribution est très appréciée et nous vous remercions pour cela.
The Demographic Questions	Les questions démographiques	Demographic questions	Les questions démographiques
1. Country of birth	Pays de naissance	Country of birth	Pays de naissance
● Please select	S'il vous plaît sélectionner	Please select	S'il vous plaît sélectionner
● Enter if not listed	Entrez s'il ne figure pas	Enter if it is not shown	Entrez s'il ne figure pas
2. Country of study	Pays d'étude	Country of study	Pays d'étude
3. University	Université	University	Université
4. University (in English)	Université (en anglais)	University (in English)	Université (en anglais)
5. Faculty	Faculté	Faculty	Faculté
● If applicable	Le cas échéant	If applicable	si besoin
6. Age	âge	age	Âge
7. Gender	sexe	gender	Sexe
● Female	Femme	Female	Femme

● Male	Homme	Male	Homme
8. Year of Study (consider 7 as internship/pre-registration)	Année d'études (7, considérer stage / pré-enregistrement au conseil de l'ordre des pharmaciens)	years of study (Consider internship or licencing exam)	Année d'études (considérer le 7 comme stage/pré-enregistrement à l'ordre des pharmaciens)
9. Do you hold a previous degree?	Détenez-vous un diplôme précédent?	Do you have a former degree?	Détenez-vous un diplôme précédent?
● Yes	Oui	Yes	Oui
● No	Non	No	Non
10. Do you have a part time job while also studying?	Avez-vous un emploi de temps partiel tout en étudiant?	Do you have a part time student job?	Avez-vous un emploi de temps partiel tout en étudiant?
11. Has gender influenced your decision to study Pharmacy?	est ce que le genre (sexe : M/F) a influencé votre décision d'étudier la pharmacie?	Does gender influence you to study pharmacy?	Est ce que votre genre (sexe) a influencé votre décision d'étudier la pharmacie ?
● Positive influence	influence positive	Positive influence	influence positive
● Negative influence	influence négative	Negative influence	influence négative
● No influence	Pas d'influence	No influence	Pas d'influence
12. Have you always wanted to be a pharmacist? (e.g., did you consider becoming a pharmacist at high school?)	Avez-vous toujours voulu être un pharmacien? (par exemple, avez-vous envisager de devenir un pharmacien au lycée?)	Have you ever dreamed to be a pharmacist? (Have you thought about in high-school?)	Avez-vous toujours voulu être pharmacien ? (par exemple, avez-vous envisagé de devenir pharmacien au lycée ?)
13. Do you have any family member or close friend who is a pharmacist?	Avez-vous un membre de la famille ou un ami proche qui est pharmacien?	Is one of your relatives a pharamcist?	Avez-vous un membre de votre famille ou un ami proche qui est pharmacien ?
14. Were you encouraged by your family to study pharmacy?	Avez-vous été encouragé par sa famille pour étudier en pharmacie?	Have you been encouraged by family to be a pharmacist?	Avez-vous été encouragé par votre famille pour étudier la pharmacie?
15. At the moment, in which area of the professional practice would you most like to work?	À l'heure actuelle, dans quel domaine de la pratique professionnelle aimeriez-vous travailler?	Currently, which field of pharmacy do you want to be involved in?	À l'heure actuelle, dans quel domaine pharmaceutique aimeriez-vous travailler?
● Community pharmacy	pharmacie d'officine	Community pharmacy	pharmacie d'officine
● Hospital pharmacy	pharmacie hospitalière	hospital Pharmacy	pharmacie hospitalière
● Industry/wholesale/marketing	Industrie / grossiste / marketing	Industry /Distribution/ marketing	Industrie / grossiste / marketing
● Academia + Research	Recherche	Research	Recherche
● Outside the profession (not pharmacy related)	En dehors de la profession (pharmacie)	non related(Pharmacy)	En dehors de la profession (pharmacie)
● Other (pharmacy related)	Autres (pharmacie)	Other (pharmacy)	Autres (pharmacie)
16. Please choose THREE categories which best represent your motivations to study pharmacy.	S'il vous plaît choisissez trois catégories qui représentent le mieux vos motivations pour étudier en pharmacie.	Please pick three categories of motivations to study pharmacy.	S'il vous plaît choisissez trois catégories qui représentent le mieux vos motivations d'étudier la pharmacie.

1) Interest in science	Intéressé par la science	Interested by science	Intéressé par la science
Interest in, like of, and aptitude for science, biology, and math, for example	Par exemple : L'intérêt et l'aptitude pour la science, la biologie et les mathématiques	For example, interest in science, maths and biology	Par exemple : Intérêt et facilité pour les sciences, la biologie et les mathématiques
2) Contribution to healthcare	Contribution aux soins de santé	Contribution to healthcare sciences	Contribution aux soins de santé
Desire to help people; and interest in healthcare and in teamwork with other health professionals	Le désir d'aider les gens, et l'intérêt pour la santé et le travail en équipe avec d'autres professionnels de la santé	The will to help people and to work in teams to improve health sciences.	Le désir d'aider les gens, l'intérêt pour la santé publique et le travail en équipe avec d'autres professionnels de santé
3) Financial and economic aspects	Aspect financier et économique	Financial side	Aspect financier et économique
Opportunities for earning a good salary and material rewards	Les possibilités d'obtenir un bon salaire et des avantages matériels	Good salary and advantages	Les possibilités d'obtenir un bon salaire et des avantages matériels
4) Work-life balance expectation	équilibre travail-vie personnelle	Personal life/ work balance	Équilibre travail-vie personnelle
Balancing a personal and family life with a career; flexibility of work situations in pharmacy; and workload expectation in pharmacy school	Équilibrer une vie personnelle et familiale et une carrière, la flexibilité des situations de travail en pharmacie, et l'attente à la charge de travail en pharmacie	Finding a balance between personal and familial lives and career, flexibility of pharmacy jobs et work load in pharmacy.	L'équilibre entre une vie personnelle, familiale et une carrière ; la flexibilité du travail en pharmacie ; la quantité de travail lors des études
5) Professional and vocational career	Carrière professionnelle et technique	Personal and technical career	Carrière professionnelle et technique
Social prestige; respected profession; and professional status	Prestige social; profession respectée, et le statut professionnel	Social prestige; respected profession and a professional status.	Prestige social ; profession respectée ; et le statut professionnel
6) Future career opportunities	Perspectives de carrière	Career perspectives	Perspectives de carrière
Job security; variety of career opportunities; and a desire to own their own business	La sécurité d'emploi, la variété de possibilités de carrière, et le désir de posséder leur propre entreprise	Job security, different career paths, the wish to be an entrepreneur.	La sécurité d'emploi ; les différentes possibilités de carrière ; le désir de posséder sa propre entreprise
7) Personal and family influences	Influences personnelles et familiales	Personal and familial influence	Influences personnelles et familiales
Influence from family, other relatives, personal friends, college instructor/advisor, high school counsellor, role models pharmacists, or other healthcare professionals; personal experiences; and previous job experiences	Influence de la famille, des proches, des amis personnels, professeur de collège / lycée, conseiller, modèles pharmaciens ou autres professionnels de la santé, les expériences personnelles, et les expériences de travail antérieures	Family influence, entourage, close friends, high school professor, advisor, models of pharmacists or other healthcare professionals, personal experience, and previous work experience.	Influences de la famille, des proches, des amis, de professeurs au collège / lycée, de conseillers, de pharmaciens ou autres professionnels de la santé, par vos expériences personnelles et de travail antérieures
8) Personal development and fulfilment	Le développement et l'épanouissement personnel	Personal development and well-being	Le développement et l'épanouissement personnel
Being independent; continuing professional development; job satisfaction; achievement in life; and fulfilment to enter higher education	Être indépendant, la formation professionnelle continue; la satisfaction au travail, la réalisation dans la vie, et la réalisation d'entrer dans l'enseignement supérieur	Being independent, continuous education, job satisfaction, life accomplishment and the wish to enter the academic field	Être indépendant ; la formation professionnelle continue ; la satisfaction au travail ; la réussite dans la vie ; la satisfaction d'entrer dans l'enseignement

			supérieur
For each of the following statements, please choose ONE category which the most appropriately reflects your response.	Pour chacune des affirmations suivantes, s'il vous plaît choisissez une catégorie qui reflète le plus adéquatement votre réponse.	For every one of the following affirmations, please choose a category which reflects best your answer.	Pour chacune des affirmations suivantes, choisissez une catégorie qui reflète le mieux votre pensée.
<i>Please note that the word "degree" refers to your university course, degree, or diploma to be a pharmacist in your country.</i>	<i>S'il vous plaît notez que le mot «diplôme» renvoie à votre cursus universitaire, diplôme de pharmacien dans votre pays.</i>	<i>Please note that the word degree is related to your university curriculum, or pharmacy diploma in your country.</i>	<i>S'il vous plaît noter que le mot «diplôme» renvoie à vos études, votre cursus universitaire, son programme ou au diplôme nécessaire pour être pharmacien selon la situation.</i>
Strongly agree	fortement d'accord	Highly agree	Fortement d'accord
Agree	D'accord	agree	D'accord
Neither agree nor disagree	Ni en accord, ni en désaccord	Not agree nor disagree	Ni en accord, ni en désaccord
Disagree	en désaccord	disagree	En désaccord
Strongly disagree	fortement en désaccord	Highly disagree	Fortement en désaccord
1) It is always easy to know the standard work expected for my degree.	Il est toujours facile de connaître le métier de référence prévu pour mon diplôme.	It is always easy to know the reference job for my degree	Il est toujours facile de connaître l'ouvrage de référence prévu pour mon diplôme.
2) This degree has helped me to develop my problem-solving skills.	Ce diplôme m'a aidé à développer mes compétences en résolution de problèmes.	This degree helped me to develop my conflict management skills.	Ce diplôme m'a aidé à développer mes capacités de résolution de problèmes.
3) There are NOT many opportunities (in terms of optional subjects/elective courses) to choose particular areas to study.	Il n'y a pas beaucoup d'occasions (en termes de matières optionnelles / cours au choix) à choisir des domaines particuliers à étudier.	There is not a lot of opportunities (in terms of optional topics/ to choose from optional courses	Il n'y a pas beaucoup d'occasions (en termes de matières optionnelles / cours au choix) pour choisir des domaines particuliers à étudier.
4) The teachers of this degree motivate students to do their best work.	Les enseignants de ce diplôme motivent les élèves à faire de leur mieux.	The teachers of the curriculum motivate the students to do their best.	Les enseignants de ce diplôme motivent les élèves à faire de leur mieux.
5) The workload is too heavy.	La charge de travail est trop lourde.	The workload is too heavy	La charge de travail est trop lourde.
6) This degree has improved my analytical skills.	Ce diplôme a permis d'améliorer mes compétences analytiques.	This degree helped to develop my analytical skills	Ce diplôme a permis d'améliorer mes compétences analytiques.
7) Teachers here frequently give the impression they have nothing to learn from the students.	Les enseignants ici souvent donnent l'impression qu'ils n'ont rien à apprendre des élèves.	The teachers always give the impression that they don't have anything to learn to students.	Les enseignants donnent souvent l'impression qu'ils n'ont rien à apprendre des étudiants.
8) You usually have a clear idea of where you are going and what is	En général, vous avez une idée claire de l'endroit où vous allez et ce que l'on attend de	In general, you have a clear idea where are you going to be and what is expected	En général, vous avez une idée claire d'où vous allez et ce que l'on attend de vous.

expected of you.	vous.	from you.	
9) Teachers at my university put in a lot of time on feedback of student's work.	Les enseignants de mon université consacrent beaucoup de temps sur l'évaluation du travail des élèves.	Teachers in my university spend a lot of time to evaluate and feedback students' work.	Les enseignants de mon université consacrent beaucoup de temps sur le feedback (retours/remarques) des élèves à propos de leur travail en tant qu'étudiant.
10) To do well on this degree all you really need is a good memory.	Pour bien faire sur ce diplôme tout ce que vous avez vraiment besoin est une bonne mémoire.	To succeed in the curriculum all you need is good memory	Pour bien réussir ce diplôme tout ce dont vous avez vraiment besoin c'est une bonne mémoire.
11) This degree has helped to develop my ability to work as a team member.	Ce diplôme a permis de développer ma capacité à travailler en équipe.	This curriculum helped to develop my team work skills	Ce diplôme a permis de développer ma capacité à travailler en équipe.
12) As a result of doing this degree, I feel more confident about approaching/solving unfamiliar problems.	En conséquence de faire ce diplôme, je me sens plus confiant sur l'approche / la résolution des problèmes inhabituels.	As a consequence of choosing to do this curriculum, I feel more confident regarding the resolution of inhabituel problems	Grâce à ce diplôme, je me sens plus apte à approcher et résoudre des problèmes inhabituels.
13) This degree has improved my written communication skills.	Ce diplôme a permis d'améliorer mes compétences en communication écrite.	This curriculum allowed me to improve my writing and communication skills	Ce diplôme a permis d'améliorer mes compétences en communication écrite.
14) It seems to me that the curriculum content tries to cover too many topics.	Il me semble que le contenu du programme essaie de couvrir trop de sujets.	The program tries to covers too many topics	Il me semble que le programme du diplôme essaie de couvrir trop de sujets.
15) The degree has encouraged me to develop my own academic interests as far as possible.	Le diplôme m'a encouragé à développer mes propres intérêts académiques autant que possible.	The curriculum encouraged me to develop my academic interest	Ce diplôme m'a encouragé à développer mes propres intérêts académiques autant que possible.
16) Students have a great deal of choice over how they are going to learn in this degree.	Les étudiants ont beaucoup de choix quant à la façon dont ils vont apprendre au courant de ce diplôme.	Students have a lot of choices on how to do the curriculum	Les élèves ont beaucoup de choix sur la façon dont ils vont apprendre dans ce diplôme
17) Teachers seem more interested in testing what you have memorised than what you have understood.	Les enseignants semblent plus intéressés à tester ce que vous avez mémorisé que ce que vous avez compris.	Teachers are more interested in testing what you memorized rather than what you understood	Les enseignants semblent plus intéressés à tester ce que vous avez mémorisé par rapport à ce que vous avez compris.
18) It is often hard to discover what is expected of you in this degree.	Il est souvent difficile de découvrir ce que l'on attend de vous dans ce diplôme.	It is often difficult to know what is expected from you in this curriculum	Il est souvent difficile de comprendre ce que l'on attend de vous dans ce degré.
19) We are generally given enough time to understand the things we have to learn.	Nous avons généralement assez de temps pour comprendre les choses que nous devons apprendre.	We have generally enough time to understand what are we learning	Nous avons généralement assez de temps pour comprendre les choses que nous devons apprendre.
20) The teachers at my university make a real effort to understand	Les enseignants de mon université font un réel effort pour comprendre les difficultés que les	Teachers of my university do big efforts to understand the difficulties that	Les enseignants de mon université font un réel effort pour comprendre les

difficulties students may be having with their work.	élèves peuvent avoir avec leur travail.	students may have with their work	difficultés que les élèves peuvent rencontrer avec leur travail.
21) Students here are given a lot of choice in the work they have to do.	Les élèves ici ont beaucoup de choix dans le travail qu'ils ont à faire.	Students have a lot of options on how to do their assignments	Les élèves ont beaucoup de choix dans le travail qu'ils ont à faire.
22) Teachers at my school normally give helpful feedback on how you are doing.	Les enseignants de mon école souvent donnent des feedback utiles sur comment il faut réaliser le travail demandé.	Teachers always send us feedbacks on the ways to accomplish our tasks/assignments	Les enseignants donnent souvent des feedback utiles sur ce que vous faites et comment vous le faites.
23) Our teachers are extremely good at explaining things to us.	Nos professeurs sont très bon pour expliquer les choses .	Our teachers are very good to explain things to us	Nos professeurs sont très bons pour nous expliquer les choses.
24) The aims and objectives of this degree are NOT very clear.	Les buts et les objectifs de ce diplôme ne sont pas très claires.	Goals and objectives of this degree are not very clear	Les buts et les objectifs de ce diplôme ne sont pas très clairs.
25) Teachers at my university work hard to make subjects interesting.	Les enseignants de mon université travaillent dur pour faire des sujets intéressants.	Teachers do their best in order to give us an interesting topics	Les enseignants de mon université travaillent dur pour rendre les sujets intéressants.
26) Too many teachers ask us just about the facts.	Beaucoup d'enseignants nous testent simplement sur des faits.	A lot of teachers only ask us about facts	Beaucoup d'enseignants nous interrogent simplement sur les faits.
27) There is a lot of pressure on you as a student here.	Il ya beaucoup de pression sur vous en tant qu'étudiants.	There is a lot of pressure on you, as a student	Il ya beaucoup de pression sur vous en tant qu'étudiant here.
28) This degree has helped me develop the ability to plan my own work.	Ce diplôme m'a aidé à développer la capacité de planifier mon propre travail.	This degree helped me to plan my own work	Ce diplôme m'a aidé à développer ma capacité de planifier mon propre travail.
29) Feedback on student work is usually provided ONLY in the form of marks and grades.	Les commentaires sur le travail des étudiants est généralement fourni seulement sous la forme de notes.	Feedback on students work is always in form of marks and grades	Les retours sur le travail des étudiants sont généralement fournis seulement sous la forme de notes.
30) We often discuss with our teachers how we are going to learn in this degree.	Nous discutons souvent avec nos professeurs sur la manière dont nous allons apprendre dans ce cursus.	We discuss usually with our professors on how the learning will be in this degree	Nous discutons souvent avec nos professeurs sur la manière dont nous allons apprendre dans ce diplôme.
31) Teachers at my university show no real interest in what students have to say.	Les enseignants de mon université ne montrent aucun intérêt réel dans ce que les élèves ont à dire.	Teachers show little interest on what students have to say	Les enseignants de mon université ne montrent aucun réel intérêt dans ce que les élèves ont à dire.
32) It would be possible to get through this degree just by working hard around exam times.	Il serait possible d'obtenir ce diplôme seulement en travaillant dur dans la période de révision.	It is possible to get this degree when working in the last period of exam preparation	Il serait possible d'obtenir ce diplôme seulement en travaillant dur au moment des examens.
33) This degree really tries to get the best out of all its students.	Ce diplôme essaie vraiment de tirer le meilleur de tous les étudiants.	This degree tries to get the best from students	Ce diplôme essaie vraiment de tirer le meilleur de tous les étudiants.
34) There is very little choice in this degree in the ways you are assessed.	Il y a très peu de choix dans ce cursus dans les façons d'évaluation.	There is little options on ways of evaluation in this degree	Il y a très peu de manières différentes d'évaluation dans ce diplôme.

35) The teachers at my university make it clear right from the start what they expect from students.	Les enseignants de mon université indiquent clairement dès le départ ce qu'ils attendent des étudiants.	Teachers explain from the beginning what is expected from students	Les enseignants de mon université indiquent clairement dès le départ ce qu'ils attendent des étudiants.
36) The amount of work you have to get through in this degree means you cannot comprehend it all in detail.	La quantité de travail que vous avez à passer au travers de cette diplôme signifie que vous ne pouvez pas comprendre tout en détail.	The amount of work you have to do to get this degree means you cannot understand everything in detail	La quantité de travail dans ce diplôme est telle que vous ne pouvez pas comprendre tout en détail.
37) Overall, I am satisfied with the quality of this degree.	Dans l'ensemble, je suis satisfait de la qualité de ce diplôme.	In general, I'm satisfied about this degree	Dans l'ensemble, je suis satisfait de la qualité des enseignements de ce diplôme.
38) While I am studying, I often think of real life situations to which the material that I am learning would be useful.	Même si je suis étudiant, je pense souvent à des situations de la vie réelle à laquelle la matière que je suis entrain d'apprendre serait utile.	When I 'm student I always think about the situations of real life that the topic I'm learning would be useful	Lorsque j'étudie, je pense souvent à des situations de la vie réelle auxquelles mes connaissances pourraient être applicables et utiles.
39) I chose my present degree largely with a view to the job situation when I graduate rather than their intrinsic interest to me.	J'ai choisi mon niveau actuel en grande partie en vue de la situation de l'emploi lorsque j'aurai obtenu mon diplôme plutôt que de leur intérêt intrinsèque pour moi.	I choose my degree regarding the current employment situation rather than any interest	J'ai choisi ce diplôme en grande partie pour les débouchés professionnelles après les études et non pour mon intérêt même au contenu des programmes.
40) I find that at times studying gives me a feeling of deep personal satisfaction.	Je trouve que, parfois, l'étude me donne un sentiment de satisfaction personnelle profonde.	Sometimes, studies provide me a deep self-satisfaction feeling	Je trouve que, parfois, étudier me donne un sentiment de satisfaction personnelle profond.
41) I want top grades in most or all of my degree, courses, and classes so that I will be able to select from among the best positions available when I graduate.	Je veux les meilleures notes dans la plupart ou la totalité de mon diplôme, les cours et classes de sorte que je serai en mesure de choisir parmi les meilleures positions disponibles lorsque j'aurai obtenu mon diplôme.	I would like to get the best grades, marks because I would like to have a maximum opportunities when I get my degree	Je veux les meilleures notes dans la plupart ou la totalité des matières et cours, afin de pouvoir choisir parmi les meilleures situations disponibles une fois diplômé(e).
42) I think browsing around is a waste of time, so I only study seriously what's given out in class or in course outlines.	Je pense que la navigation autour est une perte de temps, alors je n'étudier sérieusement que ce qu'il m'a était donné en classe ou dans les plans de cours.	I think that get more deep in the topics is useless, I only study the most important things in courses.	Je pense que « naviguer » autour est une perte de temps, je n'étudie sérieusement que ce qui m'a été donné en cours ou ce qui rentre dans le plan du cours.
43) I try to work consistently throughout the term and review regularly when the exams are close.	J'essaie de travailler régulièrement tout au long de la durée et de revoir régulièrement lorsque les examens sont proches.	I try to work on regular basis and review my courses before the exams.	J'essaie de travailler régulièrement tout au long de l'année et de réviser régulièrement lorsque les examens sont proches.
44) I would see myself basically as an ambitious person and want to get to the top, whatever I do.	Je me vois essentiellement comme une personne ambitieuse et qui veut atteindre le sommet, quoi que je fasse.	I see myself as an ambitious person and I want to get to the top whatever it takes	Je me vois essentiellement comme une personne ambitieuse et qui veut atteindre le sommet, dans tout ce que je

			fais.
45) I find that I have to do enough work on a subject so that I form my own point of view before I am satisfied.	Je trouve que je dois faire assez de travail sur un sujet afin de former mon propre point de vue avant que je sois satisfait.	I think I have to work a lot on a topic before I can have a satisfactory self-opinion.	Je trouve que je dois faire assez de travail sur un sujet afin de former mon propre point de vue avant d'être satisfait.
46) I try to do all of my assignments as soon as possible after they have been set.	J'essaie de faire tous mes travaux dès que possible après qu'ils ont été définis.	I try to do all my assignments as soon as they're given to me	J'essaie de faire tous mes travaux dès que possible dès qu'ils ont été définis.
47) I find that studying academic subjects can at times be as exciting as a good novel or film.	Je trouve que l'étude de sujets académiques peut parfois être aussi excitante qu'un bon roman ou un film.	I think that academic topics can be as exciting as novels or films	Je trouve qu'étudier pour mon diplôme peut parfois être aussi excitant qu'un bon roman ou film.
48) I usually become increasingly absorbed in my work the more I do.	Plus je travaille plus Je deviens absorbé par mon travail.	The more I work the more I am absorbed by my work	Plus je travaille plus je deviens absorbé par celui-ci.
49) I generally restrict my study to what is specially set as I think it is unnecessary to do anything extra.	En général, je limiterai mon étude de ce qui est spécialement prévu par le cursus car je pense qu'il est inutile de faire un extra.	In general , I limit my study to what I've been asked for and I don't do any extra work	En général, je limite mon travail à ce qui est spécialement aménagé car je pense qu'il est inutile d'en faire plus.
50) I almost resent having to do further years studying after leaving school, but feel that the end results make it all worthwhile.	J'étais contrarié d'avoir à faire de nouvelles années à étudier après avoir quitté l'école, mais j' estime que les résultats finaux en valent la peine.	I was disappointed that I had to continue more years of study but I think the degree worth it	J'étais contrarié à l'idée de faire encore des années d'études en quittant le lycée, mais trouve que les résultats font que ça en vaut la peine.
51) I see getting high marks as a kind of competitive game, and I play it to win.	Avoir des notes élevées est comme une sorte de jeu de concurrence, et je joue pour gagner.	I see grades as a concurrential game, and I want to win	Je trouve qu'avoir des notes élevées est une sorte de compétition et je joue pour gagner.
I find it best to accept the statements and ideas of my teachers and question them only under special circumstances.	Je trouve qu'il vaut mieux accepter les déclarations et les idées de mes professeurs et de les interroger uniquement dans des circonstances particulières.	I think it is better for me to accept the ideas of my professors and to ask them only in particular situations.	Je trouve qu'il est préférable d'accepter les affirmations et les idées de mes professeurs et de les remettre en cause uniquement dans des circonstances particulières.
Whether I like it or not, I can see that further education is for me a good way to get a well-paid or secure job.	La formation continue est pour moi un bon moyen d'obtenir un emploi bien rémunéré ou sécurisé.	I think that continuous education is a good way for me to get a well paid job	Que je le veuille ou non, je trouve que les études supérieures sont un bon moyen d'avoir un travail bien rémunéré et la sécurité de l'emploi.
I try to relate new material, as I am reading it, to what I already know on the subject.	J'essaie de voir d'autres sources d'informations de cours, quand je les lis, j'ajoute à ce que je sais déjà sur le sujet.	I try to get new materials and to add them to what I already know	J'essaie de mettre en relation mes nouvelles documentations, quand je les lis, à ce que je sais déjà sur le sujet.
I keep neat, well organised notes for	Je garde des notes bien organisées pour la	I keep my notes for all topics all over the	Je garde des écrits bien organisés pour la

most subjects.	plupart des sujets.	year	plupart des sujets.
Please feel free to add any comments that you consider useful.	S'il vous plaît n'hésitez pas à ajouter tout commentaire que vous jugerez utiles.	Please don't hesitate to add all commentary you see useful	S'il vous plaît n'hésitez pas à ajouter tout commentaire que vous jugerez utile.
Please click to submit. [submit]	S'il vous plaît cliquez sur soumettre. [présenter]	Please click on submit	S'il vous plaît cliquer sur soumettre. [présenter]
For further information or for any enquiries about the questionnaire please contact Marouen Ben Guebila (education@ipsf.org) or Naoko Arakawa (naoko.arakawa.11@ucl.ac.uk).	Pour de plus amples informations ou pour toute question concernant le questionnaire s'il vous plaît contactez-Marouen Ben Guebila (education@ipsf.org) ou Naoko Arakawa (naoko.arakawa.11@ucl.ac.uk).	For more detailed information about the questionnaire please email Marouen Ben Guebila (education@ipsf.org) or Naoko Arakawa (naoko.arakawa.11@ucl.ac.uk)	Pour de plus amples informations ou si vous avez des questions à propos de ce questionnaire, veuillez contacter Marouen Ben Guebila (education@ipsf.org) ou Naoko Arakawa (naoko.arakawa.11@ucl.ac.uk).
Your data has been processed.	Vos données ont été traitées.	Your data has been processed.	Vos données ont été traitées.
Thank you for your contribution.	Nous vous remercions de votre contribution.	Thanks for your contribution	Nous vous remercions de votre contribution.

Appendix 4: Forward-back translation of the Student Learning Experience Survey (Japanese)

Original SLEQ	Forward translation (1)	Back translation (1)	Forward translation (2)	Back translation (2)	Final translated SLEQ
2013/14 FIPeD - IPSF Student Learning Experience Questionnaire	2013/2014 FIPeD - IPSF 学生の学習経験に関するアンケート	2013/2014 FIPeD - IPSF Questionnaire on Student's Learning Experience	2013/14 FIPeD - IPSF Student Learning Experience Questionnaire	2013/14 FIPeD - IPSF Student Learning Experience Questionnaire	2013/14 FIPeD - IPSF 学生の学習経験に関するアンケート
There is much interest in quality and standards of professional pharmacy education as health policy world-wide becomes more focussed on extending the roles of pharmacy practitioners to provide more effective medicines-related health services.	世界的な保健政策が、より効果的な薬物療法を提供するべく薬剤師の役割を拡大することに焦点をあてるようになってきたため、専門的な薬学教育の質と基準について関心が高まっています。	Since global health policy becomes more focussed on extending the role of pharmacists to provide more effective pharmacotherapy, the interest in quality and standards of professional pharmacy education is growing.	より効果的な医療関連の健康サービスを提供するために、世界的な健康政策は薬局薬剤師の役割を拡大する事に着目してきており、専門的な薬学教育の質と標準化への大きな関心がある。	To provide more effective medicine-related health service, health policies world-wide becomes more focussed on extending the role of community pharmacists, and there is much interest in quality and standardisation of professional pharmacy education.	より効果的な薬に関連する医療サービスを提供するために、世界的な保健政策は薬剤師の役割を拡大することに着目してきており、専門的な薬学教育の質と基準について大きな関心があります。
To achieve higher and equitable quality, the global infrastructure for pharmacy education needs to be mapped to the required competencies of pharmacy practitioners in order to meet the given health needs in any country.	より高レベルで公平な質を保つためには、どの国においても一定のニーズを満たすことのできる能力のある薬剤師を育てる薬学教育の世界的な基盤を作る必要があります。	To maintain higher and equitable quality, there is a need to make the global infrastructure for pharmacy education to produce pharmacists with the competences to meet the certain needs in any country.	より高度で公平な質を得るため、薬学教育のための世界的な基盤は薬局薬剤師に求められている資格に対して設計される必要がある。	To gain higher and equitable quality, the global infrastructure for pharmacy education needs to be designed to the required certifications of community pharmacy practitioners.	より高度で公平な質を実現するためには、薬学教育の世界的な基盤は、どの国においても与えられた保健ニーズを満たすために必要とされる実務薬剤師の能力に対して策定する必要があります。
As students are at the centre of pre-service education, their input is important in the development of educational policies and practices.	学生は就業前教育の中心にいますので、学生の意見は教育政策やその実施における発展において重要です。	As students are at the centre of pre-service education, their opinions are important in the development of educational policies and practices.	学生は実務前教育の中心として位置づけられており、教育政策と実践の開発において彼らの情報は重要である。	As students are placed at the centre of pre-service education, their information is important in the development of educational policies and practices.	学生は就業前教育の中心にあり、教育政策と実務の発展において学生の情報は重要であり、
It is of interest to survey the student learning	学生の学習経験を調査することは興味深いことで	It is of interest to survey the students' learning	学生の学習経験を調査する事は興味深い。	It is of interest to survey the students' learning	学生の学習経験を調査することは興味深いことで

experience.	す。	experiences.		experiences.	す。
“FIPEd - IPSF Student Learning Experience Questionnaire” is the continuation of Moving On II, which was a project with the main focus on the pharmacy students’ perceptions on their degree (data being collected since 2004 by IPSF) and now was revised to include the students’ ways of studying about their degree as well as the original Moving On II questionnaire.	「FIPEd - IPSF 学生の学習経験に関するアンケート」は Moving On II という薬学生のコースに対する認識に焦点をあてたプロジェクト（データは IPSF によって 2004 年から収集されました）の続きであり、今回はもとの Moving On II の質問に、学生の勉強方法に関する質問を加えて改訂したものです。	“FIPEd - IPSF Student Learning Experience Questionnaire” is the continuation of Moving On II, which was a project with the focus on the pharmacy students’ perceptions on their degree (data has been collected since 2004 by IPSF) and now was revised and included the questions related to the students’ ways of studying as well as the original Moving On II questions.	“FIPEd - IPSF 薬学生学習経験に関するアンケート”は継続中の Moving On II で、これは主に学位に対する薬学生の考え（IPSF によって 2004 年からデータが収集されている）に着目したプロジェクトだったが、学生が学位について学ぶ方法を元の Moving On II アンケートに入れるために修正された。	“FIPEd - IPSF Pharmacy Student Learning Experience Questionnaire” is on-going Moving On II, which was a project with the focus on the pharmacy students’ way of thinking mainly on their degree (data has been collected since 2004 by IPSF) and was revised to include the way that students study about their degree in the original Moving On II questionnaire.	「FIPEd - IPSF 学生の学習経験に関するアンケート」は Moving On II という主に薬学生の学位に対する認識に着目したプロジェクト（IPSF によって 2004 年からデータが収集されている）の続きであり、今回、その学位に於ける学生の勉強方法を元の Moving On II のアンケートに加え改訂されました。
The new additions to the questionnaire will enable the retrieval of better evidence on how students perceived their learning experiences throughout their degree.	今回の質問の追加によって、学生がコースを通して、学習経験についてどのように考えているか、よりよいデータを得ることができます。	By the addition of the questions this time, we are able to obtain the better data on how students consider their learning experiences throughout their degree.	アンケートへの新規追加は、学位を通じた学習経験を学生がどのように受け止めたかについて、より良いエビデンスを引き出すことができるだろう。	The new additions to the questionnaire will enable the retrieval of better evidence on how students perceived their learning experiences through their degree.	アンケートへの新規追加は、学位を通して学生がどのように自身の学習経験を受け止めたかについて、より良いエビデンスを引き出すことを可能にするでしょう。
Therefore, this “FIPEd - IPSF Student Learning Experience Questionnaire” allows world-wide comparisons and mapping of the learning experiences and the quality of learning of students enrolled in pharmacy programmes.	この「FIPEd - IPSF 学生の学習経験に関するアンケート」によって世界的な比較と、学習経験と薬学課程に入学した学生の学習の質の位置づけができるようになります。	This “FIPEd - IPSF Student Learning Experience Questionnaire” enables us to compare globally and to map the learning experience and the quality of learning of students enrolled in pharmacy programmes.	従って、“FIPEd - IPSF 薬学生学習経験に関するアンケート”は、世界中の比較と、学習経験と薬局プログラムに組み入れられた学生の学習の質のマッピングを可能とする。	Therefore, “FIPEd - IPSF Pharmacy Student Learning Experience Questionnaire” allows world-wide comparisons and mapping of the learning experiences and the quality of learning of students who are incorporated into the community pharmacy programmes.	したがって、この「FIPEd - IPSF 学生の学習経験に関するアンケート」は、世界的な比較と、学習経験と薬学課程に入学した学生の学習の質の解析を可能とします。
It is the largest study of its type to date.	これまでで最大規模の研究です。	It is the largest study to date.	今までで最大のそのタイプの研究である。	It is the largest of study of its type to date.	これまでで、そのタイプでは最大規模の調査であ

					り、
Data collected will provide an evidence for education advancement.	収集されたデータは教育の向上のための根拠となります。	Data collected will be an evidence for education advancement.	収集されたデータは教育改善のためのエビデンスを提供する。	Collected data will provide an evidence for education improvement.	収集されたデータは教育の向上のためのエビデンスを提供するでしょう。
This is a global project, supported by FIP Education Initiatives (FIPEd) Development Team (http://www.fip.org/pharmacy_education) and International Pharmaceutical Students' Federation (IPSF: http://www.ipsf.org/).	これは FIP Education Initiatives, (FIPEd) Development Team (http://www.fip.org/pharmacy_education) と International Pharmaceutical Students' Federation (IPSF: http://www.ipsf.org/) 後援による世界的なプロジェクトです。	This is a global project supported by FIP Education Initiatives (FIPEd) Development Team (http://www.fip.org/pharmacy_education) and International Pharmaceutical Students' Federation (IPSF: http://www.ipsf.org/).	これは FIP 教育イニシアチブ (FIP Ed) の開発チームと国際薬学生会 (IPSF) の支持された世界的なプロジェクトである。	This is a global project supported by FIP Education Initiatives (FIPEd) Development Team and International Pharmaceutical Students' Federation (IPSF).	これは FIP 教育イニシアチブ (FIPEd) の開発チーム (http://www.fip.org/pharmacy_education) と国際薬学生連盟 (IPSF: http://www.ipsf.org/) の後援を受ける世界的なプロジェクトです。
Click here to start.	ここをクリックしてスタートして下さい。	Click here to start.	ここをクリックしてスタートして下さい。	Click here to start.	ここをクリックしてスタートして下さい。
Thank you for your contribution.	ご協力お願いします。	Thank you for your contribution.	ご協力ありがとうございます。	Thank you for your contribution.	ご協力ありがとうございます。
For further information or if you have any enquiries about this questionnaire please contact Marouen Ben Guebila (education@ipsf.org) or Naoko Arakawa (naoko.arakawa.11@ucl.ac.uk).	この質問票に関するお問い合わせは Marouen Ben Guebila か Naoko Arakawa まで。	For any enquiries about this questionnaire, please contact Marouen Ben Guebila or Naoko Arakawa.	このアンケートについての質問がありましたら Marouen Ben Guebila か Naoko Arakawa に連絡してください。	If you have any enquiries about this questionnaire, please contact Marouen Ben Guebila or Naoko Arakawa.	このアンケートに関する更なる情報やお問い合わせは Marouen Ben Guebila (education@ipsf.org) か Naoko Arakawa (naoko.arakawa.11@ucl.ac.uk) までご連絡下さい。
Instructions	記入にあたってのお願い	Requests for your filling in	はじめに	Introductions	はじめに
Please think about your pharmacy degree and your ways of studying about your degree in general.	薬学課程と学位取得のための勉強方法について一般的に考えてください。	Please think about the pharmacy degree and the ways of studying to obtain the degree in general.	薬学の学位と一般的に学位について勉強する方法について考えてください。	Please think about the pharmacy degree and the way of studying about the degree in general.	あなたの薬学課程とその課程における学習方法について一般的に考えて下さい。
Think about your whole degree and not just about individual subjects, topics	アンケートに回答する際は、特定の科目、トピック、先生についてはな	Please think about the whole degree and not about specific subjects,	このアンケートに回答する際は、個別の科目や話題、教員についてだけで	Please think about not only individual subjects, topics, or teachers, but only the	このアンケートに回答する際には、個別の科目・トピック・教員について

or teachers/lecturers when answering this questionnaire.	くコース全体について考えてください。	topics, or teachers when answering this questionnaire.	なく、学位全体として考えてください。	whole degree when answering this questionnaire.	ではなく、課程全体について考えて下さい。
This is an anonymous questionnaire and no one will be able to identify you.	このアンケートは匿名で、個人を特定することはできません。	This questionnaire is anonymous and no one will be able to identify you.	これは匿名化されたアンケートで、あなた個人を特定できません。	This is an anonymous questionnaire and no one will be able to identify you.	これは匿名のアンケートで、あなた個人を特定することはできません。
Please answer honestly.	正直に回答してください。	Please answer honestly.	正直に答えてください。	Please answer honestly.	正直に回答して下さい。
Your responses are confidential and will not be seen by your teachers or university.	回答は個人を特定して公表されることはなく、先生や大学に見られることはありません。	Your responses will not be announced with identifying individuals, and will not be seen by your teachers or university.	あなたの回答は部外秘で、先生や大学が見ることはありません。	Your responses are confidential, and teachers or universities will not see yours.	あなたの回答は部外秘で、あなたの先生方や大学に見られることはありません。
Please follow the directions and answer all questions.	説明に従ってすべての質問に回答してください。	Please follow the directions and answer all questions.	手引きに沿って、全ての質問に回答してください。	Please follow the guidance and answer all questions.	説明に従って全ての質問に回答して下さい。
This questionnaire should take no more than 10-15 minutes of your time.	このアンケートは10-15分程度で終わります。	This questionnaire will be finished within about 10-15 minutes.	このアンケートは 10-15分程度です。	This questionnaire takes about 10-15 minutes.	このアンケートは 10-15分以上かかりません。
Your contribution is highly valued, and we appreciate your time and effort.	あなたの回答は非常に価値あるものですので、ご協力お願いします。	Your response is very valued; so, please support this survey.	あなたの貢献は非常に貴重であり、あなたの時間と労力に感謝します。	Your contribution is very valued, and we appreciate your time and effort.	あなたの貢献は非常に貴重であり、あなたの時間と労力に感謝します。
The Demographic Questions	回答者本人に関する質問	The questions on a respondent	回答者についての質問	The questions on a respondent	回答者本人に関する質問
1. Country of birth	出身国	Country of birth	出身国	Country of birth	出身国
● Please select (Enter if not listed)	選択 (リストになければ入力)	Select (Enter if not listed)	-	-	選択して下さい (リストになければ入力して下さい)
2. Country of study	勉強している国	Country of study	学習した国	Country of study	勉強している国
3. University (in your language)	大学(母国語で)	University (in your language)	大学(母国語で)	University (in your language)	大学(母国語で)
4. University (in English)	大学(英語で)	University (in English)	大学(英語で)	University (in English)	大学(英語で)
5. Faculty	学部	Faculty	学部	Faculty	学部
● if applicable	該当する場合	If applicable	-	-	該当する場合
6. Age	年齢	Age	年齢	Age	年齢

● Please enter one-byte numbers	半角数字で入力して下さい	Please enter one-byte numbers	-	-	半角数字で入力して下さい
7. Gender	性別	Gender	性別	Gender	性別
● Female	女性	Female	-	-	女性
● Male	男性	Male	-	-	男性
8. Year of Study (consider 7 as internship/pre-registration)	学年 (7: インターンシップ/登録前トレーニング)	Year of study (7: internship/pre-registration training)	学年 (7: インターンシップ/登録前トレーニング)	Year of study (7: internship/pre-registration training)	学年 (7: インターンシップ/登録前トレーニング)
9. Do you hold a previous degree?	以前学位を取得していますか	Have you hold a degree previously?	前の学位を持っていますか?	Do you have a previous degree?	以前に学位を取得していますか?
● Yes	はい	Yes	はい	Yes	はい
● No	いいえ	No	いいえ	No	いいえ
10. Do you have a part time job while also studying?	勉強の傍ら、アルバイトをしていますか	Do you have a part time job while also studying?	勉強中パートタイムで働いていますか?	Do you have a part time job while also studying?	勉強の傍ら、アルバイトをしていますか?
11. Has gender influenced your decision to study Pharmacy?	薬学を学ぶと決めるにあたって、性別は影響しましたか	Has gender influenced when you decided to study pharmacy?	薬学を勉強するためのあなたの決断に性別は影響しましたか?	Has gender influenced your decision to study pharmacy?	薬学を学ぶというあなたの決断に性別は影響しましたか?
● Positive influence	プラスに影響	Positive influence	勉強する方へ影響	Influence to study	プラスに影響
● Negative influence	マイナスに影響	Negative influence	勉強しない方へ影響	Influence not to study	マイナスに影響
● No influence	影響しなかった	No influence	影響しない	No influence	影響しなかった
12. Have you always wanted to be a pharmacist? (e.g., did you consider becoming a pharmacist at high school?)	ずっと薬剤師になりたいかったですか (高校生の時に薬剤師になろうと考えましたか)	Have you always wanted to be a pharmacist? (did you consider becoming a pharmacist when you are a high school student?)	ずっと薬剤師になりたいかと思っていましたか? (例えば、高校の時に薬剤師を志望したか?)	Have you always thought that you wanted to be a pharmacist? (e.g., did you desire to become a pharmacist when you are in high school?)	ずっと薬剤師になりたいかったですか? (例えば、高校の時に薬剤師になろうと考えましたか?)
13. Do you have any family member or close friend who is a pharmacist?	家族や親しい友人に薬剤師はいますか	Do you have any family member or close friend who is a pharmacist?	家族や親しい友人で薬剤師の人はいますか?	Do you have any family member or close friend who is a pharmacist?	家族や親しい友人で薬剤師の人はいますか?
14. Were you encouraged by your family to	薬学を勉強するよう家族に勧められましたか	Were you encouraged to study pharmacy by your	家族から薬学を勉強するよう勧められましたか?	Were you encouraged to study pharmacy by your	家族から薬学を勉強するよう勧められましたか?

study pharmacy?		family?		family?	
15. At the moment, in which area of the professional practice would you most like to work?	現段階ではどの分野で働きたいと思っていますか	At the moment, in which area of practice would you most like to work?	現時点で、あなたはどの専門実務領域で働きたいですか？	At the moment, in which area of the professional practice would you like to work?	現時点で、あなたはどの専門実務領域で働きたいですか？
● Community pharmacy	地域薬局	Community pharmacy	地域薬局	Community pharmacy	地域薬局
● Hospital pharmacy	病院	Hospital	病院薬剤部	Hospital pharmacy	病院薬剤部
● Industry/wholesale/marketing	製薬会社・卸業者・販売	Industry/wholesaler/marketing	製薬企業・卸・小売り	Industry/wholesale/retail	製薬企業・卸・販売
● Academia + Research	教育と研究	Education + research	学者・研究者	Academia, researcher	学術+研究
● Outside the profession (not pharmacy related)	専門外（薬学に関係しない）	Outside the profession (not pharmacy related)	専門外（薬学と関連無し）	Outside the profession (not pharmacy related)	専門外（薬学と関連無し）
● Other (pharmacy related)	その他（薬学に関係する）	Other (pharmacy related)	その他（薬学関連）	Other (pharmacy related)	その他（薬学関連）
16. Please choose THREE categories which best represent your motivations to study pharmacy.	あなたが薬学を勉強しようと思った動機をあらわしているものとしてあてはまるものを3つ選んでください。	Please choose three which best represent your motivations to study pharmacy.	薬学を勉強する動機としてもっとも当てはまるものを3つを選んでください。	Please choose three which best represent your motivations to study pharmacy.	薬学を勉強する動機としてもっとも当てはまるものを3つを選んでください。
1) Interest in science	科学に興味があった	Interested in science	科学への興味	Interest in science	科学への興味
Interest in, like of, and aptitude for science, biology, and math, for example	科学、生物、数学に興味があった、もしくは得意だった	Interested in, or good at science, biology, and math	科学、生物学、数学などへの興味や適正	Interest in or aptitude for science, biology, or math.	例として、科学、生物学、数学などへの興味、好み、又は適性
2) Contribution to healthcare	医療に貢献したかった	Wanted to contribute to healthcare	健康医学への貢献	Contribution to health medicine	医療への貢献
Desire to help people; and interest in healthcare and in teamwork with other health professionals	人々を助けたいと思っていた、医療そのものや他の医療従事者とチームで働くことに興味があった	Thought wanting to help people, interested in healthcare itself or in working with other healthcare professionals in team.	人助けすることの熱意、医療や医療関連専門家との共同作業への関心	Desire to help people; and interest in healthcare and in teamwork with health-related professionals	人助けすることへの熱意、医療や他の医療従事者とチームで働くことへの関心
3) Financial and economic aspects	金銭面、経済的な側面	Financial and economic aspects	経済的な側面	Economic aspects	金銭面、経済的な側面
Opportunities for earning a	いい給料や実質的な報酬	There are opportunities to	良い給料や物質的な報酬	Opportunities for a good	良い給料や物質的な報酬

good salary and material rewards	を得る機会がある	earn a good salary and material rewards.	の機会	salary or material rewards	を得る機会
4) Work-life balance expectation	仕事とプライベートの両立への期待	Expectation for combining work with private life	ワークライフバランスへの期待	Expectation of Work-life balance	仕事と生活の両立（ワーク・ライフ バランス）への期待
Balancing a personal and family life with a career; flexibility of work situations in pharmacy; and workload expectation in pharmacy school	個人もしくは家族との生活と仕事とのバランス、薬局での勤務は融通が利く、大学での勉強量に対する期待	Balance between a personal or family life and work, work in pharmacy is flexible, workload expectation in university	個人／家族の生活と仕事のバランスを取ること、薬局における仕事環境の柔軟性、薬学部における仕事量予想	Balancing a personal/family life with work; flexibility of working environment in pharmacy; and workload expectation in pharmacy school	個人や家族の生活と仕事とのバランスを取ること、薬局における仕事状況の柔軟性、薬学部における勉強量に対する予想
5) Professional and vocational career	専門的な仕事	Professional work	専門・職務の経歴	Career of profession and duties	専門・職業の経歴
Social prestige; respected profession; and professional status	社会的評価、尊敬される専門職である、専門職としての立場	Social value; respected profession; and professional position	社会的な名声、尊敬される専門、専門的地位	Social prestige; respected profession; and professional status	社会的な名声、尊敬される専門、専門職としての地位
6) Future career opportunities	仕事の将来性	Potential for career	将来の職業機会	Future career opportunities	将来の職業機会
Job security; variety of career opportunities; and a desire to own their own business	安定している、さまざまな分野で働ける、自分で事業を始めたい	Stability; enable to work in various areas; and wanting to start their own business	雇用保証、職業機会の多様性、自分のビジネスを保有することの希望	Job security; variety of career opportunities; and a desire to own their own business	雇用保障、職業機会の多様性、自分の事業を保有することへの希望
7) Personal and family influences	個人的、家族の影響	Personal and family influences	個人的・家族からの影響	Personal and family influences	個人的、家族の影響
Influence from family, other relatives, personal friends, college instructor/advisor, high school counsellor, role models pharmacists, or other healthcare professionals; personal experiences; and previous job experiences	家族、親戚、友人、高校の先生、手本となる薬剤師やその他の医療従事者の影響、個人の経験、以前の職場での経験	Influence from family, other relatives, friends, teachers in high school, role model pharmacists, and the other healthcare professionals; personal experiences; and previous work experiences	家族や親族・友人・教員・高校のカウンセラー・薬剤師見習いやその他の医療専門家からの影響、個人の経験、前職の経験	Influence from family, other relatives, friends, teachers, high school counsellor, apprentices of pharmacists, other healthcare professionals; personal experiences; and previous work experiences	家族、親族、個人的な友人、教員、高校のカウンセラー、手本となる薬剤師やその他の医療従事者からの影響、個人の経験、前職の経験
8) Personal development and fulfilment	自分自身の成長と達成感	Personal development and accomplishment	自己啓発、自己実現	Personal development and fulfilment	自己啓発・自己実現

Being independent; continuing professional development; job satisfaction; achievement in life; and fulfilment to enter higher education	独立したい、生涯学習、仕事に対する満足感、人生の中での達成感、高等教育に進学することの達成感	Wanting to be independent; lifelong learning; job satisfaction; achievement in life; and fulfillment to enter higher education	独立すること、専門的発展を継続すること、働きがい、人生における満足感、高学歴の達成	Being independent; continuing professional development; job satisfaction; satisfaction in life; and fulfilment of higher academic background	独立すること、専門の継続発展、働きがい、人生における達成感、高等教育に進学することの達成感
For each of the following statements, please choose ONE category which the most appropriately reflects your response.	次の質問に対して、最もあなたの考えに近いものを選んでください。	Please choose one answer that is the most similar to your thought for next question.	以下の各項目について、あなたの考えを最も適切に反映している区分の一つを選んでください。	For each of the following items, please choose one category which the most appropriately reflects your thought	以下の各項目について、あなたの考えを最も適切に繁栄している区分の一つを選んでください。
<i>Please note that the word "degree" refers to your university course, degree, or diploma to be a pharmacist in your country.</i>	ここでいう「コース」とは薬剤師になるための薬学学部課程のことをさします。	The word "course" refers to pharmacy undergraduate programme to be a pharmacist	「学位」とは、あなたの国で薬剤師と成るための大学コース、学位、資格を指す。	"Degree" refers to university course, degree, or certification to become a pharmacist in your country.	「学位」という単語は、あなたの国で薬剤師になるための大学のコース、学位、ディプロマを指すということに留意してください。
Experience	経験	Experience	経験	Experience	経験
Strongly agree	強くそう思う	Strongly agree	非常にそう思う	Strongly agree	非常にそう思う
Agree	そう思う	Agree	そう思う	Agree	そう思う
Neither agree nor disagree	どちらでもない	Neither agree nor disagree	どちらとも言えない	Neither agree nor disagree	どちらとも言えない
Disagree	そうは思わない	Disagree	そう思わない	Disagree	そう思わない
Strongly disagree	全くそう思わない	Strongly disagree	非常にそう思わない	Strongly disagree	全くそう思わない
1) It is always easy to know the standard work expected for my degree.	コースに求められている勉強の基準を理解するのは常に容易だ。	It is always easy to understand the standard of study expected for my course.	学位に必要とされる標準的な仕事を知ることは常に簡単である	It is always easy to know the standard of work expected for my degree	この学位に求められている標準的な勉強を知ることは常に容易だ。
2) This degree has helped me to develop my problem-solving skills.	このコースは問題解決能力を向上させるのに役立つ。	This course has helped me to improve my problem-solving skills.	学位は私の問題解決能力を磨くのに役立った	The degree has helped me to improve my problem-solving skills.	この学位は私の問題解決能力を向上させるのに役立つ。
3) There are NOT many opportunities (in terms of optional	特定の分野を勉強するための機会(選択科目)はあまり多くない。	There are not many opportunities (elective subjects) to study	勉強する特定の分野を選ぶ機会は多くない(選択科目)	There are not many opportunities to choose particular area to study	選択科目の観点から、勉強する特定の分野を選ぶ機会はあまり多くない。

subjects/elective courses) to choose particular areas to study.		particular areas.		(elective subjects).	
4) The teachers of this degree motivate students to do their best work.	このコースの講師陣は、学生達に最大限の努力をするよう励ます。	The teachers in this course encourage students to do their best work.	学位に係る教員は学生がよく勉強できるよう学生をやる気にさせている	The teachers in the degree motivate students to study hard.	この学位の講師陣は学生に最大限の努力をするよう意欲を起こさせる。
5) The workload is too heavy.	勉強量が多すぎる。	The workload is too heavy.	勉強量が多すぎる	The workload is too heavy.	勉強量が多すぎる。
6) This degree has improved my analytical skills.	このコースは自分の統計のスキルを向上させた。	This course has improved my statistical skills.	学位は私の分析能力を向上する	Degree improves my analytical skills.	この学位は私の分析能力を向上させた。
7) Teachers here frequently give the impression they have nothing to learn from the students.	講師陣はよく、「学生から学ぶことは何もない」といった印象を与える。	The teachers often give the impression that they do not have anything to learn from students.	先生達は、自分たちは学生から学ぶ事はない、という印象をよく与えている	Teachers often give the impression they have nothing to learn from students.	ここの講師陣は、自分達は学生から学ぶことは何もない、という印象をよく与える。
8) You usually have a clear idea of where you are going and what is expected of you.	どこに向かっていて、何を期待されているのか、という明確な考えを持っている。	I have a clear idea of where you are going and what is expected of you.	あなたは普段から自分が何をしようとしていて、何を期待されているかということについて明確な考えがある	You usually have a clear idea of what you are going to do and what is expected of you.	あなたは普段から、自分がどこに向かっていて、何を期待されているか、ということについて明確な考えを持っている。
9) Teachers at my university put in a lot of time on feedback of student's work.	自分の大学の講師陣は学生の課題のフィードバックに多くの時間を費やす。	The teachers at my university spend a lot of time on feedback of students' work.	大学の先生達は、学生の勉強に関するフィードバックに多くの時間をかけている	Teaches at university spend a lot of time on feedback of students' study.	自分の大学の講師陣は、学生の課題に関するフィードバックに多くの時間を費やす。
10) To do well on this degree all you really need is a good memory.	このコースで本当に必要なのは記憶力だ。	All you need in this course is a memory.	この学位を上手にこなすためにあなたが本当に必要なものは、よい記憶力である	To do well on this degree all you really need is a good memory.	この学位を上手にこなすためにあなたが本当に必要なものは、良い記憶力である。
11) This degree has helped to develop my ability to work as a team member.	このコースは、チームで働くための能力を向上させるのに役立った。	This course has helped me to develop my ability to work in a team.	この学位はチームの一員として働くための能力を磨くのに役立った	This degree has helped me to develop my ability to work as a member in a team.	この学位は、チームの一員として働くための能力を向上するのに役立った。
12) As a result of doing	このコースを通して、未	Throughout this course, I	この学位をとる結果とし	As a result of gaining this	この学位の履修する結果

<p>this degree, I feel more confident about approaching/solving unfamiliar problems.</p>	<p>知の問題に対するアプローチや解決方法に自信が持てるようになった。</p>	<p>felt more confident about my approach to, or solution of unfamiliar problems.</p>	<p>て、私は馴染みのない問題に取り組み・解決することについて、より自信をもっている</p>	<p>degree, I feel more confident about approaching/solving unfamiliar problems.</p>	<p>として、私は馴染みのない問題に取り組み・解決することについてより自信を持っている。</p>
<p>13) This degree has improved my written communication skills.</p>	<p>このコースは自分の文章力を向上させた。</p>	<p>This course has improved my writing skills.</p>	<p>この学位は文章でのコミュニケーション能力を改善した</p>	<p>This degree has improved my communication skills in writing.</p>	<p>この学位は自分の文章でのコミュニケーション能力を向上させた。</p>
<p>14) It seems to me that the curriculum content tries to cover too many topics.</p>	<p>カリキュラムの内容は、多くの項目を網羅しようとしすぎているように感じられる。</p>	<p>It seems to me that the curriculum content tries to cover many categories.</p>	<p>カリキュラムの内容はあまりに多くの話題を網羅しようとしすぎているように思う</p>	<p>It seems to me that the curriculum content tries to cover too many topics.</p>	<p>カリキュラムの内容はあまりに多くの話題を網羅しようとしすぎているように感じられる。</p>
<p>15) The degree has encouraged me to develop my own academic interests as far as possible.</p>	<p>このコースは、できる限り自分自身の学問に対する関心を高めようという気持ちを強くさせた。</p>	<p>This course has strengthened my feeling trying to develop my own academic interests as much as possible.</p>	<p>学位はできる限り学術的な興味を養うことを唆がした</p>	<p>The degree has encouraged me to develop my academic interests as far as possible.</p>	<p>学位は、出来る限り自分自身の学術的な興味を高めるよう促した。</p>
<p>16) Students have a great deal of choice over how they are going to learn in this degree.</p>	<p>学生には、このコースにおいてどのように学んでいくかという点について、たくさんの選択肢がある。</p>	<p>Students have a lot of choice over how they are going to learn in this course.</p>	<p>学生はこの学位でどのように学ぶかということについて多くの選択肢がある</p>	<p>Students have a lot of choices over how they learn in this degree.</p>	<p>学生はこの学位においてどのように学んでいくかという点について多くの選択肢がある。</p>
<p>17) Teachers seem more interested in testing what you have memorised than what you have understood.</p>	<p>講師陣は、学生たちが何を理解したかではなく、何を暗記したかを試験で問うことに興味があるようだ。</p>	<p>Teachers seem more interested in asking what students have memorized rather than what students have understood in the exams.</p>	<p>先生は何を理解したかよりも何を記憶したかという試験をしたがるようだ</p>	<p>A teacher seems want to test what you have memorised rather than what you have understood.</p>	<p>講師陣は、あなたが何を理解したかではなく、何を記憶したかを試験することに、より興味をもっているようだ。</p>
<p>18) It is often hard to discover what is expected of you in this degree.</p>	<p>このコースにおいて自分に何が期待されているのかを理解しづらいことがよくある。</p>	<p>You often have difficulty understanding what is expected of you in this course.</p>	<p>この学位であなたが求められていることが何かを見いだすのは難しい</p>	<p>It is hard to discover what is expected of you in this degree.</p>	<p>この学位において、自分に期待されているのが何かを見いだすのは、多くの場合難しい。</p>
<p>19) We are generally given enough time to understand the things we have to</p>	<p>習ったことを理解するための十分な時間が与えられている。</p>	<p>I am given enough time to understand the things I have learnt.</p>	<p>私達は一般的に学習したことを理解するための十分な時間を与えられている</p>	<p>We are generally given enough time to understand what we have learnt.</p>	<p>一般的に、学習しなければならぬことを理解するための十分な時間を与えられている。</p>

learn.					
20) The teachers at my university make a real effort to understand difficulties students may be having with their work.	自分の大学の講師陣は、学生たちが困っていることを理解しようと努力している。	The teachers at my university make an effort to understand difficulties that students have.	大学の先生は、学生が勉強で困っているかもしれない事を理解しようと本当に努力している	Teachers at university make a real effort to understand difficulties students may be having with their study.	自分の大学の講師陣は、学生が勉強で困っているかもしれない問題点を理解しようと本当に努力している。
21) Students here are given a lot of choice in the work they have to do.	どの課題をやるかについてはたくさんの選択肢があった。	There was a lot of choice to do which assignment.	この学生はすべき課題において多くの選択肢が与えられている	Students here are given a lot of choice in the work they have to do.	この学生は、すべき課題において多くの選択肢が与えられている。
22) Teachers at my school normally give helpful feedback on how you are doing.	自分の大学の講師陣は、たいていのためになるフィードバックをしてくれる。	The teachers at my university normally give helpful feedback to you.	わたしの大学の先生は、通常、どのようにあなたが過ごしているかについて有益な意見をあたえている	Teachers at my university normally give helpful opinions on how you are spending.	自分の大学の講師陣は、通常、どのようにあなたが勉強しているかについて有益なフィードバックを与えている。
23) Our teachers are extremely good at explaining things to us.	自分の大学の講師陣は、自分たちに物事を説明するのが本当に上手だ。	The teachers at my university are extremely good at explaining things to us.	わたしたちの先生は私たちに対して物事を説明するのが大変上手である	Our teachers are extremely good at explaining things to us.	我々の講師陣は、自分達に物事を説明するのが大変上手である。
24) The aims and objectives of this degree are NOT very clear.	このコースの目的はあまり明確ではない。	The objectives of this course are not very clear.	この学位の目標と目的はあまり明確ではない	The aims and objectives of this degree are not very clear.	この学位の目標と目的はあまり明確ではない。
25) Teachers at my university work hard to make subjects interesting.	自分の大学の講師陣は、授業を面白くさせようと努力している。	The teachers at my university work hard to make lectures interesting.	わたしの大学の先生は科目を興味深くしようと一生懸命に働いている	Teachers at my university work hard to make subjects interesting.	自分の大学の講師陣は、科目を面白くしようと一生懸命に取り組んでいる。
26) Too many teachers ask us just about the facts.	事実のみを学生に求める講師が多すぎる。	Too many teachers expect students to answer only the facts.	わたしたちに事実のみを訊ねる先生が多すぎる	Too many teachers ask us only about the facts.	私たちに事実のみを尋ねる先生が多すぎる。
27) There is a lot of pressure on you as a student here.	この学生であるということに大きなプレッシャーがかかっている。	There is a lot of pressure on being a student here.	あなたに対するこの学生としての重圧がある	There is a pressure on you as a student here.	この学生としての多くの重圧があなたにかかっている。
28) This degree has	このコースは自分自身の	This course has helped me	この学位は私自身の活動	This degree has helped me	この学位は私自身の活動

helped me develop the ability to plan my own work.	研究課題を見つけるのに役立った。	find my own theme for research.	を計画する能力を磨くのに役立った	to develop the ability to plan my own work.	を計画する能力を向上するのに役立った。
29) Feedback on student work is usually provided ONLY in the form of marks and grades.	学生の課題へのフィードバックは、通常点数によってのみ行われる。	Feedback on student assignment is normally provided only in the form of marks.	学生の課題に対するフィードバックはたいてい点数やグレードの形式だけで示される	Feedback on student work is usually provided only in the form of marks and grades.	学生の課題に対するフィードバックは通常点数や評価グレードの形式のみで示される。
30) We often discuss with our teachers how we are going to learn in this degree.	このコースでどのように学んでいくかについて講師たちとよく話し合う。	I often discuss with the teachers about how I am going to learn in this course.	私たちはしばしば先生と、この学位をどのように学んでいくかについて議論する	We often discuss with teachers how we are going to learn about this degree.	私たちは、この学位においてどのように学んでいくかについて、よく講師たちと話し合う。
31) Teachers at my university show no real interest in what students have to say.	自分の大学の講師陣は、学生たちが何を言うべきかに興味を示さない。	The teachers at my university show no interest in what students should say.	私の大学の先生は、学生が発言すべき事に本当の興味を示さない	Teachers at my university show no real interest in what students have to say.	自分の大学の講師陣は、学生が発言すべき事に本当の興味を示さない。
32) It would be possible to get through this degree just by working hard around exam times.	試験期間中に一生懸命勉強しさえすれば、このコースをやり遂げることは可能かもしれない。	It might be possible to complete this course just by studying hard during exam time.	この学位を取ることは、試験前に懸命に勉強するだけで可能だろう	It would be possible to obtain this degree only by studying hard before exams.	試験期間の辺りに一生懸命勉強するだけで、この学位をやり遂げることは可能だろう。
33) This degree really tries to get the best out of all its students.	このコースはすべての学生を最大限に活用しようとしている。	This course tries to make the best use of all students.	この学位は、学生の全ての力を引き出そうとする	This degree tries to get the best out of all its students.	この学位は、学生の全ての力を本当に引きだそうとしている。
34) There is very little choice in this degree in the ways you are assessed.	このコースには、学生を評価する方法の選択肢がほとんどない。	In this course, there is very little choice of ways to assess students.	この学位で、あなたが評価される方法はほとんどない	In this degree, there is very little way that you are assessed.	この学位には、あなたが評価される方法の選択肢がほとんど無い。
35) The teachers at my university make it clear right from the start what they expect from students.	自分の大学の講師陣は、学生に期待することをはじめから明らかに示している。	The teachers at my university clearly show what they expect from students from the start.	私の大学の先生は、学生から期待することを最初から明確にしている	Teachers at my university make it clear right from the start what they expect from students.	自分の大学の講師陣は、学生に期待することを本当に最初から明確にしている。
36) The amount of work you have to get through in this	このコースをやり遂げるためにこなさなければいけない勉強量が多すぎ	As the amount of work you have to carry out in order to complete this course is	この学位で行わなければいけない勉強量は、あなたが全てを詳細に	The amount of work you have to do in this degree is you show everything in	この学位でこなさなければならぬ勉強量は、あなたが全てを詳細に理解

degree means you cannot comprehend it all in detail.	て、すべてを深くは理解できない。	too much, you cannot understand all deeply.		detail.	することが出来ないということを示している。
37) Overall, I am satisfied with the quality of this degree.	全体的に見て、私はこのコースの質に満足している。	Overall, I am satisfied with the quality of this course.	全体として、私はこの学位の質に満足している。	Overall, I am satisfied with the quality of this degree.	全体的に見て、私はこの学位の質に満足している。
38) While I am studying, I often think of real life situations to which the material that I am learning would be useful.	勉強している間、私は実際の生活場면을想定してどのテーマが役に立ちそうかと考えることがよくある。	While I am studying, I often think of which theme seems helpful in the real life.	勉強している間、私は私が学んでいる内容が役立つような実生活場面を考えている	While I am studying, I think of real life situations to which the content I have learnt would be useful.	勉強している間、私は、私が学んでいる内容が役立つであろう実生活場面をよく考える。
39) I chose my present degree largely with a view to the job situation when I graduate rather than their intrinsic interest to me.	私は興味があったというよりも、主に卒業した時の仕事の状況という視点でこのコースを選んだ。	I chose this course from the view point mainly of working situation after graduating, rather than of my interest.	自分の内発的興味というよりも、主に卒業時点の仕事環境の観点から、私は今の学位を選択した。	I chose my present degree mainly with a view of the job situation when I graduate rather than my intrinsic interest.	私にとっての内発的な興味というよりも、主に卒業時点の仕事状況の観点から、私は今の学位を選んだ。
40) I find that at times studying gives me a feeling of deep personal satisfaction.	ときどき、勉強は大きな満足感を与えてくれる。	Studying sometimes gives me large satisfaction.	私は、勉強する事が折に触れて私に深い個人的な満足感を与えていると思う	I think that studying gives me a feeling of deep personal satisfaction at times.	私は、勉強する事が折に触れて私に深い個人的な満足感を与えていると思う。
41) I want top grades in most or all of my degree, courses, and classes so that I will be able to select from among the best positions available when I graduate.	卒業した時にもっともよい選択をできるように、トップクラスの成績を取りたい。	I want top grades to enable me to best select when I graduate.	卒業時に最善の職務の中から選択できるように、私は学位の全て或いは殆どにおいてトップの成績が欲しい。	I want top grads in most or all of my degree so that I will be able to select from among the best works when I graduate.	卒業時に最善の職務の中あら選択できるように、私は学位、コース、又はクラスの中で全て、或いは殆どにおいてトップの成績が欲しい。
42) I think browsing around is a waste of time, so I only study seriously what's given out in class or in course outlines.	いろいろと調べ物をするのは時間の無駄だと思うので、授業やコースで与えられたことだけを勉強する。	I study only things that I was given in lectures and courses as I think browsing various materials is a waste of time.	私はぶらぶらするのは時間の無駄だと思うので、授業や課程概要で示された事を真剣に勉強するだけである。	I think fiddling around is a waste of time, so I only study seriously what is given out in classes or course outlines.	私は、いろいろと調べ物をするのは時間の無駄だと思うので、授業や課程概要で示された事だけを真剣に勉強するだけだ。

43) I try to work consistently throughout the term and review regularly when the exams are close.	学期中を通してコツコツと勉強し、試験が近くなってきたら定期的に復習するように努力している。	I try to study consistently throughout the term and to review regularly when the exams are close.	私は学期を通じて常に勉強し、試験が終わる度に復習する。	I study consistently throughout the term and review regularly when the exams finished.	私は学期を通して常に勉強し、試験が近くなってきたら定期的に復習するように努めている。
44) I would see myself basically as an ambitious person and want to get to the top, whatever I do.	基本的には自分自身をやる気のある人だと思っているし、何をやるにしてもトップに行きたいと思う。	I see myself basically as an enthusiastic person and want to get to the top whatever I do.	私は自分のことを基本的に大志のある人間だと思うし、私がすることは何でもトップに立ちたい。	I see myself basically as an ambitious person and want to get to the top for whatever I do.	私は自分のことを基本的に大志のある人間だと思うし、何をやるにしてもトップに立ちたい。
45) I find that I have to do enough work on a subject so that I form my own point of view before I am satisfied.	自分が満足する前に自分自身の観点を作り上げるためにはたくさん勉強しなければいけないと気付いた。	I found that I have to study hard enough to form my own point of view before I am satisfied.	私は科目を十分勉強しなければならぬと気づいているので、私は自分が満足する前に自分の意見をまとめる。	I realise that I have to study subjects enough so that I form my own opinion before I am satisfied.	自分が満足する前に自分自身の観点を作り上げるためには、科目を十分勉強しなければならぬと思う。
46) I try to do all of my assignments as soon as possible after they have been set.	課題が出されたらできるだけ早くやるよう努力している。	I try to do assignment as soon as possible after they have been set.	私は、与えられたら出来るだけすぐに、宿題をするようにしている	I try to do my assignment as soon as possible after they have been given.	私は、出されたら出来るだけすぐに全ての課題をやるよう努めている。
47) I find that studying academic subjects can at times be as exciting as a good novel or film.	勉強することはときにより小説や映画のようにおもしろいと感じる。	I found that studying can sometimes be as interesting as a good novel or movie.	私は学術的な勉強は時に良い小説や映画のようによくわくわくすると思う	I think that the academic study can sometimes be as exciting as a good novel or film.	学術的な題目を勉強することは、時に良い小説や映画のように面白いと感じる。
48) I usually become increasingly absorbed in my work the more I do.	私は普段、やればやるほどますます勉強に夢中になってくる。	I usually become more absorbed in my study the more I do.	私はたいてい、やればやるほど、ますます勉強に夢中になる	I usually become more absorbed in my study the more I do.	私は普段、やればやるほど、ますます勉強に夢中になる。
49) I generally restrict my study to what is specially set as I think it is unnecessary to do anything extra.	余計なことはやる必要はないと思うので、特にやらなければいけないことだけをやるようにしている。	I try to do particularly what I have to as I think that there is no need to do unnecessary things.	私は余計なことをする必要はないと思うので、私は一般的に特に決められたことの勉強に限定する。	I think there is no need to do extra thing so that I generally restrict my study to what is specially set.	私はたいてい、余計なことはする必要はないと思うので、特に決められたことを勉強するよう制限する。
50) I almost resent having to do further	卒業した後もさらに数年間勉強しなければいけない	Although I get angry with the fact that I have to study	私は、学校を出た後何年も勉強しなければ行けな	Although I resent the fact that I have to study further	学校を出た後更に何年も勉強しなければいけない

years studying after leaving school, but feel that the end results make it all worthwhile.	いということには腹が立つが、結果的にはやりがいのあることだと感じている。	for further years after I graduate, I feel that it is worthwhile as the result.	いことをうらめしく思うところだが、最終的な結果はその分の価値があると感じる。	years after graduating from school, I feel that the results at the end is worthwhile.	いということには腹が立ちそうだが、私は最終的な結果はその分の価値があると思う。
51) I see getting high marks as a kind of competitive game, and I play it to win.	よい成績を取るということは一種の競争で、それに勝つために戦っている。	Getting high grades is like a kind of competition, and I play it to win.	私は高い点数をとることを競争ゲームのように捉えて、勝つためにプレイする	I consider getting high marks as if it is competitive games, and I play it to win.	私は高い点数をとることを一種の競争ゲームのように捉えており、勝つためにそれをプレイする。
52) I find it best to accept the statements and ideas of my teachers and question them only under special circumstances.	講師の発言や考えを受け入れ、特別な状況においてのみ異議を唱えるのが一番だ。	I think that it is the best to accept the statements and ideas of teachers and to express an objection only under special circumstances.	私は先生の発言や考えを受け入れることが最善だと考え、特別な状況下でのみ先生に質問する。	I think that accepting teachers' statements and thought is the best, and ask teachers questions only under special circumstances.	私は講師の発言や考えを受け入れることが最善だと考え、特別な状況下でのみ講師に質問する。
53) Whether I like it or not, I can see that further education is for me a good way to get a well-paid or secure job.	好きかどうかは別として、進学することは、高収入の安定した仕事を得るためには良い方法だ。	Whether I like it or not, further schooling is a good way to get a secure job with a high salary.	好き嫌いに関わらず、さらなる教育は私にとって高給或いは安定した仕事を得る良い手段だと思う	Whether I like it or not, I think that further education is a good way to get a well-paid or secured job.	好き嫌いに関わらず、更なる教育は私にとって高給或いは安定した仕事を得る良い手段だと思う。
54) I try to relate new material, as I am reading it, to what I already know on the subject.	その科目についてすでに知っていることと、今自分が読んでいる新しい題材とを関連付けようと努力している。	I try to relate new material that I am currently reading to what I have already known on the subject.	私は、既にその話題について知っている事に対して、新しい資料を読みながら関連づけるようにする。	I try to relate to what I have already known on the topic while I am reading the new material.	私は、自分が読んでいる新しい題材を、その科目について既に知っていることに関連づけるよう努める。
55) I keep neat, well organised notes for most subjects.	ほとんどの科目において、きれいで几帳面なノートをまとめている。	I make neat and meticulous notes for most subjects.	私は殆どの科目で、きれいな整理されたノートをとっている。	I make neat and well-organised notes for most subjects.	私はほとんどの科目で、きれいで整理されたノートをとっている。
Please feel free to add any comments that you consider useful.	何かコメントがあれば書いてください。	Please write any comments if you have.	-	-	何か有益であると思われるコメントがあれば自由に追加してください。
Please click to submit. [submit]	提出するにはクリックしてください。	Please click to submit.	-	-	提出するにはクリックしてください。[提出]
For further information or for any enquiries about the	この質問票に関するお問い合わせは Marwa	For further enquiries, please contact Marwa	-	-	このアンケートに関する更なる情報やお問い合わせ

questionnaire please contact Marwa Beltagy (education@ipsf.org) or Naoko Arakawa (naoko.arakawa.11@ucl.ac.uk).	Beltagy か Naoko Arakawa まで。	Beltagy or Naoko Arakawa.				せは Marouen Ben Guebila (education@ipsf.org) か Naoko Arakawa (naoko.arakawa.11@ucl.ac.uk)までご連絡下さい。
Your data has been processed.	あなたのデータは送信されました。	Your data has been processed.	あなたのデータは送信されました。	Your data has been processed.	あなたのデータは送信されました。	あなたのデータは送信されました。
Thank you for your contribution.	ご協力ありがとうございます。	Thank you for your contribution.	ご協力ありがとうございます。	Thank you for your contribution.	ご協力ありがとうございます。	ご協力ありがとうございます。

Appendix 5: Forward-back translation of the Student Learning Experience Survey (Mandarin-Chinese)

Original SLEQ	Forward translation	Back translation	Final translated SLEQ
2012/13 FIP <i>Ed</i> -IPSF Student Learning Experience Questionnaire	2012/13 FIP <i>Ed</i> -IPSF Student Learning Experience Questionnaire	2012/13 FIP <i>Ed</i> -IPSF Student Learning Experience Questionnaire	2012/13 FIP <i>Ed</i> -IPSF Student Learning Experience Questionnaire
There is much interest in quality and standards of professional pharmacy education as health policy world-wide becomes more focussed on extending the roles of pharmacy practitioners to provide more effective medicines-related health services.	當全球健康政策逐漸注重執業藥師的角色及其所提供有效的醫藥相關服務時，對於專業的藥學教育品質及標準也引起許多關注。	There is much interest in the quality and standard of professional pharmacy education, as global health policy becomes more focused on the role of pharmacy practitioners and the effective medical-related service provided.	當全球健康政策逐漸重視執業藥師的角色及其所提供的醫療相關服務時，對於專業藥學教育的標準及品質也引起許多關注。
To achieve higher and equitable quality, the global infrastructure for pharmacy education needs to be mapped to the required competencies of pharmacy practitioners in order to meet the given health needs in any country.	為了提高及均一各國醫療服務的品質，全球的基礎藥學教育需訂定執業藥師所需要具備的能力根據各國健康照護的需求。	To achieve higher and equitable quality of medical-related service between countries, the global infrastructure needs to map the required competencies of pharmacy practitioners to meet the need of healthcare in different countries.	對了提高及均一各國的醫療教育品質，全球的基礎藥學教育需要訂定執業藥師所需具備的基本能力來達到各國的健康照護需求。
As students are at the centre of pre-service education, their input is important in the development of educational policies and practices.	由於藥學生是服務前教育的核心，因此學生的意見對於教育政策的發展及實踐是相當重要的。	As students are the core of pre-service education, their information is very important in the development of educational policies and practices.	由於藥學生是服務前教育的中心，他們的意見對於教育政策的發展及實行是相當重要的。
It is of interest to survey the student learning experience.	這關注於調查各國學生的學習經驗。	It is of interest to survey student's learning experience.	因此關注於調查學生的學習經驗。
"FIP <i>Ed</i> -IPSF Student Learning Experience Questionnaire" is the continuation of Moving On II, which was a project with the main focus on the pharmacy students' perceptions on their degree (data being collected since 2004 by IPSF) and now was revised to include the students' ways of studying about their degree as well as the original Moving On II questionnaire.	"藥學生學習經驗問卷調查"是本企劃延續的第二部分，本企劃主要探討藥學生對於本科學位的觀念認知(資料由IPSF於2004年起搜集)，現階段需將學生的學習方式納入成為問卷調查的第二部分。	"Pharmaceutical Student Learning Experience Questionnaire" is the continuation of project Moving-on II, which is mainly focus on pharmacy students' perception on their degree (data were collected by IPSF since 2004) And now include the ways of learning into Moving-On II.	"藥學生學習經驗問卷調查"是 Moving-on II 計劃的延續，這個計劃主要針對藥學生對本科學位的觀念認知(資料由IPSF於2004年起蒐集)，現階段需將學生的學習方式納入本計劃，
The new additions to the questionnaire will enable the retrieval of better	新加入的問題將可以提供關於"藥學生對	New questionnaire will be able to provide higher level of evidence on students	新加入的問卷可以更確實的提供學生在

evidence on how students perceived their learning experiences throughout their degree.	於整體學習過程的認知“更有力的證據。	perceived learning experience throughout the degree.	課程中所認知的學習經驗，
Therefore, this “FIPed-IPSF Student Learning Experience Questionnaire” allows world-wide comparisons and mapping of the learning experiences and the quality of learning of students enrolled in pharmacy programmes.	因此，本問卷(縮寫)將可以提供全球性的比較，學習經驗以及於藥學系的學習品質。	Therefore, this questionnaire can provide comparisons globally, learning experience and the quality of learning in pharmacy education.	因此，本問卷可以提供全球性的比較，藥學教育的品質及學習經驗。
It is the largest study of its type to date.	這是目前關於此主題最大型的研究，	This is the largest study of its type so far.	這是目前關於此主題最大型的研究，
Data collected will provide an evidence for education advancement.	數據資料的收集將提供藥學教育發展的事實。	Data collection will provide evidence of pharmacy education advancement.	數據資料的收集將可提供藥學教育發展的現況。
This is a global project, supported by FIP Education Initiatives (FIPed) Development Team (http://www.fip.org/pharmacy_education) and International Pharmaceutical Students' Federation (IPSF: http://www.ipsf.org/).	這是一個全球性的計劃，由 FIP 教育倡部藥學教育專案小組 (FIP Education Initiatives, Development Team : http://www.fip.org/pharmacy_education) 以及國際藥學生聯合會 (International Pharmaceutical Students' Federation : http://www.ipsf.org/) 所支持。	This is a global project supported by FIP Education Initiatives, Development Team (http://www.fip.org/pharmacy_education) and International Pharmaceutical Students' federation (IPSF: http://www.ipsf.org/).	這是一個由世界藥學會教育計畫(FIPed)發展團隊 (http://www.fip.org/pharmacy_education)和國際藥學生聯合會(IPSF: http://www.ipsf.org/)所贊助的全球性研究。
Click here to start.	請選擇下列語言開始本問卷	Please select language below to start questionnaire	請選擇下列語言開始本問卷
Thank you for your contribution.	感謝您的參與	Thank you for your contribution.	感謝您的參與
For further information or if you have any enquiries about this questionnaire please contact Marouen Ben Guebila (education@ipsf.org) or Naoko Arakawa (naoko.arakawa.11@ucl.ac.uk).	若需要更進一步的資訊或對於本問卷有疑問請聯絡 Marouen Ben Guebila (education@ipsf.org) 或 Naoko Arakawa (naoko.arakawa.11@ucl.ac.uk)。	For further information or if you have any enquiries about this questionnaire please contact Marouen Ben Guebila (education@ipsf.org) or Naoko Arakawa (naoko.arakawa.11@ucl.ac.uk).	若需要更進一步的資訊或對於本問卷有疑問請聯絡 Marouen Ben Guebila (education@ipsf.org) 或 Naoko Arakawa (naoko.arakawa.11@ucl.ac.uk)。
Instructions	說明	Instructions	說明
Please think about your pharmacy degree and your ways of studying about your	回答問卷時，請用全面性的角度審視您的	When you answer questions, please think about your degree and the way of	回答問卷時，請用全面性的角度審視您的

degree in general. Think about your whole degree and not just about individual subjects, topics or teachers/lecturers when answering this questionnaire.	學位以及獲取此學位的方法，而非僅用單獨的授課內容或指導教授/老師為基準來回答。	learning about the degree in general rather than focus on specific lecture, topic or tutor/lecturer.	學位以及獲取此學位的方法，而非僅用單獨的授課內容或指導教授/老師為基準來回答。
This is an anonymous questionnaire and no one will be able to identify you.	請遵照指示誠實回答每個問題，	This is an anonymous questionnaire.	這是一份匿名的問卷，
Please answer honestly.	這是不記名的問卷，	Please answer honestly.	請誠實的作答。
Your responses are confidential and will not be seen by your teachers or university.	保密對象包括你的老師及學校。	Your responses are confidential and will not be seen by your teachers or university.	您的作答是機密的，並不會透漏給您的老師或是學校。
Please follow the directions and answer all questions.	請按照指示，並回答所有問題。	Please follow the directions and answer all questions.	請依序回答所有的問題。
This questionnaire should take no more than 10-15 minutes of your time.	此問卷預估會佔用 10-15 分鐘，	This questionnaire should take about 10-15 minutes of your time.	這份問卷預估會佔用您 10~15 分鐘的時間，
Your contribution is highly valued, and we appreciate your time and effort.	您的貢獻有很高的參考價值，非常感謝您的時間及付出。	Your contribution is highly valued, and we appreciate your time and effort.	您的貢獻有很高的參考價值，非常感謝您的時間及付出。
The Demographic Questions	基本資料	The Demographic Questions	基本資料
1. Country of birth	出生國家	Country of birth	出生國家
● Please select	請選擇	Please select	請選擇
● Enter if not listed	若無出現於列表請輸入	Enter if not listed	若無出現於列表請輸入
2. Country of study	修業國家	Country of study	修業國家
3. University (in your language)	大學校名 (以您的語言)	University (in your language)	大學校名 (以您的語言)
4. University (in English)	大學校名 (英文名)	University (in English)	大學校名 (英文名)
5. Faculty	科系	Faculty	系所
● If applicable	如果有的話	If applicable	如果有的話
6. Age	年齡	Age	年齡
● Please enter one-byte numbers	請以半形數字填寫	Please enter one-byte numbers	請以半形數字填寫
7. Gender	性別	Gender	性別

● Female	女	Female	女
● Male	男	Male	男
8. Year of Study (consider 7 as internship/pre-registration)	年級 (實習請選 7)	Year of Study (consider 7 as internship/pre-registration)	年級 (實習請選 7)
9. Do you hold a previous degree?	您有其他學位嗎 ?	Do you hold a previous degree?	你擁有其他學位嗎 ?
● Yes	有	Yes	有
● No	無	No	沒有
10. Do you have a part time job while also studying?	在課程期間是否有兼職 ?	Do you have a part time job while also studying?	在課程期間是否有兼職 ?
11. Has gender influenced your decision to study Pharmacy?	性別對於選擇藥學系有正面或負面的影響 ?	Has gender influenced your decision to study Pharmacy?	性別對於選擇藥學系有正面或負面的影響 ?
● Positive influence	正面	Positive influence	正面影響
● Negative influence	負面	Negative influence	負面影響
● No influence	沒有影響	No influence	沒有影響
12. Have you always wanted to be a pharmacist? (e.g., did you consider becoming a pharmacist at high school?)	一直都有想當藥師的想法? (例如 : 在高中的時候有考慮要當藥師?)	Have you always wanted to be a pharmacist? (e.g., did you consider becoming a pharmacist at high school?)	一直都有想當藥師的想法嗎? (例如 : 在高中的時候有考慮要當藥師?)
13. Do you have any family member or close friend who is a pharmacist?	有其他家庭成員是藥師嗎 ?	Do you have any family member or close friend who is a pharmacist?	有其他家庭成員或朋友是藥師嗎 ?
14. Were you encouraged by your family to study pharmacy?	家人有鼓勵您成為藥師嗎 ?	Were you encouraged by your family to study pharmacy?	家人有鼓勵您成為藥師嗎 ?
15. At the moment, in which area of the professional practice would you most like to work?	目前為止, 哪一個專業領域您最想涉獵 ?	So far, in which area of the professional practice would you most like to work?	目前為止, 哪一個專業領域您最想涉獵 ?
● Community pharmacy	社區藥局	Community pharmacy	社區藥局
● Hospital pharmacy	醫院藥局	Hospital pharmacy	醫院藥局
● Industry/wholesale/marketing	製藥/批發/銷售	Industry/wholesale/marketing	製藥/批發/銷售
● Academia + Research	學術研究	Academia + Research	教學 + 學術研究

● Outside the profession (not pharmacy related)	與藥學無相關	Outside the profession (not pharmacy related)	與藥學無相關
● Other (pharmacy related)	其他藥學相關	Other (pharmacy related)	其他藥學相關
16. Please choose THREE categories which best represent your motivations to study pharmacy.	請選擇三項最符合您學習藥學的動機	Please choose THREE categories that best represent your motivations to study pharmacy.	請選擇三項最符合您學習藥學的動機
1) Interest in science	對科學有興趣	Interest in science	對科學有興趣
Interest in, like of, and aptitude for science, biology, and math, for example	例如：有興趣，喜歡，以及對於生物科學或數學有天份	For example, interest in, like, and aptitude for science, biology, and math,	例如：有興趣，喜歡，以及對於生物科學或數學有天份
2) Contribution to healthcare	為健康照護有所貢獻	Contribution to healthcare	為健康照護有所貢獻
Desire to help people; and interest in healthcare and in teamwork with other health professionals	樂於助人；對於健康照護及與其他醫療專業的合作有興趣	Desire to help people; and interest in healthcare and in teamwork with other health professionals	樂於助人；對於健康照護及與其他醫療專業的合作有興趣
3) Financial and economic aspects	經濟因素	Financial and economic aspects	經濟因素
Opportunities for earning a good salary and material rewards	合理薪水及其他物質回饋	good salary and other material rewards	合理薪水及其他物質回饋
4) Work-life balance expectation	期望工作與生活的平衡	Work-life balance expectation	期望工作與生活的平衡
Balancing a personal and family life with a career; flexibility of work situations in pharmacy; and workload expectation in pharmacy school	事業與個人和家庭生活的平衡；在藥局工作的彈性；在藥學院的工作量	Balancing a personal and family life with a career; flexibility of work situations in pharmacy; and workload expectation in pharmacy school	事業與個人和家庭生活的平衡；在藥局工作的彈性；在藥學院的工作量
5) Professional and vocational career	專業與事業性	Professional and vocational career	專業與事業性
Social prestige; respected profession; and professional status	社會地位；受敬重的職業；專業度	Social prestige; respected profession; professional status	社會地位；受敬重的職業；專業度
6) Future career opportunities	未來就職機會	Future career opportunities	未來就職機會
Job security; variety of career opportunities; and a desire to own their own business	就職保障；多樣的工作選擇性；獨立創業的機會	Job security; variety of career opportunities; a desire to own their own business	就職保障；多樣的工作選擇性；獨立創業的機會
7) Personal and family influences	個人及家庭因素影響	Personal and family influences	個人及家庭因素影響
Influence from family, other relatives, personal friends, college instructor/advisor, high school counsellor,	家人，親戚或朋友的影響；老師或高中就職顧問建議；藥師或其他醫療專業的學	Influence from family, other relatives, personal friends, college teacher/high school counsellor, role models	家人，親戚或朋友的影響；老師或高中就職顧問建議；學習楷模為藥師；個人經

role models pharmacists, or other healthcare professionals; personal experiences; and previous job experiences	習楷模; 個人經驗; 之前的就職經驗	pharmacists, or other healthcare professionals; personal experiences; and previous job experiences	驗; 之前的就職經驗
8) Personal development and fulfilment	個人貢獻及成就	Personal development and fulfilment	個人貢獻及成就
Being independent; continuing professional development; job satisfaction; achievement in life; and fulfilment to enter higher education	獨立; 持續培養專業; 工作滿意度; 人生成就; 高等教育的成就	Being independent; continuing professional development; job satisfaction; achievement in life; and fulfilment to enter higher education	獨立; 持續培養專業; 工作滿意度; 人生成就; 為了進入高等教育
For each of the following statements, please choose ONE category which the most appropriately reflects your response.	下列陳述中, 請從選項中選出一項最符合您的答案。	For each of the following statements, please choose ONE category, which the most appropriately reflects, your response.	下列陳述中, 請從選項中選出一項最符合您的答案。
<i>Please note that the word "degree" refers to your university course, degree, or diploma to be a pharmacist in your country.</i>	請注意, 學位一詞在此泛指您的各種學位, 修業的課程, 或是作為一個藥師的經歷。	請注意, 學位一詞在此泛指您的各種學位, 修業的課程, 或是作為一個藥師的經歷。	請注意, 學位一詞在此泛指您的各種學位, 修業的課程, 或是作為一個藥師的經歷。
Experience	經驗	Experience	經驗
Strongly agree	非常同意	Strongly agree	非常同意
Agree	同意	Agree	同意
Neither agree nor disagree	無意見	Neither agree nor disagree	無意見
Disagree	不同意	Disagree	不同意
Strongly disagree	非常不同意	Strongly disagree	非常不同意
1) It is always easy to know the standard work expected for my degree.	獲取學位的標準很明確	It is easy to know the standard work for the degree	獲取學位的作業標準很清楚明確
2) This degree has helped me to develop my problem-solving skills.	此學位培養了我解決問題的能力	This degree developed my problem-solving skill	此學位增培養了我解決問題的能力
3) There are NOT many opportunities (in terms of optional subjects/elective courses) to choose particular areas to study.	可選擇特定領域課程 (選修課程) 的機會不多	There are not many opportunities to choose courses (optional selected courses) in particular area	可選擇特定領域課程 (選修課程) 的機會不多

4)	The teachers of this degree motivate students to do their best work.	授課老師能激勵學生力求上進	The teachers of this degree motivate students to do their best work.	授課老師能激勵學生力求上進
5)	The workload is too heavy.	課程負擔太重	The workload is too heavy.	課程負擔太重
6)	This degree has improved my analytical skills.	學位增進了我的分析技巧	This degree has improved my analytical skills.	學位增進了我的分析技巧
7)	Teachers here frequently give the impression they have nothing to learn from the students.	老師常表現出從學生身上學不到什麼的樣子	Teachers here frequently give the impression they have nothing to learn from the students.	老師常表現出從學生身上學不到什麼的樣子
8)	You usually have a clear idea of where you are going and what is expected of you.	你對之後課程發展以及所將來所需具備的條件有很清楚的概念	You usually have a clear idea of further study and what is expected of you.	你對之後課程發展以及將來所需具備的條件有很清楚的概念
9)	Teachers at my university put in a lot of time on feedback of student's work.	學校教授們花費很多心力在學生的作業回饋上	Teachers at my university put in a lot of time on feedback of student's work.	學校教授們花費很多心力在學生的作業回饋上
10)	To do well on this degree all you really need is a good memory.	好的記憶力對獲得好成績來說很重要	To do well all you really need is a good memory.	好的記憶力對獲得好成績來說很重要
11)	This degree has helped to develop my ability to work as a team member.	此學位培養我團隊合作的能力	This degree has helped to develop my ability to work as a team member.	此學位培養我團隊合作的能力
12)	As a result of doing this degree, I feel more confident about approaching/solving unfamiliar problems.	此學位增加我解決不熟悉的問題的信心	I feel more confident about approaching/solving unfamiliar problems because of this degree.	此學位增加對於我解決不熟悉的問題的信心
13)	This degree has improved my written communication skills.	此學位改善我的寫作技巧	This degree has improved my written skills.	此學位改善我的寫作技巧
14)	It seems to me that the curriculum content tries to cover too many topics.	對我而言課程涵蓋內容太多	It seems to me that the curriculum content tries to cover too many topics.	對我而言課程涵蓋了太多內容
15)	The degree has encouraged me to develop my own academic interests as far as possible.	此學位儘可能得提高了我對學術的興趣	The degree has encouraged me to develop my own academic interests as far as possible.	此學位儘可能得提高了我對學術研究的興趣
16)	Students have a great deal of choice over how they are going to learn in this degree.	學生有多種學習的途徑	Students have many choices over to learn in this degree.	學生有多種學習的途徑
17)	Teachers seem more interested in	老師較著重於學生記得什麼而不是懂得	Teachers seem more interested in testing	老師較著重於學生記憶內容而不是理解

testing what you have memorised than what you have understood.	多少	what you have memorised than what you have understood.	程度
18) It is often hard to discover what is expected of you in this degree.	難以瞭解此學位的養成目標	It is often hard to discover what is expected of you in this degree.	難以瞭解此學位的養成目標
19) We are generally given enough time to understand the things we have to learn.	我們通常有足夠的時間瞭解課程內容	We generally have enough time to understand the things we have to learn.	我們通常有足夠的時間瞭解課程內容
20) The teachers at my university make a real effort to understand difficulties students may be having with their work.	教授們致力於瞭解學生們可能遇到的困難	The teachers at my university make a real effort to understand difficulties students may be having with their work.	學校教師們致力於瞭解學生們在課業上可能遇到的困難
21) Students here are given a lot of choice in the work they have to do.	學生作業有多種題目可選擇	Students are given a lot of choice in the work they have to do.	學生作業有多種題目可選擇
22) Teachers at my school normally give helpful feedback on how you are doing.	教授能針對學生作業回饋有效的意見	Teachers at my school normally give helpful feedback on how you are doing.	教授能針對學生作業回饋有幫助的意見
23) Our teachers are extremely good at explaining things to us.	教授擁有優秀的講解能力	Our teachers are excellent at explaining things.	教授擁有優秀的講解能力
24) The aims and objectives of this degree are NOT very clear.	此學位的目標並不明確	The objectives of this degree are not clear.	此學位的目標並不明確
25) Teachers at my university work hard to make subjects interesting.	教授盡心使課程變得有趣	Teachers work hard to make subjects interesting.	教授盡心使課程變得有趣
26) Too many teachers ask us just about the facts.	多數老師只問我們事實	Many teachers ask us just about the facts.	多數老師只問我們事實(上課所提到的內容)
27) There is a lot of pressure on you as a student here.	作為學生很有壓力	There is a lot of pressure on you as a student.	作為學生很有壓力
28) This degree has helped me develop the ability to plan my own work.	此學位能使我發展出規劃的能力	This degree has helped me develop the ability to plan my own work.	此學位能使我發展出規劃的能力
29) Feedback on student work is usually provided ONLY in the form of marks and grades.	教授的回饋意見僅有級分或分數的形態	Feedback on student work is usually provided only in the form of marks and grades.	教授的回饋僅有級分或分數的形態
30) We often discuss with our teachers how we are going to learn in this degree.	我們和教授時常討論此學位所要學的內容	We often discuss with our teachers how we are going to learn in this degree.	我們和教授時常討論此學位所要學的內容
31) Teachers at my university show no real interest in what students have	教授對學生的意見不太關心	Teachers show no real interest in what students say.	教授對學生的意見不太關心

to say.			
32) It would be possible to get through this degree just by working hard around exam times.	此學位只要考前努力準備就可能可以獲得	It would be possible to get through this degree just by working hard around exam times.	此學位只要考前努力準備就有機會得到
33) This degree really tries to get the best out of all its students.	此學位能使學生試圖發揮潛能	This degree really tries to bring students' potential.	此學位能使學生試圖發揮潛能
34) There is very little choice in this degree in the ways you are assessed.	評估成績的方法不多	There is very little choice in the ways of assessment.	評估成績的方法不多
35) The teachers at my university make it clear right from the start what they expect from students.	教授們從一開始就闡明他們對學生的要求	The teachers make it clear from the start what they expect from students.	教授們從一開始就闡明他們對學生的要求
36) The amount of work you have to get through in this degree means you cannot comprehend it all in detail.	此學位作業的數量使你無法對領會課程細節	The amount of work you have to get through in this degree means you cannot comprehend it all in detail.	此學位作業的數量使你無法深入理解細節
37) Overall, I am satisfied with the quality of this degree.	整體而言，我對此學位的教學品質很滿意	Overall, I am satisfied with the quality of education.	整體而言，我對此學系的教學品質很滿意
38) While I am studying, I often think of real life situations to which the material that I am learning would be useful.	當我學習時，經常針對教材模擬實境是有幫助的	While I am studying, I often simulate real situations to which the material that I am learning would be useful.	當我學習時，經常針對教材模擬實境是有幫助的
39) I chose my present degree largely with a view to the job situation when I graduate rather than their intrinsic interest to me.	我選擇此學位的基準是就畢業後就業市場而非興趣	I chose my present degree based on job situation when I graduate rather than their interest.	我選擇此學系是基於畢業後就業市場而非興趣
40) I find that at times studying gives me a feeling of deep personal satisfaction.	我發現學習時會帶來個人的滿足感	I find that studying can bring personal satisfaction.	我發現學習時會帶來個人的滿足感
41) I want top grades in most or all of my degree, courses, and classes so that I will be able to select from among the best positions available when I graduate.	我在多數或全部科目力求好成績以便在畢業時可以選擇好職位	I want top grades in most or all of my classes so that I will be able to select from among the best positions when I graduate.	我在多數或全部科目力求好成績以便在畢業時可以選擇好職位
42) I think browsing around is a waste of time, so I only study seriously what's given out in class or in	我覺得到處瀏覽是浪費時間的行為，因此我只研讀課堂上所教的內容	I think browsing around is a waste of time, so I only study seriously what's given out in class.	我覺得到處瀏覽是浪費時間的行為，因此我只研讀課堂上所教的內容

course outlines.			
43) I try to work consistently throughout the term and review regularly when the exams are close.	我試著在整個課程中規律得讀書，考前復習	I try to work consistently throughout the course and review regularly when the exams are close.	我試著在整個課程中規律得讀書，考前復習
44) I would see myself basically as an ambitious person and want to get to the top, whatever I do.	基本上我是有野心要成為第一的人	I would see myself basically as an ambitious person and want to get to the top.	基本上我是有野心要成為第一的人
45) I find that I have to do enough work on a subject so that I form my own point of view before I am satisfied.	我會一個科目上努力到是自己滿意為止	I have to do enough work on a subject so that I am satisfied.	我會一個科目上努力到是自己滿意為止
46) I try to do all of my assignments as soon as possible after they have been set.	我會儘快做完作業	I try to do all of my assignments as soon as possible.	我會試著儘快做完作業
47) I find that studying academic subjects can at times be as exciting as a good novel or film.	我發現學術科目也能像小說或電影一樣有趣	I find that studying academic subjects can be as interesting as a good novel or film.	我發現學術科目也能像小說或電影一樣有趣
48) I usually become increasingly absorbed in my work the more I do.	我做的越多也相對學得更多	I usually become increasingly absorbed in my work the more I do.	通常我做的越多也相對學得更多
49) I generally restrict my study to what is specially set as I think it is unnecessary to do anything extra.	我需要學習既定的範圍，不需任何額外的學習	I generally restrict my study to what is set as I think it is unnecessary to do anything extra.	我通常會制定學習的範圍因為我認為任何額外的學習是沒有必要的
50) I almost resent having to do further years studying after leaving school, but feel that the end results make it all worthwhile.	我對於離開學校後還要持續學習感到不滿但最終讓我感覺到辛苦有了代價	I almost resent having to do further years studying after leaving school, but feel that the end results make it all worthwhile.	我對於離開學校後還要持續學習感到不滿但最終讓我感覺到辛苦有了代價
51) I see getting high marks as a kind of competitive game, and I play it to win.	我把得到好成績視為一種競賽，並且努力求贏	I see getting high marks as a kind of competition, and I play it to win.	我把得到好成績視為一種競賽，並且努力求贏
52) I find it best to accept the statements and ideas of my teachers and question them only under special circumstances.	對於教授的解釋及觀念最好全盤接受，只有在特殊狀況下才提出質疑	I find it best to accept the statements and ideas of my teachers and question them only under special circumstances.	對於教授的解釋及觀念最好全盤接受，只有在特殊狀況下才提出質疑
53) Whether I like it or not, I can see that further education is for me a good way to get a well-paid or secure job.	我認為更高的學術背景對我而言是個能帶來高收入或工作保障的方式	I think that further education is for me a good way to get a well-paid or secure job.	我認為更高的學術背景對我而言是個能提高收入或工作保障的方式

54) I try to relate new material, as I am reading it, to what I already know on the subject.	我會融會貫通新學舊識	I try to relate new material to what I already know on the subject.	我會試著融會貫通新學舊識
55) I keep neat, well organised notes for most subjects.	我在大多數的課程會寫簡潔易懂的筆記	I keep neat, well-organised notes for most subjects.	我在大多數的科目會作簡潔易懂的筆記
Please feel free to add any comments that you consider useful.	請自由填寫任何您覺得有用的意見	Please feel free to add any comments that you think useful.	請自由填寫任何您覺得有幫助的意見
Please click to submit. [submit]	請點擊提交 (提交)	Please click to submit. [submit]	請點擊提交 (提交)
For further information or for any enquiries about the questionnaire please contact Marouen Ben Guebila (education@ipsf.org) or Naoko Arakawa (naoko.arakawa.11@ucl.ac.uk).	進一步資訊或對於本問卷有任何疑問請 聯絡 Marouen Ben Guebila (education@ipsf.org) 或 Naoko Arakawa (naoko.arakawa.11@ucl.ac.uk)	For further information or for any enquiries about the questionnaire please contact Marouen Ben Guebila (education@ipsf.org) or Naoko Arakawa (naoko.arakawa.11@ucl.ac.uk).	進一步資訊或是對於本問卷有任何疑問 請聯絡 Marouen Ben Guebila (education@ipsf.org) 或 Naoko Arakawa (naoko.arakawa.11@ucl.ac.uk)
Your data has been processed.	您的資料已經被傳送了	Your data has been processed.	您的資料已經被傳送了
Thank you for your contribution.	感謝您的參與	Thank you for your contribution.	感謝您的參與

Appendix 6: Forward-back translation of the Student Learning Experience Survey (Portuguese)

Original SLEQ	Forward translation	Back Translation	Final translated SLEQ
2013/14 FIPeD-IPSF Student Learning Experience Questionnaire	2013/14 FIPeD-IPSF Questionário sobre a Experiência de Aprendizagem dos Alunos	2013/14 FIPeD-IPSF Student Learning Experience Questionnaire	2013/14 FIPeD-IPSF Questionário sobre a Experiência de Aprendizagem dos Alunos
There is much interest in quality and standards of professional pharmacy education as health policy world-wide becomes more focussed on extending the roles of pharmacy practitioners to provide more effective medicines-related health services.	Na atualidade existe um foco de interesse na qualidade e nos padrões da educação profissional farmacêutica, uma vez que as políticas mundiais têm-se vindo a focar em estender o papel dos profissionais de farmácia de forma a proporcionar serviços relacionados com o medicamento mais efetivos.	There is much interest in quality and standards of professional pharmacy education as health policy world-wide becomes more focussed on extending the roles of pharmacy practitioners to provide more effective medicines-related health services.	Na atualidade existe um foco de interesse na qualidade e nos padrões da educação profissional farmacêutica, uma vez que as políticas mundiais têm-se vindo a focar em estender o papel dos profissionais de farmácia de forma a proporcionar serviços relacionados com o medicamento mais efetivos.
To achieve higher and equitable quality, the global infrastructure for pharmacy education needs to be mapped to the required competencies of pharmacy practitioners in order to meet the given health needs in any country.	Para atingir um exercício, mais exigente em termos de qualidade e equitativo, a infraestrutura global para a educação farmacêutica deve ser delineada com base em competências conceptuais para os profissionais de saúde, com a finalidade de um exercício profissional adequado às necessidades e exigências de cada país.	To achieve higher and equitable quality, the global infrastructure for pharmacy education needs to be mapped to the required competencies of pharmacy practitioners in order to meet the given health needs in any country.	Para alcançar um exercício, mais exigente na qualidade e equitativo, a infraestrutura global para a educação farmacêutica deve ser delineada com base em competências conceptuais para os profissionais de saúde, com a finalidade de um exercício profissional adequado às necessidades e exigências de cada país.
As students are at the centre of pre-service education, their input is important in the development of educational policies and practices.	Os estudantes encontram-se no centro da educação pré-serviço, pelo que o seu contributo é muito importante no desenvolvimento de políticas e práticas.	As students are at the centre of pre-service education, their input is important in the development of educational policies and practices.	Os estudantes encontram-se no centro da educação pré-serviço, pelo que o seu contributo é muito importante no desenvolvimento de políticas e práticas.
It is of interest to survey the student learning experience.	É por isso interessante fazer um levantamento da experiência de aprendizagem dos alunos.	It is of interest to survey the student learning experience.	É por isso de interesse fazer um levantamento da experiência de aprendizagem dos alunos.
“FIPeD - IPSF Student Learning Experience Questionnaire” is the continuation of Moving On II, which was a project with the main focus on the pharmacy students’ perceptions on their degree (data being collected since 2004 by IPSF) and now was revised to include the students’ ways of studying about their degree as well as the original Moving On II questionnaire.	“FIPeD-IPSF Questionário sobre a Experiência de Aprendizagem dos Alunos” surge como uma revisão e extensão do projeto já em vigor, <i>Moving On II</i> , cujo principal objectivo é a análise das percepções dos estudantes de farmácia ao longo da sua formação académica (dados recolhidos desde 2004 pela IPSF). No presente surge um alargamento deste	“FIPeD-IPSF Student Learning Experience Questionnaire” is the continuation of Moving On II, which was a project with the main focus on the pharmacy students’ perceptions on their degree (data being collected since 2004 by IPSF) and now was revised to include the students’ ways of studying about their degree as well as the original Moving On II questionnaire.	“FIPeD-IPSF Questionário sobre a Experiência de Aprendizagem dos Alunos” surge como uma revisão e extensão do projeto já em vigor, <i>Moving On II</i> , que é um projeto cujo principal objectivo é a análise das percepções dos estudantes de farmácia ao longo da sua formação académica (dados recolhidos desde 2004 pela IPSF). No presente surge um

	objectivo incluindo agora os métodos de estudo do estudante assim como o questionário original do Moving On II.		alargamento deste objectivo incluindo agora os métodos de estudo do estudante assim como o questionário original do Moving On II.
The new additions to the questionnaire will enable the retrieval of better evidence on how students perceived their learning experiences throughout their degree.	As novas modificações ao questionário original irão permitir a obtenção de uma maior evidência de informação referente ao entendimento dos estudantes, face às suas experiências de aprendizagem ao longo da sua formação académica.	The new additions to the questionnaire will enable the retrieval of better evidence on how students perceived their learning experiences throughout their degree.	As novas modificações ao questionário original irão permitir a obtenção de uma maior evidência de informação referente ao entendimento dos estudantes, face às suas experiências de aprendizagem ao longo da sua formação académica.
Therefore, this “FIPEd - IPSF Student Learning Experience Questionnaire” allows world-wide comparisons and mapping of the learning experiences and the quality of learning of students enrolled in pharmacy programmes.	A “FIPEd–IPSF Questionário sobre a Experiência de Aprendizagem dos Alunos” permite comparações mundiais através de um análise das experiências de aprendizagem e da qualidade de aprendizagem dos estudantes matriculados em programas de farmácia.	Therefore, this “FIPEd - IPSF Student Learning Experience Questionnaire” allows world-wide comparisons and mapping of the learning experiences and the quality of learning of students enrolled in pharmacy programmes.	A “FIPEd–IPSF Questionário sobre a Experiência de Aprendizagem dos Alunos” permite comparações mundiais através de um análise das experiências de aprendizagem e da qualidade de aprendizagem dos estudantes matriculados em programas de farmácia.
It is the largest study of its type to date.	Este é até à data o maior projeto realizado neste âmbito.	It is the largest study of its type to date.	Este é até à data o maior projeto realizado neste âmbito.
Data collected will provide an evidence for education advancement.	Os dados recolhidos permitirão obter evidência para a melhoria do sistema educativo.	Data collected will provide an evidence for education advancement.	Os dados recolhidos permitirão obter evidência para a melhoria do sistema educativo.
This is a global project, supported by FIP Education Initiatives (FIPEd) Development Team (http://www.fip.org/pharmacy_education) and International Pharmaceutical Students’ Federation (IPSF: http://www.ipsf.org/).	Este projeto global é apoiado por Iniciativas de Educação da FIP (FIPEd) Development Team (http://www.fip.org/pharmacy_education) e International Pharmaceutical Students’ Federation (IPSF: http://www.ipsf.org/). O questionario On-line pode ser acedido através do link: http://www.codegnet.org.uk/moll/ .	This is a global project, supported by FIP Education Initiatives (FIPEd) Development Team (http://www.fip.org/pharmacy_education) and International Pharmaceutical Students’ Federation (IPSF: http://www.ipsf.org/).	EEste projeto global é apoiado por Iniciativas de Educação da FIP (FIPEd) Development Team (http://www.fip.org/pharmacy_education) e International Pharmaceutical Students’ Federation (IPSF: http://www.ipsf.org/).
Click here to start the questionnaire.	Clica aqui para iniciar o questionário.	Click here to start the questionnaire.	Clica aqui para iniciar o questionário.
Thank you for your contribution.	Obrigada pela sua contribuicao.	Thank you for your contribution.	Obrigada pela sua contribuicao.
For further information or if you have any enquiries about this questionnaire please contact Marouen Ben Guebila (education@ipsf.org) or Naoko Arakawa	Em caso de duvida ou de qualquer tipo de informacao por favour contacte nos. Marouen Ben Guebila (education@ipsf.org) or Naoko Arakawa	For further information or if you have any enquiries about this questionnaire please contact Marouen Ben Guebila (education@ipsf.org) or Naoko Arakawa	Em caso de duvida ou de qualquer tipo de informacao por favour contacte nos. Marouen Ben Guebila (education@ipsf.org) or Naoko Arakawa

(naoko.arakawa.11@ucl.ac.uk).	(naoko.arakawa.11@ucl.ac.uk).	(naoko.arakawa.11@ucl.ac.uk).	(naoko.arakawa.11@ucl.ac.uk).
Instructions	Instruções	Instructions	Instruções
Please think about your pharmacy degree and your ways of studying about your degree in general.	Por favor pense sobre o curso de farmácia e a sua forma de estudar em relação ao curso em geral.	Please think about your pharmacy degree and your ways of studying about your degree in general.	Por favor pense sobre o curso de farmácia e a sua forma de estudar em relação ao curso em geral.
Think about your whole degree and not just about individual subjects, topics or teachers/lecturers when answering this questionnaire.	Pense sobre todo o curso e não apenas em disciplinas individuais, temas ou professores quando responder ao questionário.	Think about your whole degree and not just about individual subjects, topics or teachers/lecturers when answering this questionnaire.	Pense sobre todo o curso e não apenas em disciplinas individuais, temas ou professores quando responder ao questionário.
This is an anonymous questionnaire and no one will be able to identify you.	Este questionário é anónimo e não será possível identifica-lo.	This is an anonymous questionnaire and no one will be able to identify you.	Este questionário é anónimo e não será possível identifica-lo.
Please answer honestly.	Por favor responda honestamente	Please answer honestly.	Por favor responda honestamente.
Your responses are confidential and will not be seen by your teachers or university.	As suas respostas serão confidenciais e não serão visualizadas por professores ou pela universidade.	Your responses are confidential and will not be seen by your teachers or university.	As suas respostas serão confidenciais e não serão visualizadas por professores ou pela universidade.
Please follow the directions and answer all questions.	Por siga as instruções e responda às questões.	Please follow the directions and answer all questions.	Por siga as instruções e responda às questões.
This questionnaire should take no more than 10-15 minutes of your time.	Este questionário não demorará a responder mais que 10-15 minutos.	This questionnaire should take no more than 10-15 minutes of your time.	Este questionário não demorará a responder mais que 10-15 minutos.
Your contribution is highly valued, and we appreciate your time and effort.	A sua contribuição é altamente valorizada e agradecemos pelo seu tempo e trabalho.	Your contribution is highly valued, and we appreciate your time and effort.	A sua contribuição é altamente valorizada e agradecemos pelo seu tempo e trabalho.
The Demographic Questions	Questões Demográficas	The Demographic Questions	Questões Demográficas
1. Country of birth	País de Origem	Country of birth	País de Origem
● Please select	Por favor selecione	Please select	Por favor selecione
● Enter if not listed	Introduza se não estiver listado	Enter if not listed	Introduza se não estiver listado
2. Country of study	País onde estuda	Country of study	País onde estuda
3. University	Universidade	University	Universidade
4. University (in English)	Universidade em Inglês	University in English	Universidade em Inglês
5. Faculty	Faculdade	Faculty	Faculdade
● If applicable	se aplicável	if applicable	se aplicável
6. Age	Idade	Age	Idade
7. Gender	Género	Gender	Género
● Female	Feminino	Female	Feminino
● Male	Masculino	Male	Masculino
8. Year of Study (consider 7 as internship/pre-registration)	Ano de Estudos (considere 7 com estágio/pré-registo)	Year of Study (consider 7 as internship/pre-registration)	Ano de Estudos (considere 7 com estágio/pré-registo)

9. Do you hold a previous degree?	Já tinha outro curso superior?	Do you hold a previous degree?	Já tinha outro curso superior?
● Yes	Sim	Yes	Sim
● No	Não	No	Não
10. Do you have a part time job while also studying?	Tem algum emprego em part-time enquanto estudo?	Do you have a part time job while also studying?	Tem algum emprego em part-time enquanto estudo?
11. Has gender influenced your decision to study Pharmacy?	O género influenciou a sua escolha pelo curso de farmácia?	Has gender influenced your decision to study Pharmacy?	O género influenciou a sua escolha pelo curso de farmácia?
● Positive influence	Influência Positiva	Positive influence	Influência Positiva
● Negative influence	Influência Negativa	Negative influence	Influência Negativa
● No influence	Sem influência	No influence	Sem influência
12. Have you always wanted to be a pharmacist? (e.g., did you consider becoming a pharmacist at high school?)	Sempre considerou tornar-se farmacêutico? (ex., Pensou em tornar-se farmacêutico enquanto frequentava o ensino secundário?)	Have you always wanted to be a pharmacist? (e.g., did you consider becoming a pharmacist at high school?)	Sempre considerou tornar-se farmacêutico? (ex., Pensou em tornar-se farmacêutico enquanto frequentava o ensino secundário?)
13. Do you have any family member or close friend who is a pharmacist?	Tem algum familiar ou amigo próximo que seja farmacêutico?	Do you have any family member or close friend who is a pharmacist?	Tem algum familiar ou amigo próximo que seja farmacêutico?
14. Were you encouraged by your family to study pharmacy?	Foi encorajado pela sua família a tornar-se farmacêutico?	Were you encouraged by your family to study pharmacy?	Foi encorajado pela sua família a tornar-se farmacêutico?
15. At the moment, in which area of the professional practice would you most like to work?	Neste momento, em que área profissional gostaria de trabalhar?	At the moment, in which area of the professional practice would you most like to work?	Neste momento, em que área profissional gostaria de trabalhar?
● Community pharmacy	Farmácia Comunitária	Community pharmacy	Farmácia Comunitária
● Hospital pharmacy	Farmácia Hospitalar	Hospital pharmacy	Farmácia Hospitalar
● Industry/wholesale/marketing	Indústria/Distribuição/Marketing	Industry/wholesale/marketing	Indústria/Distribuição/Marketing
● Academia + Research	Academia + Investigação	Academia + Research	Academia + Investigação
● Outside the profession (not pharmacy related)	Fora da profissão (não relacionado com farmácia)	Outside the profession (not pharmacy related)	Fora da profissão (não relacionado com farmácia)
● Other (pharmacy related)	Outro (relacionado com farmácia)	Other (pharmacy related)	Outro (relacionado com farmácia)
16. Please choose THREE categories which best represent your motivations to study pharmacy.	Por favor escolha TRÊS categorias que melhor descrevem a sua motivação para estudar farmácia	Please choose THREE categories which best represent your motivations to study pharmacy.	Por favor escolha TRÊS categorias que melhor descrevem a sua motivação para estudar farmácia
1) Interest in science	Interesse em ciência	Interest in science	Interesse em ciência
Interest in, like of, and aptitude for science, biology, and math, for example	Interesse, como, apetência para a ciência, biologia, e matemática, por exemplo	Interest in, like of, and aptitude for science, biology, and math, for example	Interesse, como, apetência para a ciência, biologia, e matemática, por exemplo
2) Contribution to healthcare	Contribuir para os cuidados de saúde	Contribution to healthcare	Contribuir para os cuidados de saúde
Desire to help people; and interest in	Desejo de ajudar pessoas; interesse nos	Desire to help people; and interest in	Desejo de ajudar pessoas; interesse nos

healthcare and in teamwork with other health professionals	cuidados de saúde e em trabalhar em equipa com outros profissionais de saúde.	healthcare and in teamwork with other health professionals	cuidados de saúde e em trabalhar em equipa com outros profissionais de saúde
3) Financial and economic aspects	Aspetos Económicos e Financeiros	Financial and economic aspects	Aspetos Económicos e Financeiros
Opportunities for earning a good salary and material rewards	Oportunidade de ganhar um bom salário e recompensa material	Opportunities for earning a good salary and material rewards	Oportunidade de ganhar um bom salário e recompensa material
4) Work-life balance expectation	Expectativa de uma vida profissional-familiar equilibrada	Work-life balance expectation	Expectativa de uma vida profissional-familiar equilibrada
Balancing a personal and family life with a career; flexibility of work situations in pharmacy; and workload expectation in pharmacy school	Equilibrar uma vida pessoal e familiar com uma carreira; flexibilidade de trabalho numa farmácia; e expectativas de carga de trabalho na faculdade de farmácia.	Balancing a personal and family life with a career; flexibility of work situations in pharmacy; and workload expectation in pharmacy school	Equilibrar uma vida pessoal e familiar com uma carreira; flexibilidade de trabalho numa farmácia; e expectativas de carga de trabalho na faculdade de farmácia
5) Professional and vocational career	Carreira profissional e vocacional	Professional and vocational career	Carreira profissional e vocacional
Social prestige; respected profession; and professional status	Prestígio profissional; profissão respeitável; e estatuto profissional	Social prestige; respected profession; and professional status	Prestígio profissional; profissão respeitável; e estatuto profissional
6) Future career opportunities	Oportunidades de carreira futura	Future career opportunities	Oportunidades de carreira futura
Job security; variety of career opportunities; and a desire to own their own business	Segurança da profissão, variedade de oportunidades de carreira, desejo de ter o seu próprio negócio.	Job security; variety of career opportunities; and a desire to own their own business	Segurança da profissão; variedade de oportunidades de carreira; desejo de ter o seu próprio negócio
7) Personal and family influences	Influências pessoais e familiares	Personal and family influences	Influências pessoais e familiares
Influence from family, other relatives, personal friends, college instructor/advisor, high school counsellor, role models pharmacists, or other healthcare professionals; personal experiences; and previous job experiences	Influência familiar, outros parentes, amigos íntimos, professor da faculdade, conselheiro da escolar secundária, farmacêuticos como modelo ou outros profissionais de saúde; experiências pessoais; ou trabalhos anteriores	Influence from family, other relatives, personal friends, college instructor/advisor, high school counsellor, role models pharmacists, or other healthcare professionals; personal experiences; and previous job experiences	Influência familiar, outros parentes, amigos íntimos, professor da faculdade, conselheiro da escolar secundária, farmacêuticos como modelo ou outros profissionais de saúde; experiências pessoais; ou trabalhos anteriores
8) Personal development and fulfilment	Desenvolvimento e realização pessoais	Personal development and fulfilment	Desenvolvimento e realização pessoais
Being independent; continuing professional development; job satisfaction; achievement in life; and fulfilment to enter higher education	Ser independente; continuidade de desenvolvimento profissional; satisfação profissional; realização na vida; realização por entrar no ensino superior	Being independent; continuing professional development; job satisfaction; achievement in life; and fulfilment to enter higher education	Ser independente; continuidade de desenvolvimento profissional; satisfação profissional; realização na vida; realização por entrar no ensino superior
For each of the following statements, please choose ONE category which the most appropriately reflects your response.	Para cada uma das seguintes frases, por favor, escolha UMA categoria cuja mais aplicável é o reflexo da sua resposta.	For each of the following statements, please choose ONE category which the most appropriately reflects your response.	Para cada uma das seguintes frases, por favor, escolha UMA categoria cuja mais aplicável é o reflexo da sua resposta.
<i>Please note that the word “degree” refers to your university course, degree, or diploma to be a pharmacist in your country.</i>	<i>Tome nota que a palavra “curso” refere-se ao curso da sua universidade, grau, ou diploma para se tornar farmacêutico no seu país.</i>	<i>Please note that the word “degree” refers to your university course, degree, or diploma to be a pharmacist in your country.</i>	<i>Tome nota que a palavra “curso” refere-se ao curso da sua universidade, grau, ou diploma para se tornar farmacêutico no seu país.</i>

<i>Experience</i>	<i>Experiência</i>	<i>Experience</i>	<i>Experiência</i>
Strongly agree	Concordo fortemente	Strongly agree	Concordo fortemente
Agree	Concordo	Agree	Concordo
Neither agree nor disagree	Não acordo nem discordo	Neither agree nor disagree	Não acordo nem discordo
Disagree	Discordo	Disagree	Discordo
Strongly disagree	Discordo Fortemente	Strongly disagree	Discordo Fortemente
1) It is always easy to know the standard work expected for my degree.	É sempre fácil saber o padrão de trabalho expectável para o meu curso.	It is always easy to know the standard work expected for my degree.	É sempre fácil saber o padrão de trabalho expectável para o meu curso.
2) This degree has helped me to develop my problem-solving skills.	Este curso tem-me ajudado a desenvolver a capacidade de solucionar problemas.	This degree has helped me to develop my problem-solving skills.	Este curso tem-me ajudado a desenvolver a capacidade de solucionar problemas.
3) There are NOT many opportunities (in terms of optional subjects/elective courses) to choose particular areas to study.	NÃO há muitas oportunidades (em termos de escolha de disciplinas opcionais em áreas particulares).	There are NOT many opportunities (in terms of optional subjects/elective courses) to choose particular areas to study.	NÃO há muitas oportunidades (em termos de escolha de disciplinas opcionais em áreas particulares).
4) The teachers of this degree motivate students to do their best work.	Os professores deste curso motivam os alunos para darem o seu melhor.	The teachers of this degree motivate students to do their best work.	Os professores deste curso motivam os alunos para darem o seu melhor.
5) The workload is too heavy.	A quantidade de trabalho é demasiado pesada.	The workload is too heavy.	A quantidade de trabalho é demasiado pesada.
6) This degree has improved my analytical skills.	Este curso desenvolveu as minhas habilidades analíticas.	This degree has improved my analytical skills.	Este curso desenvolveu as minhas habilidades analíticas.
7) Teachers here frequently give the impression they have nothing to learn from the students.	Os professores dão frequentemente a impressão de que não têm nada a aprender com os alunos.	Teachers here frequently give the impression they have nothing to learn from the students.	Os professores dão frequentemente a impressão de que não têm nada a aprender com os alunos.
8) You usually have a clear idea of where you are going and what is expected of you.	Normalmente tem uma ideia clara para onde vai e o que é expectável de si.	You usually have a clear idea of where you are going and what is expected of you.	Normalmente tem uma ideia clara para onde vai e o que é expectável de si.
9) Teachers at my university put in a lot of time on feedback of student's work.	Na minha faculdade os professores despendem muito tempo a comentar o trabalho dos alunos.	Teachers at my university put in a lot of time on feedback of student's work.	Na minha faculdade os professores despendem muito tempo a comentar o trabalho dos alunos.
10) To do well on this degree all you really need is a good memory.	Para ser bem sucedido neste curso é só preciso ter boa memória.	To do well on this degree all you really need is a good memory.	Para ser bem sucedido neste curso é só preciso ter boa memória.
11) This degree has helped to develop my ability to work as a team member.	Este curso ajudou-me a desenvolver a minha capacidade de trabalhar em equipa.	This degree has helped to develop my ability to work as a team member.	Este curso ajudou-me a desenvolver a minha capacidade de trabalhar em equipa.
12) As a result of doing this degree, I feel	Como resultado deste curso, sinto-me	As a result of doing this degree, I feel	Como resultado deste curso, sinto-me

more confident about approaching/solving unfamiliar problems.	mais confiante para aproximar/resolver problemas que não me são familiares.	more confident about approaching/solving unfamiliar problems.	mais confiante para aproximar/resolver problemas que não me são familiares.
13) This degree has improved my written communication skills.	Este curso desenvolveu a minha capacidade de comunicação escrita.	This degree has improved my written communication skills.	Este curso desenvolveu a minha capacidade de comunicação escrita.
14) It seems to me that the curriculum content tries to cover too many topics.	Tenho a percepção que o currículo contém demasiados tópicos.	It seems to me that the curriculum content tries to cover too many topics.	Tenho a percepção que o currículo contém demasiados tópicos.
15) The degree has encouraged me to develop my own academic interests as far as possible.	Fui encorajado pelo curso a desenvolver os meus interesses académicos o mais possível.	The degree has encouraged me to develop my own academic interests as far as possible.	Fui encorajado pelo curso a desenvolver os meus interesses académicos o mais possível.
16) Students have a great deal of choice over how they are going to learn in this degree.	Os estudantes têm a possibilidade de escolha de como vão aprender neste curso.	Students have a great deal of choice over how they are going to learn in this degree.	Os estudantes têm a possibilidade de escolha de como vão aprender neste curso.
17) Teachers seem more interested in testing what you have memorised than what you have understood.	Os professores parecem mais interessados em testar o que foi memorizado do que o que foi percebido.	Teachers seem more interested in testing what you have memorised than what you have understood.	Os professores parecem mais interessados em testar o que foi memorizado do que o que foi percebido.
18) It is often hard to discover what is expected of you in this degree.	Frequentemente é difícil de compreender o que é esperado neste curso.	It is often hard to discover what is expected of you in this degree.	Frequentemente é difícil de compreender o que é esperado neste curso.
19) We are generally given enough time to understand the things we have to learn.	Normalmente é dado tempo suficiente para perceber os conteúdos a aprender.	We are generally given enough time to understand the things we have to learn.	Normalmente é dado tempo suficiente para perceber os conteúdos a aprender.
20) The teachers at my university make a real effort to understand difficulties students may be having with their work.	Os professores na minha faculdade fazem um esforço real para compreender as dificuldades que os estudantes possam ter no seu trabalho.	The teachers at my university make a real effort to understand difficulties students may be having with their work.	Os professores na minha faculdade fazem um esforço real para compreender as dificuldades que os estudantes possam ter com o seu trabalho.
21) Students here are given a lot of choice in the work they have to do.	É dada uma grande possibilidade de escolha aos alunos relativamente ao trabalho a fazer.	Students here are given a lot of choice in the work they have to do.	É dada uma grande possibilidade de escolha aos alunos relativamente ao trabalho a fazer.
22) Teachers at my school normally give helpful feedback on how you are doing.	Os professores da minha faculdade normalmente fazem comentários construtivos relativamente ao trabalho dos alunos.	Teachers at my school normally give helpful feedback on how you are doing.	Os professores da minha faculdade normalmente fazem comentários construtivos relativamente ao trabalho dos alunos.
23) Our teachers are extremely good at explaining things to us.	Os professores são extremamente bons a explicar o conteúdo.	Our teachers are extremely good at explaining things to us.	Os professores são extremamente bons a explicar o conteúdo.
24) The aims and objectives of this degree are NOT very clear.	As metas e objectivos deste curso NÃO são muito claros.	The aims and objectives of this degree are NOT very clear.	As metas e objectivos deste curso NÃO são muito claros.

25) Teachers at my university work hard to make subjects interesting.	Os professores na minha faculdade trabalham arduamente para tornar as cadeiras interessantes.	Teachers at my university work hard to make subjects interesting.	Os professores na minha faculdade trabalham arduamente para tornar as cadeiras interessantes.
26) Too many teachers ask us just about the facts.	Demasiados professores questionam apenas os factos	Too many teachers ask us just about the facts.	Demasiados professores questionam apenas os factos.
27) There is a lot of pressure on you as a student here.	Existe muita pressão nos alunos.	There is a lot of pressure on you as a student here.	Existe muita pressão nos alunos.
28) This degree has helped me develop the ability to plan my own work.	Este curso ajudou-me a desenvolver capacidades para planear o meu próprio trabalho.	This degree has helped me develop the ability to plan my own work.	Este curso ajudou-me a desenvolver capacidades para planear o meu próprio trabalho.
29) Feedback on student work is usually provided ONLY in the form of marks and grades.	Os comentários ao trabalho dos alunos são normalmente realizados APENAS no formulário que contém as notas e avaliações.	Feedback on student work is usually provided ONLY in the form of marks and grades.	Os comentários ao trabalho dos alunos são normalmente realizados APENAS no formulário que contém as notas e avaliações.
30) We often discuss with our teachers how we are going to learn in this degree.	A discussão sobre como vamos aprender neste curso é frequente.	We often discuss with our teachers how we are going to learn in this degree.	A discussão sobre como vamos aprender neste curso é frequente.
31) Teachers at my university show no real interest in what students have to say.	Os professores na minha universidade não demonstram interesse real no que os alunos têm a dizer.	Teachers at my university show no real interest in what students have to say.	Os professores na minha universidade não demonstram interesse real no que os alunos têm a dizer.
32) It would be possible to get through this degree just by working hard around exam times.	É possível realizar este curso apenas trabalhando arduamente antes dos exames.	It would be possible to get through this degree just by working hard around exam times.	É possível realizar este curso apenas trabalhando arduamente antes dos exames.
33) This degree really tries to get the best out of all its students.	Este curso tenta verdadeiramente tirar o melhor dos seus alunos.	This degree really tries to get the best out of all its students.	Este curso tenta verdadeiramente tirar o melhor dos seus alunos.
34) There is very little choice in this degree in the ways you are assessed.	Existe pouco escolha sob as formas como os alunos são avaliados.	There is very little choice in this degree in the ways you are assessed.	Existe pouco escolha sob as formas como os alunos são avaliados.
35) The teachers at my university make it clear right from the start what they expect from students.	Os professores na minha universidade deixam claro desde o início o que é esperado dos alunos.	The teachers at my university make it clear right from the start what they expect from students.	Os professores na minha universidade deixam claro desde o início o que é esperado dos alunos.
36) The amount of work you have to get through in this degree means you cannot comprehend it all in detail.	A quantidade de trabalho necessário neste curso, significa que não se compreende em detalhe.	The amount of work you have to get through in this degree means you cannot comprehend it all in detail.	A quantidade de trabalho necessário neste curso, significa que não se compreende em detalhe.
37) Overall, I am satisfied with the quality of this degree.	Globalmente, estou satisfeito com a qualidade deste curso.	Overall, I am satisfied with the quality of this degree.	Globalmente, estou satisfeito com a qualidade deste curso.
38) While I am studying, I often think of real life situations to which the	Enquanto estudo, penso frequentemente em situações da vida real nas quais as	While I am studying, I often think of real life situations to which the material that I	Enquanto estudo, penso frequentemente em situações da vida real nas quais as

	material that I am learning would be useful.	matérias que estou a estudar poderiam ser úteis.	am learning would be useful.	matérias que estou a estudar poderiam ser úteis.
39)	I chose my present degree largely with a view to the job situation when I graduate rather than their intrinsic interest to me.	Escolhi o meu presente curso a pensar na situação profissional quando acabar em vez de ter interesse intrínseco.	I chose my present degree largely with a view to the job situation when I graduate rather than their intrinsic interest to me.	Escolhi o meu presente curso a pensar na situação profissional quando acabar em vez de ter interesse intrínseco.
40)	I find that at times studying gives me a feeling of deep personal satisfaction.	Às vezes acho que estudar dá-me a sensação de satisfação pessoal.	I find that at times studying gives me a feeling of deep personal satisfaction.	Às vezes acho que estudar dá-me a sensação de satisfação pessoal.
41)	I want top grades in most or all of my degree, courses, and classes so that I will be able to select from among the best positions available when I graduate.	Eu quero notas elevadas na maioria ou em todas as cadeiras para que possa escolher as melhores posições quando acabar o curso.	I want top grades in most or all of my degree, courses, and classes so that I will be able to select from among the best positions available when I graduate.	Eu quero notas elevadas na maioria ou em todas as cadeiras para que possa escolher as melhores posições quando acabar o curso.
42)	I think browsing around is a waste of time, so I only study seriously what's given out in class or in course outlines.	Pesquisar é uma perda de tempo, pelo que apenas estudo afincadamente ao que é dado destaque.	I think browsing around is a waste of time, so I only study seriously what's given out in class or in course outlines.	Pesquisar é uma perda de tempo, pelo que apenas estudo afincadamente ao que é dado destaque.
43)	I try to work consistently throughout the term and review regularly when the exams are close.	Tento trabalhar de forma consistente ao longo do ano e revejo regularmente quando os exames se aproximam.	I try to work consistently throughout the term and review regularly when the exams are close.	Tento trabalhar de forma consistente ao longo do ano e revejo regularmente quando os exames se aproximam.
44)	I would see myself basically as an ambitious person and want to get to the top, whatever I do.	Eu vejo-me pessoalmente como uma pessoa ambiciosa e que deseja atingir o top, custe o que custar.	I would see myself basically as an ambitious person and want to get to the top, whatever I do.	Eu vejo-me pessoalmente como uma pessoa ambiciosa e que deseja atingir o top, custe o que custar.
45)	I find that I have to do enough work on a subject so that I form my own point of view before I am satisfied.	Sinto que tenho de trabalhar mais numa matéria para poder formar o meu próprio ponto de vista antes de ficar satisfeito.	I find that I have to do enough work on a subject so that I form my own point of view before I am satisfied.	Sinto que tenho de trabalhar mais numa matéria para poder formar o meu próprio ponto de vista antes de ficar satisfeito.
46)	I try to do all of my assignments as soon as possible after they have been set.	Tento fazer todas as minhas tarefas o mais rápido possível assim que são estabelecidas.	I try to do all of my assignments as soon as possible after they have been set.	Tento fazer todas as minhas tarefas o mais rápido possível assim que são estabelecidas.
47)	I find that studying academic subjects can at times be as exciting as a good novel or film.	Por vezes sinto que estudar certas unidades curriculares pode ser tão excitante como um bom romance ou filme.	I find that studying academic subjects can at times be as exciting as a good novel or film.	Por vezes sinto que estudar certas unidades curriculares pode ser tão excitante como um bom romance ou filme.
48)	I usually become increasingly absorbed in my work the more I do.	Usualmente quanto mais faço mais me torno absorto no meu trabalho.	I usually become increasingly absorbed in my work the more I do.	Usualmente quanto mais faço mais me torno absorto no meu trabalho.
49)	I generally restrict my study to what	Geralmente restrinjo o meu estudo ao que	I generally restrict my study to what is	Geralmente restrinjo o meu estudo ao que

is specially set as I think it is unnecessary to do anything extra.	é especificamente estabelecido e penso é desnecessário fazer algo extra.	specially set as I think it is unnecessary to do anything extra.	é especificamente estabelecido e penso é desnecessário fazer algo extra.
50) I almost resent having to do further years studying after leaving school, but feel that the end results make it all worthwhile.	Quase que me ressinto por ter de fazer mais anos após terminar a escola, mas sinto que os resultados compensarão.	I almost resent having to do further years studying after leaving school, but feel that the end results make it all worthwhile.	Quase me ressinto por ter de fazer mais anos após terminar a escola, mas sinto que os resultados compensarão.
51) I see getting high marks as a kind of competitive game, and I play it to win.	Eu considero tirar boas como parte de um jogo competitiva e eu jogo para ganhar.	I see getting high marks as a kind of competitive game, and I play it to win.	Eu vejo tirar boas como parte de um jogo competitiva e eu jogo para ganhar.
I find it best to accept the statements and ideas of my teachers and question them only under special circumstances.	Eu acho melhor aceitar as declarações e ideias dos meus professores e questioná-los apenas sobre circunstâncias especiais.	I find it best to accept the statements and ideas of my teachers and question them only under special circumstances.	Eu acho melhor aceitar as declarações e ideias dos meus professores e questioná-los apenas sobre circunstâncias especiais.
Whether I like it or not, I can see that further education is for me a good way to get a well-paid or secure job.	Quer goste ou não, eu vejo que prosseguir os estudos é para mim uma boa forma de conseguir uma profissão mais bem paga ou emprego seguro.	Whether I like it or not, I can see that further education is for me a good way to get a well-paid or secure job.	Quer goste ou não, eu vejo que prosseguir os estudos é para mim uma boa forma de conseguir uma profissão mais bem paga ou emprego seguro.
I try to relate new material, as I am reading it, to what I already know on the subject.	Eu tento relacionar novos materiais, enquanto os leio, com o que já sei sobre o tema.	I try to relate new material, as I am reading it, to what I already know on the subject.	Eu tento relacionar novos materiais, enquanto os leio, com o que já sei sobre o tema.
I keep neat, well organised notes for most subjects.	Eu mantenho os apontamentos limpos e bem organizados para a maioria das cadeiras.	I keep neat, well-organised notes for most subjects.	Eu mantenho os apontamentos limpos e bem organizados para a maioria das cadeiras.
Please feel free to add any comments that you consider useful.	Por favor sinta-se à vontade de adicionar qualquer comentário que considere útil.	Please feel free to add any comments that you consider useful.	Por favor sinta-se à vontade de adicionar qualquer comentário que considere útil.
Please click to submit. [submit]	Por favor carregue para submeter. [submeter]	Please click to submit. [submit]	Por favor carregue para submeter. [submeter]
For further information or for any enquiries about the questionnaire please contact Marouen Ben Guebila (education@ipsf.org) or Naoko Arakawa (naoko.arakawa.11@ucl.ac.uk).	Para mais informações ou qualquer questão sobre o questionário por favor contacte Marouen Ben Guebila (education@ipsf.org) ou Naoko Arakawa (naoko.arakawa.11@ucl.ac.uk).	For further information or for any enquiries about the questionnaire please contact Marouen Ben Guebila (education@ipsf.org) or Naoko Arakawa (naoko.arakawa.11@ucl.ac.uk).	Para mais informações ou qualquer questão sobre o questionário por favor contacte Marouen Ben Guebila (education@ipsf.org) ou Naoko Arakawa (naoko.arakawa.11@ucl.ac.uk).
Your data has been processed.	Os seus dados foram processados.	Your data has been processed.	Os seus dados foram processados.
Thank you for your contribution.	Obrigada pela sua contribuição.	Thank you for your contribution.	Obrigada pela sua contribuição.

Appendix 7: Forward-back translation of Student Learning Experience Survey (Spanish)

Original SLEQ	Forward translation	Back translation	Final translated SLEQ
2013/14 FIPeD Development Team-IPSF Student Learning Experience Questionnaire	2013/14 El Equipo del Desarrollo de FIPeD-IPSF Cuestionario de Experiencia Aprendizaje Estudiantil	2013/14 FIPeD development Team-IPSF student learning experience questionnaire	2013/14 Equipo de Desarrollo FIPeD-IPSF Cuestionario de experiencia de aprendizaje estudiantil
There is much interest in quality and standards of professional pharmacy education as health policy world-wide becomes more focussed on extending the roles of pharmacy practitioners to provide more effective medicines-related health services.	En la actualidad, se presta una gran atención a la calidad y a los estándares de la educación profesional en farmacia, ya que la política sanitaria a nivel mundial se ha centrado en extender el papel de los farmacéuticos para proporcionar medicamentos y servicios sanitarios más eficaces.	There is much interest in quality and standards of professional education in pharmacy currently, as the global health policy has focused on expanding the role of pharmacists to provide medicines and health services more effective.	En la actualidad, se presta una gran atención a la calidad y a los estándares de la educación profesional en farmacia, ya que a nivel mundial la política sanitaria se ha centrado en extender el papel de los farmacéuticos para proporcionar medicamentos y servicios sanitarios más eficaces.
To achieve higher and equitable quality, the global infrastructure for pharmacy education needs to be mapped to the required competencies of pharmacy practitioners in order to meet the given health needs in any country.	Para lograr más calidad y equidad, la infraestructura global para la educación farmacéutica debe ser diseñada en base a la competencia necesaria de los farmacéuticos, con el fin de satisfacer las necesidades sanitarias de cualquier país.	To achieve higher quality and equity, global infrastructure for pharmacy education should be designed based on the required competence of pharmacists to satisfy the health needs of any country.	Para lograr más calidad y equidad, la infraestructura global para la educación farmacéutica debe ser diseñada en base a la competencia necesaria de los farmacéuticos, con el fin de satisfacer las necesidades sanitarias de cualquier país.
As students are at the centre of pre-service education, their input is important in the development of educational policies and practices.	Como los estudiantes están en el centro de la educación, su contribución es importante en el desarrollo de políticas y prácticas educativas.	As students are at the centre education, their contribution is important in the development of educational policies and practices.	Como los estudiantes están en el centro de la educación, su contribución es importante en el desarrollo de políticas y prácticas educativas.
It is of interest to survey the student learning experience.	En este proyecto se analiza la experiencia de aprendizaje de los estudiantes.	This project examines the learning experience of students.	En este proyecto se analiza la experiencia de aprendizaje de los estudiantes.
"FIPeD Development Team-IPSF Student Learning Experience Questionnaire" is the continuation of Moving On II, which was a project with the main focus on the pharmacy students' perceptions on their degree (data being collected since 2004 by IPSF) and now was revised to include the students' ways of studying about their degree as well as the original Moving On II	"El Equipo de Desarrollo del FIPeD-IPSF Cuestionario de Experiencia de Aprendizaje Estudiantil" es la continuación de MovingOn II, proyecto centrado en la percepción de los estudiantes de farmacia sobre su grado (datos obtenidos desde 2004 por la IPSF) y ahora revisado para incluir la manera en que los alumnos estudian su grado, además del	"FIPeD Development Team-IPSF Student Learning Experience Questionnaire" is the continuation of MovingOn II, project focused on the perception of pharmacy students on their degree (data obtained since 2004 by IPSF) and now revised to include how students study their degree in addition to the original questionnaire MovingOn II.	"El Equipo de Desarrollo del FIPeD-IPSF Cuestionario de Experiencia de Aprendizaje Estudiantil" es la continuación de MovingOn II, proyecto centrado en la percepción de los estudiantes de farmacia sobre su grado (datos obtenidos desde 2004 por la IPSF) y ahora revisado para incluir la manera en que los alumnos estudian su grado, además del

questionnaire.	cuestionario original MovingOn II.		cuestionario original Moving On II.
The new additions to the questionnaire will enable the retrieval of better evidence on how students perceived their learning experiences throughout their degree.	Las nuevas incorporaciones al cuestionario conducen a un mejor conocimiento sobre cómo los estudiantes percibieron su experiencia de aprendizaje durante su grado.	New additions to the questionnaire will lead to a better understanding of how students perceived their learning experience during their degree.	Las nuevas incorporaciones al cuestionario conducen a un mejor conocimiento sobre cómo los estudiantes percibieron su experiencia de aprendizaje durante su grado.
Therefore, this “FIPEd Development Team -IPSF Student Learning Experience Questionnaire” allows world-wide comparisons and mapping of the learning experiences and the quality of learning of students enrolled in pharmacy programmes.	De esta forma, "El Equipo del Desarrollo de FIPEd-IPSF Cuestionario de Experiencia Aprendizaje Estudiantil" permite comparaciones mundiales, trazando las experiencias y la calidad del aprendizaje de los estudiantes en programas de farmacia.	Therefore, this “FIPEd Development Team -IPSF Student Learning Experience Questionnaire” allows world-wide comparisons and mapping of the learning experiences and the quality of learning of students enrolled in pharmacy programmes	De esta forma, "El Equipo del Desarrollo de FIPEd-IPSF Cuestionario de Experiencia Aprendizaje Estudiantil" permite realizar comparaciones mundiales, trazando las experiencias y la calidad de aprendizaje de los estudiantes en programas de farmacia.
It is the largest study of its type to date.	Este es el estudio más grande de su tipo hasta la fecha.	It is the largest study of its type to date.	Este es el estudio más grande de su tipo hasta la fecha y los datos recogidos proporcionarán una evidencia de progreso educativo.
Data collected will provide an evidence for education advancement.	Los datos recogidos proporcionarán una evidencia de progreso educativo.	The data collected will provide evidence of educational progress.	
This is a global project, supported by FIP Education Initiatives (FIPEd) Development Team (http://www.fip.org/pharmacy_education) and International Pharmaceutical Students’ Federation (IPSF: http://www.ipsf.org/).	Se trata de un proyecto global, con el apoyo del Equipo de Desarrollo de Iniciativas de Educación FIP (FIPEd) (http://www.fip.org/pharmacy_education) y la Federación Internacional de Estudiantes de Farmacia (IPSF: http://www.ipsf.org/).	This is a global project, supported by FIP Initiatives of Education (FIPEd) Development Team (http://www.fip.org/pharmacy_education) and International Pharmaceutical Students’ Federation (IPSF: http://www.ipsf.org/).	Se trata de un proyecto global, con el apoyo del Equipo de Desarrollo de Iniciativas educativas FIP (FIPEd) (http://www.fip.org/pharmacy_education) y la Federación Internacional de Estudiantes de Farmacia (IPSF: http://www.ipsf.org/).
Click here to start the questionnaire.	Haga clic aquí iniciar el cuestionario.	Click here to start the questionnaire.	Haga clic aquí iniciar el cuestionario.
Thank you for your contribution.	Gracias por su colaboración.	Thank you for your contribution	Gracias por su colaboración.
For further information or if you have any enquiries about this questionnaire please contact Marouen Ben Guebila (education@ipsf.org) or Naoko Arakawa (naoko.arakawa.11@ucl.ac.uk).	Para más información o si tiene cualquier pregunta sobre este cuestionario, por favor póngase en contacto con Marouen Ben Guebila (education@ipsf.org) o Naoko Arakawa (naoko.arakawa.11@ucl.ac.uk).	For further information or if you have any enquiries about this questionnaire please contact Marouen Ben Guebila (education@ipsf.org) or Naoko Arakawa (naoko.arakawa.11@ucl.ac.uk).	Para más información o si tiene cualquier pregunta sobre este cuestionario, por favor póngase en contacto con Marouen Ben Guebila (education@ipsf.org) o Naoko Arakawa (naoko.arakawa.11@ucl.ac.uk).
Instructions	Instrucciones	Instructions	Instrucciones
Please think about your pharmacy degree and your ways of studying about your degree in general.	Por favor piense en su grado de farmacia y su manera de estudiar su grado en general.	Please think about your pharmacy degree and your ways of studying your degree in general.	Por favor piense en su grado de farmacia y su manera de estudiar su grado en general.

Think about your whole degree and not just about individual subjects, topics or teachers/lecturers when answering this questionnaire.	Al contestar este cuestionario, piense en el grado en su conjunto y no sólo en las distintas materias, maestros/profesores.	Think about your whole degree and not just about different subjects,, teachers/lecturers when answering this questionnaire.	Al contestar este cuestionario, piense en el grado en su conjunto, no sólo en las distintas materias o maestros/profesores.
This is an anonymous questionnaire and no one will be able to identify you.	Se trata de un cuestionario anónimo y nadie va a ser capaz de identificarlo.	This is an anonymous questionnaire and no one will be able to identify you.	Se trata de un cuestionario anónimo por lo que nadie podrá identificarlo.
Please answer honestly.	Por favor, responda honestamente.	Please answer honestly.	Por favor, responda honestamente.
Your responses are confidential and will not be seen by your teachers or university.	Sus respuestas son confidenciales y no serán vistas por sus profesores o Universidad.	Your responses are confidential and will not be seen by your teachers or university.	Sus respuestas son confidenciales y no serán vistas por sus profesores o Universidad.
Please follow the directions and answer all questions.	Por favor, siga las instrucciones y responda a todas las preguntas.	Please follow the directions and answer all questions.	Por favor, siga las instrucciones y responda a todas las preguntas.
This questionnaire should take no more than 10-15 minutes of your time.	Responder a este cuestionario no debe de llevar más de 10-15 minutos de su tiempo.	This questionnaire should take no more than 10-15 minutes of your time.	Responder a este cuestionario no le llevará más de 10-15 minutos.
Your contribution is highly valued, and we appreciate your time and effort.	Su contribución es muy valorada, y le agradecemos su tiempo y su esfuerzo.	Your contribution is highly valued, and we appreciate your time and effort.	Su contribución es muy valorada, y le agradecemos su tiempo y esfuerzo.
The Demographic Questions	Preguntas Demográficas	The Demographic Questions	Preguntas Demográficas
Country of birth	País de nacimiento	Country of birth	País de nacimiento
Please select	Por favor, seleccione	Please select	Por favor, seleccione
Enter if not listed	Introduzca si no está en la lista	Enter if not listed	escriba si no está en la lista
Country of study	País de estudio	Country of study	País de estudio
University	Universidad	University	Universidad
University (in English)	Universidad (en Inglés)	University (in English)	Universidad (en Inglés)
Faculty	Facultad	Faculty	Facultad
If applicable	si es aplicable	if applicable	si es aplicable
Age	Edad	Age	Edad
Gender	Género	Gender	Género
Female	Femenino	Female	Femenino
Male	Masculino	Male	Masculino
Year of Study (consider 7 as internship/pre-registration)	Año de Estudio (7 consideran como prácticas / pre-registro)	Year of Study (7 is considered as internship/pre-registration)	Año de Estudio (considere el septimo como prácticas / pre-registro)
Do you hold a previous degree?	¿Usted tiene un título anterior?	Do you have a previous degree	¿Usted posee un título anterior?
Yes	Si	Yes	Si
No	No	No	No
Do you have a part time job while also studying?	¿Tiene un trabajo a tiempo parcial mientras estudia?	Do you have a part time job while you study?	¿Tiene un trabajo a tiempo parcial mientras estudia?

Has gender influenced your decision to study Pharmacy?	Su género ha influenciado sobre su decisión de estudiar Farmacia?	Has gender influenced your decision to study Pharmacy?	Su género ha influenciado sobre su decisión de estudiar Farmacia?
Positive influence	Influencia positiva	Positive influence	Influencia positiva
Negative influence	Influencia negativa	Negative influence	Influencia negativa
No influence	Ninguna influencia	No influence	Ninguna influencia
Have you always wanted to be a pharmacist? (e.g., did you consider becoming a pharmacist at high school?)	¿Siempre ha querido ser farmacéutico? (por ejemplo, ¿Consideró la posibilidad de ser farmacéutico en la escuela secundaria?)	Have you always wanted to be a pharmacist? (e.g., did you consider becoming a pharmacist at high school?)	¿Siempre ha querido ser farmacéutico? (por ejemplo, ¿Consideró la posibilidad de ser farmacéutico en la escuela secundaria?)
Do you have any family member or close friend who is a pharmacist?	¿Tiene algún familiar o amigo cercano que sea un farmacéutico?	Do you have any family member or close friend who is a pharmacist?	¿Tiene algún familiar o amigo cercano que sea un farmacéutico?
Were you encouraged by your family to study pharmacy?	¿Se siente alentado por su familia a estudiar farmacia?	Were you encouraged by your family to study pharmacy?	¿Ha sido animado o convencido por su familia para que estudie farmacia?
At the moment, in which area of the professional practice would you most like to work?	Por el momento, en qué área de la práctica profesional te gustaría trabajar?	At the moment, in which area of the professional practice would you like to work?	Por el momento, en qué área de la práctica profesional te gustaría trabajar?
Community pharmacy	Farmacia comunitaria	Community pharmacy	Farmacia comunitaria
Hospital pharmacy	Farmacia hospitalaria	Hospital pharmacy	Farmacia hospitalaria
Industry/wholesale/marketing	Industria/venta al por mayor/marketing	Industry/wholesale/marketing	Industria/venta al por mayor/marketing
Academia + Research	Académica + Investigación	Academia + Research	Académica + Investigación
Outside the profession (not pharmacy related)	Fuera de la profesión (no relacionado con farmacia)	Outside the profession (not pharmacy related)	Fuera de la profesión (no relacionado con farmacia)
Other (pharmacy related)	Otro (relacionado con farmacia)	Other (related with pharmacy)	Otro (relacionado con farmacia)
Please choose THREE categories which best represent your motivations to study pharmacy.	Elija TRES categorías que mejor representan sus motivaciones para estudiar farmacia.	Please choose THREE categories which best represent your motivations to study pharmacy.	Elija TRES categorías que mejor representan sus motivaciones para estudiar farmacia.
Interest in science	El interés por la ciencia	Interest in science	El interés por la ciencia
Interest in, like of, and aptitude for science, biology, and math, for example	El interés en/ y aptitud para la ciencia, la biología y las matemáticas.	Interest in and aptitude for science, biology an mathematics.	Por ejemplo, tener interés por la ciencia, biología o matemáticas
Contribution to healthcare	Contribución a la asistencia sanitaria	Contribution to healthcare	Contribución a la asistencia sanitaria
Desire to help people; and interest in healthcare and in teamwork with other health professionals	El deseo de ayudar a la gente, y el interés en la salud y en el trabajo en equipo con otros profesionales de salud.	Desire to help people and interest in healthcare and in teamwork with other health professionals	El deseo de ayudar a la gente, e interés por la salud y el trabajo en equipo junto a otros profesionales de salud.
Financial and economic aspects	Aspectos financieros y económicos	Financial and economic aspects	Aspectos financieros y económicos
Opportunities for earning a good salary and material rewards	La oportunidad de ganar un buen salario y recompensas materiales	Opportunities for earning a good salary and material rewards	La oportunidad de ganar un buen salario y recompensas materiales

Work-life balance expectation	Expectativa de la conciliación laboral	Expectation of labor conciliation	Expectativa de conciliar aspectos personales con laborales.
Balancing a personal and family life with a career; flexibility of work situations in pharmacy; and workload expectation in pharmacy school	Equilibrio de una vida personal y familiar con la carrera, la flexibilidad del trabajo en la farmacia, y la esperanza de ocupación laboral	Balancing personal and family life with career, labor flexibility in the pharmacy, and occupation expectation.	Equilibrio de una vida personal y familiar con la carrera, la flexibilidad del trabajo en la farmacia, y la esperanza de tener trabajo.
Professional and vocational career	Carrera profesional y vocacional	Professional and vocational career	Carrera profesional y vocacional
Social prestige; respected profession; and professional status	Prestigio social, profesión respetada, y la situación profesional	Social prestige, respected profession and professional status	Prestigio social, profesión respetada, y la situación profesional
Future career opportunities	Futuras oportunidades de carrera	Future career opportunities	Futuras oportunidades de carrera
Job security; variety of career opportunities; and a desire to own their own business	La seguridad del empleo, la variedad de oportunidades de carrera, y el deseo de tener su propio negocio	Job security, the variety of career opportunities, and the desire to have your own business	La seguridad de tener empleo, la variedad de ambitos de trabajo (farmacia comunitaria, hospitalaria, universidad, industria, etc.) y el deseo de tener un negocio propio.
Personal and family influences	Influencias personales y familiares	Personal and family influences	Influencias personales y familiares
Influence from family, other relatives, personal friends, college instructor/advisor, high school counsellor, role models pharmacists, or other healthcare professionals; personal experiences; and previous job experiences	La influencia de la familia, otros parientes, amigos personales, el instructor universitario / consejero, alto consejero de la escuela, los farmacéuticos como modelos de conducta, otro profesional de la salud, las experiencias personales, y experiencias previas de trabajo	Influence from family, relatives, personal friends, university instructor/advisor, school advisor, pharmacists, other helathcare proffessionals, personal experiences and previous job experiences.	La influencia de la familia, parientes, amigos, instructor/consejero universitario, consejero de la escuela, los farmacéuticos mismos (como modelos de conducta), otros profesionales de la salud, las experiencias personales, y otras previas experiencias de trabajo
Personal development and fulfilment	El desarrollo personal y el cumplimiento	Personal development and fulfilment	El desarrollo personal y el cumplimiento
Being independent; continuing professional development; job satisfaction; achievement in life; and fulfilment to enter higher education	Ser independiente, el desarrollo profesional continuo, la satisfacción laboral, el logro en la vida, y el cumplimiento de entrar en la educación superior	Being independent; continuing professional development; job satisfaction; achievement in life; and fulfilment to enter higher education	Ser independiente, el desarrollo profesional continuo, la satisfacción laboral, el logro en la vida, y el cumplimiento de entrar en la educación superior
For each of the following statements, please choose ONE category which the most appropriately reflects your response.	Para cada una de las siguientes afirmaciones, por favor, elija la categoría que refleja más adecuadamente su respuesta.	For each of the following statements, please choose one category which the most appropriately reflects your response	Para cada una de las siguientes afirmaciones, por favor, elija la categoría que refleja más adecuadamente su respuesta.
<i>Please note that the word "degree" refers to your university course, degree, or diploma to be a pharmacist in your country.</i>	<i>Tenga en cuenta que la palabra "grado" se refiere a su carrera universitaria, grado o diploma para ser un farmacéutico en su país.</i>	<i>Please note that the word "degree" refers to your university degree, diploma or degree to be a pharmacist in your country.</i>	<i>Tenga en cuenta que la palabra "grado" se refiere a su carrera universitaria, grado o diploma para ser farmacéutico en su país.</i>

Experience	Experiencia	Experience	Experiencia
Strongly agree	Totalmente de acuerdo	Strongly agree	Totalmente de acuerdo
Agree	Acuerdo	Agree	De acuerdo
Neither agree nor disagree	Ni de acuerdo ni en desacuerdo	Neither agree nor disagree	Ni de acuerdo ni en desacuerdo
Disagree	Desacuerdo	Disagree	Desacuerdo
Strongly disagree	Totalmente en desacuerdo	Strongly disagree	Totalmente en desacuerdo
It is always easy to know the standard work expected for my degree.	Siempre es fácil conocer el trabajo estándar esperado para mi carrera.	It is always easy to know the standard work expected for my degree.	Siempre es fácil conocer el trabajo estándar esperado para mi carrera.
This degree has helped me to develop my problem-solving skills.	Este título me ha ayudado a desarrollar mis habilidades de resolución de problemas.	This degree has helped me to develop my problem-solving skills.	Este título me ha ayudado a desarrollar mis habilidades para resolver problemas.
There are NOT many opportunities (in terms of optional subjects/elective courses) to choose particular areas to study.	NO existen muchas oportunidades (en términos de asignaturas optativas / cursos electivos) para elegir determinadas áreas de estudio.	There are not many opportunities (in terms of optional / elective courses) to choose certain areas of study.	NO existen muchas oportunidades (en términos de asignaturas optativas / cursos electivos) para elegir determinadas áreas de estudio.
The teachers of this degree motivate students to do their best work.	Los maestros de este grado motivan a los estudiantes a hacer mejor su trabajo.	The teachers of this degree motivate students to do their best work.	Los maestros de este grado motivan a los estudiantes a hacer mejor su trabajo.
The workload is too heavy.	La carga de trabajo es demasiado pesada.	The workload is too heavy.	La carga de trabajo es demasiado pesada.
This degree has improved my analytical skills.	Este grado ha mejorado mi capacidad de análisis.	This degree has improved my analytical skills.	Este grado ha mejorado mi capacidad de análisis.
Teachers here frequently give the impression they have nothing to learn from the students.	Los maestros con frecuencia dan la impresión de que no tienen nada que aprender de los estudiantes.	Teachers often give the impression that they have nothing to learn from the students.	Los maestros con frecuencia dan la impresión de que no tienen nada que aprender de los estudiantes.
You usually have a clear idea of where you are going and what is expected of you.	Por lo general, tienen una idea clara de hacia dónde se dirige y qué se espera de usted.	They usually have a clear idea of where you are going and what is expected of you	En general, tienes una idea clara de hacia donde te diriges y lo que se espera de ti.
Teachers at my university put in a lot of time on feedback of student's work.	Los profesores de mi universidad dedican mucho tiempo a la retroalimentación del trabajo del estudiante.	My university teachers spend lot of time on feedback of student's work.	Los profesores de mi universidad dedican mucho tiempo a la retroalimentación del trabajo del estudiante.
To do well on this degree all you really need is a good memory.	Para tener éxito en esta carrera lo único que necesitas es una buena memoria.	To do well on this degree all you need is a good memory.	Para tener éxito en esta carrera lo único que necesitas es una buena memoria.
This degree has helped to develop my ability to work as a team member.	Este grado ha ayudado a desarrollar mi capacidad para trabajar en equipo.	This degree has helped to develop my ability to work in teams.	Este grado ha ayudado a desarrollar mi capacidad para trabajar en equipo.
As a result of doing this degree, I feel more confident about approaching/solving unfamiliar problems.	Como resultado de hacer este grado, me siento más seguro al aproximarme / resolver problemas desconocidos.	As a result of doing this degree, I feel more confident when I approach / solve not familiar problems.	Como resultado de hacer este grado, me siento más seguro al aproximarme / resolver problemas desconocidos.

This degree has improved my written communication skills.	Este grado ha mejorado mis habilidades de comunicación escrita.	This degree has improved my written communication skills	Este grado ha mejorado mis habilidades de comunicación escrita.
It seems to me that the curriculum content tries to cover too many topics.	Me parece que el contenido del currículo pretende cubrir demasiados temas.	It seems to me that the curriculum content tries to cover too many topics	Me parece que el contenido del currículo pretende cubrir demasiados temas.
The degree has encouraged me to develop my own academic interests as far as possible.	El grado me ha ayudado a desarrollar mis propios intereses académicos en la medida de lo posible.	The degree has helped me to develop my own academic interests as far as possible.	El grado me ha ayudado a desarrollar mis propios intereses académicos en la medida de lo posible.
Students have a great deal of choice over how they are going to learn in this degree.	Los estudiantes tienen una gran variedad de opciones sobre la forma en la que van a aprender en este grado.	Students have a variety of options on how they will learn in this degree.	Los estudiantes tienen una gran variedad de opciones sobre la forma en la que van a aprender en este grado.
Teachers seem more interested in testing what you have memorised than what you have understood.	Los maestros parecen más interesados en evaluar lo que has aprendido de memoria que lo que has entendido.	Teachers seem more interested in testing what you have memorised than what you have understood	Los maestros parecen más interesados en evaluar lo que has aprendido de memoria que lo que has entendido.
It is often hard to discover what is expected of you in this degree.	A menudo es difícil descubrir lo que se espera de mí en este grado.	It is often hard to find out what is expected from you in this degree	A menudo es difícil descubrir lo que se espera de mí en este grado.
We are generally given enough time to understand the things we have to learn.	En general, tenemos tiempo suficiente para entender las cosas que tenemos que aprender.	We are generally given enough time to understand the things we have to learn	En general, tenemos tiempo suficiente para entender las cosas que tenemos que aprender.
The teachers at my university make a real effort to understand difficulties students may be having with their work.	Los profesores de mi universidad hacen un verdadero esfuerzo para comprender las dificultades que los estudiantes pueden tener con su trabajo.	My university teachers make a real effort to understand difficulties students may have with their work.	Los profesores de mi universidad hacen un verdadero esfuerzo para comprender las dificultades que los estudiantes puedan tener con su trabajo.
Students here are given a lot of choice in the work they have to do.	A los estudiantes aquí se les da un montón de opciones en el trabajo que tienen que hacer.	Students are given here a lot of choice in the work they have to do	Aquí Los estudiantes tienen muchas opciones donde elegir en el trabajo que tienen que hacer.
Teachers at my school normally give helpful feedback on how you are doing.	Los profesores de mi escuela nos suelen dar información útil sobre cómo nos está yendo.	Teachers at my school normally give helpful information on how you are doing.	Los profesores de mi escuela nos suelen dar información útil sobre cómo nos está yendo.
Our teachers are extremely good at explaining things to us.	Nuestros profesores son muy buenos para explicarnos las cosas.	Our teacher are really good at explaining things to us	Nuestros profesores son muy buenos a la hora de explicarnos las cosas.
The aims and objectives of this degree are NOT very clear.	Los objetivos finales de este título no son muy claros.	The goals of this degree are NOT very clear.	Los objetivos finales de este título no están muy claros.
Teachers at my university work hard to make subjects interesting.	Los profesores de mi universidad trabajan arduamente para hacer los temas interesantes.	Teachers at my university work hard to make subjects interesting.	Los profesores de mi universidad trabajan duramente para hacer los temas interesantes
Too many teachers ask us just about the facts.	Demasiados profesores nos preguntan sólo sobre los hechos.	Too many teachers ask us just about the facts.	Demasiados profesores nos preguntan sólo sobre los hechos.

There is a lot of pressure on you as a student here.	Hay mucha presión sobre mi como estudiante aquí.	There is a lot of pressure on you as a student here.	Hay mucha presión sobre mi como estudiante aquí.
This degree has helped me develop the ability to plan my own work.	Este título me ha ayudado a desarrollar la capacidad de planificar mi propio trabajo.	This degree has helped me develop the ability to plan my work.	Este título me ha ayudado a desarrollar la capacidad de planificar mi propio trabajo.
Feedback on student work is usually provided ONLY in the form of marks and grades.	Los comentarios sobre el trabajo de los estudiantes por lo general <u>únicamente</u> son reflejados en las notas	Comments on the work of students usually are reflected only in the marks	Por lo general los comentarios sobre el trabajo de los estudiantes <u>únicamente</u> son reflejados en las notas
We often discuss with our teachers how we are going to learn in this degree.	A menudo, hablamos con los maestros sobre cómo vamos a aprender en este grado.	We often talk with our teacher about how we are going to learn in this degree	A menudo, hablamos con los maestros sobre cómo vamos a aprender en este grado.
Teachers at my university show no real interest in what students have to say.	Los profesores de mi universidad no muestran ningún interés real sobre lo que los estudiantes tienen para decir.	My university teachers don't show real interest in what students have to say	Los profesores de mi universidad no muestran ningún interés real sobre lo que los estudiantes tienen que decir.
It would be possible to get through this degree just by working hard around exam times.	Sería posible obtener el título sólo trabajando duro en las épocas de exámenes.	It would be possible to get this degree just by working hard during the exam times	Sería posible obtener el título sólo trabajando duro en las épocas de exámenes.
This degree really tries to get the best out of all its students.	Este grado realmente trata de obtener lo mejor de todos sus estudiantes.	This degree tries to get the best of every student.	Este grado realmente trata de obtener lo mejor de todos sus estudiantes.
There is very little choice in this degree in the ways you are assessed.	En este grado hay muy pocas opciones en las formas de evaluación	There is very little choice in this degree in the way you are assessed	En este grado hay muy pocas opciones diferentes de formas de evaluación
The teachers at my university make it clear right from the start what they expect from students.	Los profesores de mi universidad dejan claro desde el principio lo que esperan de los estudiantes.	My university teachers make it clear from the beginning what they expect from students	Los profesores de mi universidad dejan claro desde el principio lo que esperan de los estudiantes.
The amount of work you have to get through in this degree means you cannot comprehend it all in detail.	La cantidad de trabajo que tienes que realizar en este grado implica que no puedes comprender todo con detalle.	The amount of work you have to do in this degree means that you cannot understand all in detail.	La cantidad de trabajo que tienes que realizar en este grado quiere decir que no puedes comprender todo con detalle.
Overall, I am satisfied with the quality of this degree.	En general, estoy satisfecho con la calidad de este título.	Overall, I am satisfied with the quality of this degree.	En general, estoy satisfecho con la calidad de este título.
While I am studying, I often think of real life situations to which the material that I am learning would be useful.	Mientras estoy estudiando, a menudo pienso en las situaciones de la vida real en las que la materia que estoy aprendiendo sería útil.	While I am studying, I often think of real-life situations in which the material I'm learning would be useful.	Mientras estoy estudiando, a menudo pienso en situaciones de la vida real en las que la materia que estoy estudiando sería útil.
I chose my present degree largely with a view to the job situation when I graduate rather than their intrinsic interest to me.	Yo elegí mi carrera actual en gran parte con vistas a la situación laboral cuando me gradúe en lugar de a mi propio interés.	I chose my current degree largely overlooking the employment situation when I graduate rather than to my own interest.	Elegí mi carrera actual en gran parte mirando la situación laboral cuando me gradúe, en lugar de mi propio interés.
I find that at times studying gives me a	Me parece que a veces estudiar me da	I sometimes find studying gives me a	A veces siento que estudiar me da una

feeling of deep personal satisfaction.	una sensación de profunda satisfacción personal.	feeling of deep personal satisfaction.	gran satisfacción personal
I want top grades in most or all of my degree, courses, and classes so that I will be able to select from among the best positions available when I graduate.	Quiero las mejores calificaciones en la mayor parte o la totalidad de mi carrera, cursos y clases, así voy a ser capaz de elegir los mejores puestos disponibles cuando me gradúe.	I want top marks in most or all of my degree, courses and classes, so I will be able to choose the best job positions available when I graduate.	Quiero las mejores calificaciones en la mayor parte o la totalidad de mi carrera, cursos y clases, para así poder elegir los mejores puestos de trabajo disponibles cuando me gradúe.
I think browsing around is a waste of time, so I only study seriously what's given out in class or in course outlines.	Creo que navegar alrededor es una pérdida de tiempo, así que sólo estudio seriamente lo que está dado en clase o en esquemas.	I think browsing around is a waste of time, so I just study what's given in class	Creo que buscar otras fuentes de información es una pérdida de tiempo, por lo que solo estudio la materia dada en clase.
I try to work consistently throughout the term and review regularly when the exams are close.	Trato de trabajar de forma constante durante todo el período y repasar regularmente cuando los exámenes están cerca.	I try to work consistently during the whole term and review regularly when exams are close	Trato de trabajar de forma constante durante todo el curso/cuatrimestre y repasar regularmente cuando los exámenes están cerca.
I would see myself basically as an ambitious person and want to get to the top, whatever I do.	Me veo a mí mismo, básicamente, como una persona ambiciosa que quiere llegar a la cima, en cualquier cosa que haga.	I see myself basically as an ambitious person who wants to get to the top, in whatever I do.	Me veo a mí mismo, básicamente, como una persona ambiciosa que quiere llegar a la cima, en cualquier cosa que haga.
I find that I have to do enough work on a subject so that I form my own point of view before I am satisfied.	Me parece que tengo que trabajar sobre un tema lo suficiente para formarme mi propio punto de vista antes de darme por satisfecho.	I find that I have to work enough on a subject to form my own point of view before I am satisfied.	Para poder tener un punto de vista propio, siento que tengo que trabajar lo suficiente en ese tema para poder darme por satisfecho.
I try to do all of my assignments as soon as possible after they have been set.	Trato de hacer todas mis tareas tan pronto como es posible, una vez que se han mandado realizar.	I try to do all my tasks as soon as posible alter they have been set	Trato de hacer todas mis tareas tan pronto como es posible, una vez que se han mandado realizar.
I find that studying academic subjects can at times be as exciting as a good novel or film.	Me parece que el estudio de las materias académicas a veces puede ser tan excitante que una buena novela o película.	I find that studying academia subjects can sometimes be as exciting as a good novel or film.	Me parece que estudiar materias académicas a veces puede ser tan emocionante como leer una buena novela o ver una buena película.
I usually become increasingly absorbed in my work the more I do.	Por lo general estoy cada vez más absorto en mi trabajo.	I generally become increasingly absorbed in my work the more I do	Por lo general estoy cada vez más absorto en mi trabajo.
I generally restrict my study to what is specially set as I think it is unnecessary to do anything extra.	Yo por lo general limito mi estudio a lo que está especialmente configurado porque creo que no es necesario hacer nada más.	I usually limit my study to what is specially set as I believe is not necessary to do anything else.	Por lo general limito mi estudio a lo que está especialmente establecido ya que creo que no es necesario hacer nada más.
I almost resent having to do further years studying after leaving school, but feel that the end results make it all worthwhile.	Casi me molesta tener que estar más años estudiando después de terminar la escuela, pero siento que el resultado final	I almost resent having further years of studying after leaving school, but I feel that the end results will make it all	Me molesta tener que estar más años estudiando después de terminar la escuela, pero siento que el resultado final

	hará que todo valga la pena.	worthwhile.	hará que todo valga la pena.
I see getting high marks as a kind of competitive game, and I play it to win.	Obtener una alta calificación lo veo como una especie de juego competitivo, y yo juego para ganar.	I see getting high marks as a kind of competitive game, and I play it to win.	Obtener una alta calificación lo veo como una especie de juego competitivo, y yo juego para ganar.
I find it best to accept the statements and ideas of my teachers and question them only under special circumstances.	Me parece que lo mejor era aceptar las declaraciones e ideas de mis maestros y hacerles preguntas sólo bajo circunstancias especiales.	I find the best to accept the statements or ideas of my teacher and ask them only under special circumstances.	Me parece que lo mejor es aceptar las declaraciones e ideas de mis maestros y hacerles preguntas sólo en circunstancias especiales.
Whether I like it or not, I can see that further education is for me a good way to get a well-paid or secure job.	Me guste o no, puedo ver que la educación superior es para mí una buena manera de conseguir un empleo bien remunerado o seguro.	Whether I like it or not, I can see that my education is a good way to get a well-paid and secure job.	Me guste o no, puedo ver que la educación superior es para mí una buena manera de conseguir un empleo bien remunerado o seguro.
I try to relate new material, as I am reading it, to what I already know on the subject.	Trato de relacionar el nuevo material, que estoy leyendo, con lo que ya se sobre el tema.	I try to relate new material, as I am reading it, to what I already know about that subject	Trato de relacionar el nuevo material, que estoy leyendo, con lo que ya se sobre el tema.
I keep neat, well organised notes for most subjects.	Tengo los apuntes limpios y bien organizados para la mayoría de las asignaturas.	I keep neat and well organised notes for most subjects.	Tengo los apuntes limpios y bien organizados para la mayoría de las asignaturas.
Please feel free to add any comments that you consider useful.	Por favor, siéntase libre de añadir los comentarios que juzgue oportuno formular.	Please feel free to add any comments that you consider useful.	Por favor, añade cualquier comentario que considere oportuno.
Please click to submit. [submit]	Por favor, haga clic en enviar. [enviar]	Please click to submit. [submit]	Por favor, haga clic en enviar. [enviar]
For further information or for any enquiries about the questionnaire please contact Marouen Ben Guebila (education@ipsf.org) or Naoko Arakawa (naoko.arakawa.11@ucl.ac.uk).	Para obtener más información o realizar una consulta sobre el cuestionario por favor póngase en contacto con Marouen Ben Guebila (education@ipsf.org) o Naoko Arakawa (naoko.arakawa.11@ucl.ac.uk).	For further information or for any enquiries about the questionnaire please contact Marouen Ben Guebila (education@ipsf.org) or Naoko Arakawa (naoko.arakawa.11@ucl.ac.uk).	Para obtener más información o realizar una consulta sobre el cuestionario por favor póngase en contacto con Marouen Ben Guebila (education@ipsf.org) o Naoko Arakawa (naoko.arakawa.11@ucl.ac.uk).
Your data has been processed.	Sus datos han sido procesados.	Your data has been processed.	Sus datos han sido procesados.
Thank you for your contribution.	Gracias por su colaboración.	Thank you for your contribution.	Gracias por su colaboración.

Appendix 8: Online questionnaire of the Student Learning Experience Survey



2013/14 FIPed - IPSF Student Learning Experience Questionnaire

There is much interest in quality and standards of professional pharmacy education as health policy world-wide becomes more focussed on extending the roles of pharmacy practitioners to provide more effective medicines-related health services. To achieve higher and equitable quality, the global infrastructure for pharmacy education needs to be mapped to the required competencies of pharmacy practitioners in order to meet the given health needs in any country. As students are at the centre of pre-service education, their input is important in the development of educational policies and practices. It is of interest to survey the student learning experience.

"FIPed - IPSF Student Learning Experience Questionnaire" is the continuation of Moving On II, which was a project with the main focus on the pharmacy students' perceptions on their degree (data being collected since 2004 by IPSF) and now was revised to include the students' ways of studying about their degree as well as the original Moving On II questionnaire. The new additions to the questionnaire will enable the retrieval of better evidence on how students perceived their learning experiences throughout their degree. Therefore, this "FIPed - IPSF Student Learning Experience Questionnaire" allows world-wide comparisons and mapping of the learning experiences and the quality of learning of students enrolled in pharmacy programmes. It is the largest study of its type to date. Data collected will provide an evidence for education advancement.

This is a global project, supported by FIP Education Initiatives (FIPed) Development Team (http://www.fip.org/pharmacy_education) and International Pharmaceutical Students' Federation (IPSF: <http://www.ipsf.org/>).

Click the language below to start questionnaire in the selected language:

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[中文](#)

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Thank you for your contribution.

For further information or if you have any enquiries about this questionnaire please contact [Naoko Arakawa](#) or [Marouen Ben Guebila](#).



2013/14 FIPed-IPSF Student Learning Experience Questionnaire



Instructions:

Please think about your pharmacy degree and your ways of studying about your degree in general. Think about your whole degree and not just about individual subjects, topics or teachers/lecturers when answering this questionnaire.

This is an anonymous questionnaire and no one will be able to identify you. Please answer honestly. Your responses are confidential and will not be seen by your teachers or university. Please follow the directions and answer all questions.

This questionnaire should take no more than 10-15 minutes of your time. Your contribution is highly valued, and we appreciate your time and effort.

1. PERSONAL INFORMATION:	
Country of birth	Please select <input type="text"/> Enter if not listed
Country of study	Please select <input type="text"/> Enter if not listed
University in national language	<input type="text"/>
University in English	<input type="text"/>
Faculty	<input type="text"/> if applicable
Age	<input type="text"/>
Gender	<input type="radio"/> Female <input type="radio"/> Male
Year of Study (consider 7 as internship/pre-registration)	<input type="radio"/> 1 <input type="radio"/> 2 <input type="radio"/> 3 <input type="radio"/> 4 <input type="radio"/> 5 <input type="radio"/> 6 <input type="radio"/> 7
Do you hold a previous degree?	<input type="radio"/> Yes <input type="radio"/> No
Do you have a part-time job while also studying?	<input type="radio"/> Yes <input type="radio"/> No
Has gender influenced your decision to study Pharmacy?	<input type="radio"/> Positive influence <input type="radio"/> Negative influence <input type="radio"/> No influence
Have you always wanted to be a pharmacist? (e.g did you consider becoming a pharmacist at high school?)	<input type="radio"/> Yes <input type="radio"/> No
Do you have any family member or close friend who is a pharmacist?	<input type="radio"/> Yes <input type="radio"/> No
Were you encouraged by your family to study pharmacy?	<input type="radio"/> Yes <input type="radio"/> No
At the moment, in which area of the professional practice would you most like to work?	<input type="radio"/> Community pharmacy <input type="radio"/> Hospital pharmacy <input type="radio"/> Industry/wholesale/marketing <input type="radio"/> Academia + Research <input type="radio"/> Outside the profession (not pharmacy related) <input type="radio"/> Other (pharmacy related)
Please choose three categories which best represent your motivations to study pharmacy	
<input type="checkbox"/> 1. Interest in science	<i>Interest in, like of, and aptitude for science, biology, and math, for example</i>
<input type="checkbox"/> 2. Contribution to healthcare	<i>Desire to help people; and interest in healthcare and in teamwork with other health professionals</i>
<input type="checkbox"/> 3. Financial and economic aspects	<i>Opportunities for earning a good salary and material rewards</i>
<input type="checkbox"/> 4. Work-life balance expectation	<i>Balancing a personal and family life with a career; flexibility of work situations in pharmacy; and workload expectation in pharmacy school</i>
<input type="checkbox"/> 5. Professional and vocational career	<i>Social prestige; respected profession; and professional status</i>
<input type="checkbox"/> 6. Future career opportunities	<i>Job security; variety of career opportunities; and a desire to own their own business</i>
<input type="checkbox"/> 7. Personal and family influences	<i>Influence from family, other relatives, personal friends, college instructor/advisor, high school counsellor, role models pharmacists, or other healthcare professionals; personal experiences; and previous job experiences</i>
<input type="checkbox"/> 8. Personal development and fulfilment	<i>Being independent; continuing professional development; job satisfaction; achievement in life; and fulfillment to enter higher education</i>

For each of the following statements, please choose ONE category which most appropriately reflects your response:

Please note that the word "degree" refers to your university course, degree, or diploma to be a pharmacist in your country.

2. EXPERIENCE:		Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
1	It is always easy to know the standard work expected for my degree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2	This degree has helped me to develop my problem-solving skills	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3	There are NOT many opportunities (in terms of optional subjects/elective courses) to choose particular areas to study	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4	The teachers of this degree motivate students to do their best work	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5	The workload is too heavy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6	This degree has improved my analytical skills	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7	Teachers here frequently give the impression they have nothing to learn from the students	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8	You usually have a clear idea of where you are going and what is expected of you	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9	Teachers at my university put in a lot of time on feedback of student's work	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
10	To do well on this degree all you really need is a good memory	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
11	This degree has helped to develop my ability to work as a team member	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
12	As a result of doing this degree, I feel more confident about approaching/solving unfamiliar problems	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
13	This degree has improved my written communication skills	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
14	It seems to me that the curriculum content tries to cover too many topics	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
15	The degree has encouraged me to develop my own academic interests as far as possible	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
16	Students have a great deal of choice over how they are going to learn in this degree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
17	Teachers seem more interested in testing what you have memorised than what you have understood	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
18	It is often hard to discover what is expected of you in this degree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
		Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
19	We are generally given enough time to understand the things we have to learn	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
20	The teachers at my university make a real effort to understand difficulties students may be having with their work	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
21	Students here are given a lot of choice in the work they have to do	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
22	Teachers at my school normally give helpful feedback on how you are doing	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
23	Our teachers are extremely good at explaining things to us	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
24	The aims and objectives of this degree are NOT very clear	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
25	Teachers at my university work hard to make subjects interesting	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
26	Too many teachers ask us just about the facts	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
27	There is a lot of pressure on you as a student here	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
28	This degree has helped me develop the ability to plan my own work	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
29	Feedback on student work is usually provided ONLY in the form of marks and grades	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
30	We often discuss with our teachers how we are going to learn in this degree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
31	Teachers at my university show no real interest in what students have to say	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
32	It would be possible to get through this degree just by working hard around exam times	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
33	This degree really tries to get the best out of all its students	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
34	There is very little choice in this degree in the ways you are assessed	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
35	The teachers at my university make it clear right from the start what they expect from students	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
36	The amount of work you have to get through in this degree means you cannot comprehend it all in detail	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
37	Overall, I am satisfied with the quality of this degree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

		Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
38	While I am studying, I often think of real life situations to which the material that I am learning would be useful	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
39	I chose my present degree largely with a view to the job situation when I graduate rather than their intrinsic interest to me	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
40	I find that at times studying gives me a feeling of deep personal satisfaction	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
41	I want top grades in most or all of my degree, courses, and classes so that I will be able to select from among the best positions available when I graduate	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
42	I think browsing around is a waste of time, so I only study seriously what's given out in class or in course outlines	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
43	I try to work consistently throughout the term and review regularly when the exams are close	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
44	I would see myself basically as an ambitious person and want to get to the top, whatever I do	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
45	I find that I have to do enough work on a subject so that I form my own point of view before I am satisfied	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
46	I try to do all of my assignments as soon as possible after they have been set	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
47	I find that studying academic subjects can at times be as exciting as a good novel or film	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
48	I usually become increasingly absorbed in my work the more I do	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
49	I generally restrict my study to what is specially set as I think it is unnecessary to do anything extra	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
50	I almost resent having to do further years studying after leaving school, but feel that the end results make it all worthwhile	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
51	I see getting high marks as a kind of competitive game, and I play it to win	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
52	I find it best to accept the statements and ideas of my teachers and question them only under special circumstances	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
53	Whether I like it or not, I can see that further education is for me a good way to get a well-paid or secure job	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
54	I try to relate new material, as I am reading it, to what I already know on the subject	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
55	I keep neat, well organised notes for most subjects	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
		Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree

Please feel free to add any comments that you consider useful.

254 left.

Please click to submit

For further information or for any enquiries about the questionnaire please contact [Naoko Arakawa](#) or [Marouen Ben Guebila](#).

Appendix 9: Invitation letter of the Student Learning Experience Survey

**RE: FIPed–IPSF Student Learning Experience Questionnaire**

Dear Pharmacy Students,

There is a global interest in quality and standards of professional pharmacy education as health policy world-wide becomes more focussed on extending the roles of pharmacists to provide more effective medicines-related health services. To achieve higher and equitable quality, the global infrastructure for pharmacy education needs to be mapped to the required competencies of pharmacists in order to meet the given health needs in any country. As students are at the centre of pre-service education, their input is important in the development of educational policies and practices. It is of global interest and relevance to survey the student learning experience.

FIP Education Initiative (FIPed) and IPSF are now implementing a global survey that aims to collect data:

- To identify the key demographic variables of students;
- To measure and map global patterns of the learning experiences in pharmacy programmes, and;
- To measure and map attributes of the quality of learning of students in pharmacy programmes across the nations.

Data collected will provide key evidence for education advancement. Your participation in this survey is vital to provide to a better evidence of current pharmacy students learning experiences, and will assist in the development of global pharmacy education policy recommendations.

The “FIPed–IPSF Student Learning Experience Questionnaire” is an on-line survey in 7 different languages (Arabic, English, French, Japanese, Mandarin-Chinese, Portuguese, and Spanish). Please reply in the following survey link: http://www.codegnet.org.uk/mol1_2013/. This questionnaire should take no more than 15 minutes of your time. If you have any enquiries about this survey, please contact Naoko Arakawa (naoko.arakawa.11@ucl.ac.uk) or Fahmi Fuady (education@ipsf.org).

Remember your voice is the best evidence to inform the future of pharmacy. Tell us your learning experience and become change-makers.

Sincerely,

Naoko Arakawa
FIP Collaborating Centre

Fahmi Fuady
IPSF Chairperson of Pharmacy Education 2013-14

The International Pharmaceutical Federation (www.FIP.org) is the global federation of national organizations of pharmacists and pharmaceutical scientists dedicated to improving the global health by advancing pharmacy practice and science to enable better discovery, development, access to and safe use of appropriate, cost-effective, quality medicines worldwide.

Appendix 10: Invitation email template of the Student Learning Experience Survey

RE: FIPed – IPSF Student Learning Experience Questionnaire | deadline: 22nd of April

Dear Pharmacy Students,

The FIP Education Initiatives (FIPed) and the International Pharmaceutical Students' Federation (IPSF) are undertaking a collaborative programme of work to develop evidence-based data through which to achieve higher and equitable quality of global professional pharmacy education. As students are at the centre of pre-service education, their input is important in the development of educational policies and practices.

FIPed and IPSF are now implementing a global survey that aims to collect data of students' learning experiences in pharmacy students across the nations. Data collected will provide key evidence for education advancement.

Your participation in this survey is **vital** to provide to a better evidence of current pharmacy students learning experiences, and will assist in the development of global pharmacy education policy recommendations. It is important for you and your country to be represented in this global survey.

The "FIPed – IPSF Student Learning Experience Questionnaire" is an on-line survey in 7 different languages (Arabic, English, French, Japanese, Mandarin-Chinese, Portuguese, and Spanish). Please click on the survey link (http://www.codegnet.org.uk/moll_2013/) and answer in the language that best suits you. This questionnaire should take no more than 15 minutes of your time.

If you have any enquiries about this survey, please contact **Naoko Arakawa** (naoko.arakawa.11@ucl.ac.uk) or **Marouen Ben Guebila** (education@ipsf.org).

Remember that your voice is the best evidence to inform the future of pharmacy. Tell us how you feel about your learning experiences and become change-makers.

Thank you in advance for your participation.

Sincerely,

Naoko Arakawa
FIP Collaborating Centre

Marouen Ben Guebila
IPSF Chairperson of Pharmacy Education 2012-2013

Appendix 11: FIP-WHO Pharmacy Education Survey



FIP-WHO Global Survey of Pharmacy Schools | Country

This global survey aims to collect information to ascertain the educational background of the pharmacy workforce as well as the quality assurance accreditation mechanisms and processes. The data will be used to identify gaps, shortages and cooperation opportunities, and will provide the evidence-based information needed for investment policies that will reduce existing gaps and increase pharmacy education capacity.

Please reply to this questionnaire on behalf of **your country**.

Country and contact information

Country information		
1.	State the country	
Contact completing this questionnaire		
2.	Title	
3.	First name	
4.	Last name	
5.	Job title	
6.	Organisation/Agency	
7.	Email address (the email format is xxxx@vvyv.zzz)	
8.	Website (the URL format is http://xxxxx)	http://
9.	Phone number	
10.	Fax number	
11.	Address	

Production of pharmacists

Definition: A "pharmacy degree" refers to the degree related to pharmacy, which leads to the registration as a pharmacist in your country.

The number of pharmacy graduates (at National level)			
		Number	Year of data
12.	a) Total number of pharmacy graduates per year		
	b) Total number of FEMALE pharmacy graduates per year		
The number of faculties, schools or departments of pharmacy			
		Number	Year of data
13.	Total number of faculties, schools or departments of pharmacy that currently provide a pharmacy degree		
Usual starting age for university study			
		Age	Year of data
14.	What is the age of university entry level to study pharmacy?	years	

The International Pharmaceutical Federation (FIP) is the global federation of national organisations of pharmacists and pharmaceutical scientists dedicated to improving the global health by advancing pharmacy practice and science to enable better discovery, development, access to and safe use of appropriate, cost-effective, quality medicines worldwide.



Moving forward with a new vision and a new look





OWNERSHIP of the faculties, schools or departments of pharmacy

What is the OWNERSHIP of the faculties, schools or departments of pharmacy?			
	Faculty Owned by: <i>(Please select the most appropriate description)</i>		Number of faculties/schools/departments
15.	a) Ministry of Health	<input type="checkbox"/> Yes <input type="checkbox"/> No	N= [redacted]
	b) Ministry of Higher Education	<input type="checkbox"/> Yes <input type="checkbox"/> No	N= [redacted]
	c) Public state/government owned	<input type="checkbox"/> Yes <input type="checkbox"/> No	N= [redacted]
	d) Private not for profit	<input type="checkbox"/> Yes <input type="checkbox"/> No	N= [redacted]
	e) Private for profit	<input type="checkbox"/> Yes <input type="checkbox"/> No	N= [redacted]
	f) Public/private mix (Please provide details in the space provided on the right)	<input type="checkbox"/> Yes <input type="checkbox"/> No	Details: [redacted] N= [redacted]
	g) Others (Please provide details in the space provided on the right)	<input type="checkbox"/> Yes <input type="checkbox"/> No	Details: [redacted] N= [redacted]

Financing of education

Definition: "Tuition fee" refers to any fee directly paid by students, and "per capita or capitation provision from public funds" here means the per capita proportion of funding from taxes or government.

(Please note that the responses added in 16a), 16b) and 16c), or 17a) and 17c) should sum up to a total of 100%)

Cost for educating pharmacy students					
		Amount (please response in numbers e.g. 1000)	Currency	Proportion of the total student funding (%)	Year of data
16. Domestic students	a) Tuition fee for domestic (HOME) students per year	[redacted]	[redacted]	[redacted] %	[redacted]
	b) Per capita or capitation provision from public funds per year (e.g. taxes, government)	[redacted]	[redacted]	[redacted] %	[redacted]
	c) Others (please specify: [redacted])	[redacted]	[redacted]	[redacted] %	[redacted]
17. Overseas/ international students	a) Tuition fee for an OVERSEAS student per year	[redacted]	[redacted]	[redacted] %	[redacted]
	b) Others (please specify: [redacted])	[redacted]	[redacted]	[redacted] %	[redacted]





Academic programmes

Definition: An “academic programme” is a combination of courses or learning modules that give access to a degree, diploma, certificate or other credential, which is recognised in society outside the educational institution such as a Diploma, Baccalaureate Degree, Masters Degree, Professional Doctorate, and PhD. The “National Higher Education Qualification Framework” here refers to a national, formal description of types of degree qualification (e.g. Bachelor, Master, Diploma, PhD, etc.), and associated standards.

What ACADEMIC PROGRAMMES lead to registration as a pharmacist?			
	Formal Name of Academic Programme (please spell out name in full and do not use abbreviations)	Title of Qualifications Awarded	Minimum duration of Programme (Years)
18.	(i) Academic programme 01		years
	(ii) Academic programme 02		years
National Higher Education Qualifications Framework			
19.	Is there any NATIONAL HIGHER EDUCATION QUALIFICATIONS FRAMEWORK in operation in your country?		<input type="checkbox"/> Yes <input type="checkbox"/> No
Is the internship or pre-registration training integrated in the main academic programme leading to the registration/licensure as a pharmacist?			
		The kind of practice	Length of training
20.	a) Integrated	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Community <input type="checkbox"/> Hospital <input type="checkbox"/> Industry <input type="checkbox"/> Other (please specify:)
	b) Separated	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Community <input type="checkbox"/> Hospital <input type="checkbox"/> Industry <input type="checkbox"/> Other (please specify:)
	c) No internship/pre-registration training for a registration as a pharmacist	<input type="checkbox"/> Yes <input type="checkbox"/> No	
The registration/licensure of pharmacy graduates			
21.	a) Do pharmacy students GRADUATE and REGISTER/are licensed as a pharmacist at the same time?		<input type="checkbox"/> Yes <input type="checkbox"/> No (please specify in the Q21b)
	b) if <u>NO</u> above, please specify what the requirements are to register/become licensed as a pharmacist after graduation		





MINIMUM requirement for admission to a pharmacy degree programme

Definition: A "pharmacy degree" refers to the degree related to pharmacy, which leads to the registration as a pharmacist in your country.

Which of the following are required for admission to university to study pharmacy? (You can indicate more than one option.)			
22.	a) Secondary school leaving exam	<input type="checkbox"/> Yes <input type="checkbox"/> No	Additional information:
	b) A special branch of secondary school (please specify which branch in the space provided on the right)	<input type="checkbox"/> Yes <input type="checkbox"/> No	Additional information:
	c) Diploma, degree or certificate (please specify what type in the space provided on the right)	<input type="checkbox"/> Yes <input type="checkbox"/> No	Additional information:
	d) A special course (please specify what course in the space provided on the right)	<input type="checkbox"/> Yes <input type="checkbox"/> No	Additional information:
	e) Entrance examination (national or supra-national)	<input type="checkbox"/> Yes <input type="checkbox"/> No	Additional information:
	f) Entrance examination of the faculty or school	<input type="checkbox"/> Yes <input type="checkbox"/> No	Additional information:
	g) Interview	<input type="checkbox"/> Yes <input type="checkbox"/> No	Additional information:
	h) Others (please provide details in the space provided on the right)	<input type="checkbox"/> Yes <input type="checkbox"/> No	Additional information:

Core curriculum or syllabus for pharmacy degree

Definition: "Core curriculum or syllabus" here refers to a common, standardised, or indicative curriculum for qualification. A "pharmacy degree" is the degree related to pharmacy, which leads to registration as a pharmacist in your country.

Use of core curriculum or syllabus		
23.	a) Does your country use any nationally agreed core curriculum or syllabus for pharmacy degree?	<input type="checkbox"/> Yes (please specify in Q23b) <input type="checkbox"/> No
	b) If YES in above, please provide the related documents for the core curriculum or integrated curriculum	<input type="checkbox"/> Attached <input type="checkbox"/> Information on website (Please specify the URL address: <a background-color:="" href="http:// ">http://) <input type="checkbox"/> No
MINIMUM proportion of time for practice in science-based laboratories in the core curriculum or syllabus		
24.	What proportion of time is dedicated to LABORATORY PRACTICE in the core curriculum or syllabus? (Please respond as an approximate percentage, and enter a value between 0 and 100)	 %





Curriculum in the EARLY year(s) of the pharmacy degree	
25.	For the EARLY years of the university curriculum, which of the following best describes the content/expectations in general? <input type="checkbox"/> Wholly general science, with very little pharmacy practice component <input type="checkbox"/> Mostly general science orientation, with small/moderate pharmacy practice components <input type="checkbox"/> A mix of general science and pharmacy practice

Licensure of practice

To practice pharmacy in your country													
26.	Do pharmacy graduates require a LICENSE, registration or other authorization to practice pharmacy? <input type="checkbox"/> Yes <input type="checkbox"/> No												
How do students from the main academic pharmacy programme obtain a LICENSE, registration or other authorisation to practice pharmacy? (You can indicate more than one option.)													
27.	<table border="1"> <tr> <td>a) Immediately upon graduation</td> <td><input type="checkbox"/> Yes <input type="checkbox"/> No</td> <td></td> </tr> <tr> <td>b) After passing a further examination after graduation</td> <td><input type="checkbox"/> Yes <input type="checkbox"/> No</td> <td></td> </tr> <tr> <td>c) After a period of practical experience after graduation (if yes, please specify length of time)</td> <td><input type="checkbox"/> Yes <input type="checkbox"/> No</td> <td>Please specify: </td> </tr> <tr> <td>d) Others (if yes, please specify in the provided space on the right)</td> <td><input type="checkbox"/> Yes <input type="checkbox"/> No</td> <td>Please specify: </td> </tr> </table>	a) Immediately upon graduation	<input type="checkbox"/> Yes <input type="checkbox"/> No		b) After passing a further examination after graduation	<input type="checkbox"/> Yes <input type="checkbox"/> No		c) After a period of practical experience after graduation (if yes, please specify length of time)	<input type="checkbox"/> Yes <input type="checkbox"/> No	Please specify: 	d) Others (if yes, please specify in the provided space on the right)	<input type="checkbox"/> Yes <input type="checkbox"/> No	Please specify:
a) Immediately upon graduation	<input type="checkbox"/> Yes <input type="checkbox"/> No												
b) After passing a further examination after graduation	<input type="checkbox"/> Yes <input type="checkbox"/> No												
c) After a period of practical experience after graduation (if yes, please specify length of time)	<input type="checkbox"/> Yes <input type="checkbox"/> No	Please specify: 											
d) Others (if yes, please specify in the provided space on the right)	<input type="checkbox"/> Yes <input type="checkbox"/> No	Please specify: 											
Licensing authority													
28.	Which authority awards graduates with a LICENSE, registration or other authorisation to practice? 												

Quality assurance

Quality assurance mechanisms and processes																						
29.	Are the faculties or schools subject to PERIODIC ACCREDITATION or similar process by an external body in your country? (This is usually an evaluation conducted by an organisation or agency outside of the faculty or school). <input type="checkbox"/> Yes <input type="checkbox"/> No (if NO, skip to the Q33)																					
How frequently is accreditation conducted?																						
30.	<table border="1"> <tr> <td>a) Requires to be accredited only once after the establishment of the faculty/school</td> <td><input type="checkbox"/> Yes <input type="checkbox"/> No</td> <td></td> </tr> <tr> <td>b) More than once a year</td> <td><input type="checkbox"/> Yes <input type="checkbox"/> No</td> <td></td> </tr> <tr> <td>c) Once a year</td> <td><input type="checkbox"/> Yes <input type="checkbox"/> No</td> <td></td> </tr> <tr> <td>d) Once every 2 years</td> <td><input type="checkbox"/> Yes <input type="checkbox"/> No</td> <td></td> </tr> <tr> <td>e) Once every 3 years</td> <td><input type="checkbox"/> Yes <input type="checkbox"/> No</td> <td></td> </tr> <tr> <td>f) Once every 5 years</td> <td><input type="checkbox"/> Yes <input type="checkbox"/> No</td> <td></td> </tr> <tr> <td>g) Other frequency (please provide details in the space provided on the right)</td> <td><input type="checkbox"/> Yes <input type="checkbox"/> No</td> <td>Please specify: </td> </tr> </table>	a) Requires to be accredited only once after the establishment of the faculty/school	<input type="checkbox"/> Yes <input type="checkbox"/> No		b) More than once a year	<input type="checkbox"/> Yes <input type="checkbox"/> No		c) Once a year	<input type="checkbox"/> Yes <input type="checkbox"/> No		d) Once every 2 years	<input type="checkbox"/> Yes <input type="checkbox"/> No		e) Once every 3 years	<input type="checkbox"/> Yes <input type="checkbox"/> No		f) Once every 5 years	<input type="checkbox"/> Yes <input type="checkbox"/> No		g) Other frequency (please provide details in the space provided on the right)	<input type="checkbox"/> Yes <input type="checkbox"/> No	Please specify:
a) Requires to be accredited only once after the establishment of the faculty/school	<input type="checkbox"/> Yes <input type="checkbox"/> No																					
b) More than once a year	<input type="checkbox"/> Yes <input type="checkbox"/> No																					
c) Once a year	<input type="checkbox"/> Yes <input type="checkbox"/> No																					
d) Once every 2 years	<input type="checkbox"/> Yes <input type="checkbox"/> No																					
e) Once every 3 years	<input type="checkbox"/> Yes <input type="checkbox"/> No																					
f) Once every 5 years	<input type="checkbox"/> Yes <input type="checkbox"/> No																					
g) Other frequency (please provide details in the space provided on the right)	<input type="checkbox"/> Yes <input type="checkbox"/> No	Please specify: 																				





What is accredited? (You can indicate more than one option.)			
31.	a) The educational institution/university	<input type="checkbox"/> Yes <input type="checkbox"/> No	
	b) The faculty or school (e.g. school of pharmacy)	<input type="checkbox"/> Yes <input type="checkbox"/> No	
	c) The academic programme (please provide details in the space provided on the right)	<input type="checkbox"/> Yes <input type="checkbox"/> No	Please specify: [REDACTED]
Who is the ACCREDITING BODY?			
32.	a) Ministry of Health	<input type="checkbox"/> Yes <input type="checkbox"/> No	
	b) Ministry of Education	<input type="checkbox"/> Yes <input type="checkbox"/> No	
	c) Other governmental agency	<input type="checkbox"/> Yes <input type="checkbox"/> No	Please specify: [REDACTED]
	d) National professional organisation	<input type="checkbox"/> Yes <input type="checkbox"/> No	Please specify: [REDACTED]
	e) Private accrediting body	<input type="checkbox"/> Yes <input type="checkbox"/> No	Please specify: [REDACTED]
	f) Other	<input type="checkbox"/> Yes <input type="checkbox"/> No	Please specify: [REDACTED]
Other Quality assurance mechanisms or processes			
33.	a) Are there any other internal or external QUALITY ASSURANCE mechanisms or processes used by higher education institutions?	<input type="checkbox"/> Yes (please specify in the Q33b) <input type="checkbox"/> No	
	b) If YES in the Q33a), please provide additional information	[REDACTED]	

Related document

34.	Please include any relevant document (report, research, article references) related to pharmacy education and the academic programmes in your school/country with the submission of this survey.	<input type="checkbox"/> Attached
		<input type="checkbox"/> Information on website (Please specify the URL address: <a background-color:="" black;"="" color:="" href="http://[REDACTED]">http:// [REDACTED])
		<input type="checkbox"/> No

Your participation in this survey is vital to provide a better understanding of current pharmacy education issues, and will assist in the development of global pharmacy education policy recommendations.

Please save the completed form and return to education@fip.org

[Thank you for your participation](#)



Appendix 12: Forward-back translation of the Pharmacy Education Survey (Arabic)

Original School Survey Country	Forward translation	Back translation	Final translation
FIP-WHO Global Survey of Pharmacy Schools Country	المسح العالمي لكليات الصيدلة المستوى الدولي	FIP-WHO Global Survey of Pharmacy Schools Country	المسح العالمي لكليات الصيدلة المستوى الدولي
This global survey aims to collect information to ascertain the educational background of the pharmacy workforce as well as the quality assurance accreditation mechanisms and processes.	هذا المسح العالمي يهدف إلى جمع معلومات للتأكد من الخلفية التعليمية للقوى العاملة صيدلية وكذلك آليات وعمليات اعتماد ضمان الجودة.	This global survey aims to collect information to ascertain the educational background of the pharmacy workforce as well as the quality assurance accreditation mechanisms and processes.	هذا المسح العالمي يهدف إلى جمع معلومات للتأكد من الخلفية التعليمية للقوى العاملة صيدلية وكذلك آليات وعمليات اعتماد ضمان الجودة.
The data will be used to identify gaps, shortages and cooperation opportunities, and will provide the evidence-based information needed for investment policies that will reduce existing gaps and increase pharmacy education capacity.	سيتم استخدام هذه البيانات لتحديد الفجوات والنواقص وفرص التعاون، وسوف توفر المعلومات القائمة على الأدلة اللازمة لسياسات الاستثمار التي من شأنها الحد من الفجوات الموجودة وزيادة جودة التعليم الصيدلي.	The data will be used to identify gaps, shortages and cooperation opportunities, and will provide the evidence-based information needed for investment policies that will reduce existing gaps and increase pharmacy education capacity.	سيتم استخدام هذه البيانات لتحديد الفجوات والنواقص وفرص التعاون، وسوف توفر المعلومات القائمة على الأدلة اللازمة لسياسات الاستثمار التي من شأنها الحد من الفجوات الموجودة وزيادة جودة التعليم الصيدلي.
Please reply to this questionnaire on behalf of your country .	يرجى الرد على هذا الاستبيان بالنيابة عن بلدك .	Please reply to this questionnaire on behalf of your country .	يرجى الرد على هذا الاستبيان بالنيابة عن بلدك .
<i>Country and contact information</i>	<i>معلومات البلد وجهة الإتصال</i>	<i>Country and contact information</i>	<i>معلومات البلد وجهة الإتصال</i>
Country information	معلومات البلد	Country information	معلومات البلد
1. State the country	اسم البلد	State the country	اسم البلد
Contact completing this questionnaire	معلومات الإتصال لمالي هذا النموذج	Contact completing this questionnaire	معلومات الإتصال لمالي هذا النموذج
2. Title	اللقب	Title	اللقب
3. First name	الإسم الأول	First name	الإسم الأول
4. Last name	إسم العائلة	Last name	إسم العائلة
5. Job title	الوظيفة	Job title	الوظيفة
6. Organisation/Agency	المنظمة/ مكان العمل	Organisation/Agency	المنظمة/ مكان العمل
7. Email address (the email format is xxxx@yyyy.zzz)	البريد الإلكتروني (xxxx@yyyy.zzz)	Email address (the email format is xxxx@yyyy.zzz)	البريد الإلكتروني (xxxx@yyyy.zzz)
8. Website (the URL format is http://xxxxx)	الموقع الإلكتروني (http://xxxxx)	Website (the URL format is http://xxxxx)	الموقع الإلكتروني (http://xxxxx)
9. Phone number	رقم الهاتف	9. Phone number	رقم الهاتف
10. Fax number	رقم الفاكس	10. Fax number	رقم الفاكس
11. Address	العنوان	11. Address	العنوان

<i>Production of pharmacists</i>	<i>إنتاج الصيدلة</i>	<i>Production of pharmacists</i>	<i>إنتاج الصيدلة</i>
<i>Definition: A "pharmacy degree" refers to the degree related to pharmacy, which leads to the registration as a pharmacist in your country.</i>	تعريف: "شهادة الصيدلة" تشير إلى الشهادة الجامعية المتعلقة بمجال الصيدلة، والتي تؤدي إلى التسجيل أو الترخيص كصيدلي في بلدك.	<i>Definition: A "pharmacy degree" refers to the degree related to pharmacy, which leads to the registration as a pharmacist in your country.</i>	تعريف: "شهادة الصيدلة" تشير إلى الشهادة الجامعية المتعلقة بمجال الصيدلة، والتي تؤدي إلى التسجيل أو الترخيص كصيدلي في بلدك.
The number of pharmacy graduates (at National level)	عدد خريجي الصيدلة على المستوى الدولي	The number of pharmacy graduates (at National level)	عدد خريجي الصيدلة على المستوى الدولي
Number	العدد	Number	العدد
Year of data	سنة البيانات	Year of data	سنة البيانات
12a) Total number of pharmacy graduates per year	(أ) إجمالي عدد خريجو الصيدلة سنويا	Total number of pharmacy graduates per year	(أ) إجمالي عدد خريجو الصيدلة سنويا
12b) Total number of FEMALE pharmacy graduates per year	(ب) إجمالي عدد خريجات الصيدلة الإناث سنويا	Total number of FEMALE pharmacy graduates per year	(ب) إجمالي عدد خريجات الصيدلة الإناث سنويا
The number of faculties, schools or departments of pharmacy	عدد مدارس، كليات، أو أقسام الصيدلة	The number of faculties, schools or departments of pharmacy	عدد مدارس، كليات، أو أقسام الصيدلة
13. Total number of faculties, schools or departments of pharmacy that currently provide a pharmacy degree	إجمالي عدد مدارس، كليات، أو أقسام الصيدلة التي تمنح درجة الصيدلة	Total number of faculties, schools or departments of pharmacy that currently provide a pharmacy degree	إجمالي عدد مدارس، كليات، أو أقسام الصيدلة التي تمنح درجة الصيدلة
Usual starting age for university study	العمر المعتاد عليه لبدء الدراسة الجامعية	Usual starting age for university study	العمر المعتاد عليه لبدء الدراسة الجامعية
Age	العمر	Age	العمر
Year of data	سنة البيانات	Year of data	سنة البيانات
14. What is the age of university entry level to study pharmacy?	ما هو العمر المعتاد عليه لدفعة السنة الأولى في الصيدلة؟	What is the age of university entry level to study pharmacy?	ما هو العمر المعتاد عليه لدفعة السنة الأولى في الصيدلة؟
<i>OWNERSHIP of the faculties, schools or departments of pharmacy</i>	<i>ملكية مدارس، كليات، أو أقسام الصيدلة</i>	<i>OWNERSHIP of the faculties, schools or departments of pharmacy</i>	<i>ملكية مدارس، كليات، أو أقسام الصيدلة</i>
What is the OWNERSHIP of the faculties, schools or departments of pharmacy?	ما هي ملكية مدارس، كليات، أو أقسام الصيدلة؟	What is the OWNERSHIP of the faculties, schools or departments of pharmacy?	ما هي ملكية مدارس، كليات، أو أقسام الصيدلة؟
Faculty Owned by: (Please select the most appropriate description)	:الكليات التي تملكها	Faculty Owned by: (Please select the most appropriate description)	:الكليات التي تملكها
Number of faculties/schools/departments	:عدد الكليات	Number of faculties/schools/departments	:عدد الكليات
Yes	نعم	Yes	نعم
No	لا	No	لا
Details:	:التفاصيل	Details:	:التفاصيل
15a) Ministry of Health	(أ) وزارة الصحة	Ministry of Health	(أ) وزارة الصحة
15b) Ministry of Higher Education	(ب) وزارة التعليم العالي	Ministry of Higher Education	(ب) وزارة التعليم العالي

15c) Public state/government owned	ج) الدولة العامة/الحكومة	Public state/government owned	ج) الدولة العامة/الحكومة
15d) Private not for profit	د) خاصة غير هادفة للربح	Private not for profit	د) خاصة غير هادفة للربح
15e) Private for profit	ه) خاصة هادفة للربح	Private for profit	ه) خاصة هادفة للربح
15f) Public/private mix (Please provide details in the space provided on the right)	و) ملكية مختلطة (عامة+خاصة): يرجى تقديم التفاصيل في الخانة المخصصة	Public/private mix (Please provide details in the space provided on the right)	و) ملكية مختلطة (عامة+خاصة): يرجى تقديم التفاصيل في الخانة المخصصة
15g) Others (Please provide details in the space provided on the right)	ز) غيره: يرجى تقديم التفاصيل في الخانة المخصصة	Others (Please provide details in the space provided on the right)	ز) غيره: يرجى تقديم التفاصيل في الخانة المخصصة
<i>Financing of education</i>	<i>تكلفة التعليم</i>	<i>Financing of education</i>	<i>تكلفة التعليم</i>
Definition: "Tuition fee" refers to any fee directly paid by students, and "per capita or capitation provision from public funds" here means the per capita proportion of funding from taxes or government.	تعريف: "الرسوم الدراسية" تشير إلى أي رسوم تدفع مباشرة من قبل الطلاب، و "نصيب الفرد من الأموال العامة" هنا تعني نسبة نصيب الفرد من التمويل من الضرائب أو الحكومة.	Definition: "Tuition fee" refers to any fee directly paid by students, and "per capita or capitation provision from public funds" here means the per capita proportion of funding from taxes or government.	تعريف: "الرسوم الدراسية" تشير إلى أي رسوم تدفع مباشرة من قبل الطلاب، و "نصيب الفرد من الأموال العامة" هنا تعني نسبة نصيب الفرد من التمويل من الضرائب أو الحكومة.
(Please note that the responses added in 16a), 16b) and 16c), or 17a) and 17c) should sum up to a total of 100%)	ج، ب، 16، أ، 16 ملاحظة: على مجموع أجوبة (100% ب أن يصل إلى 17، أ، و 17)	(Please note that the responses added in 16a), 16b) and 16c), or 17a) and 17c) should sum up to a total of 100%)	ملاحظة: على مجموع أجوبة 16، أ، 16، ب، 16، ج، (17، أ، و 17 ب أن يصل إلى 100%)
Cost for educating pharmacy students	تكلفة تعليم طلاب الصيدلة	Cost for educating pharmacy students	تكلفة تعليم طلاب الصيدلة
Amount (please response in numbers e.g. 1000)	القيمة	Amount (please response in numbers e.g. 1000)	القيمة
Currency	العملة	Currency	العملة
Proportion of the total student funding (%)	(%) النسبة من التمويل الإجمالي للطلاب	Proportion of the total student funding (%)	(%) النسبة من التمويل الإجمالي للطلاب
Year of data	سنة المعلومات	Year of data	سنة المعلومات
16. Domestic students	الطلاب المحليون	16. Domestic students	الطلاب المحليون
a) Tuition fee for domestic (HOME) students per year	أ) الرسوم الدراسية السنوية للطلاب المحلي (المواطن)	Tuition fee for domestic (HOME) students per year	أ) الرسوم الدراسية السنوية للطلاب المحلي (المواطن)
b) Per capita or capitation provision from public funds per year (e.g. taxes, government)	ب) نصيب الفرد من الأموال العامة (على سبيل المثال) (الضرائب، الحكومة)	Per capita or capitation provision from public funds per year (e.g. taxes, government)	ب) نصيب الفرد من الأموال العامة (على سبيل المثال) (الضرائب، الحكومة)
c) Others (please specify:)	ج) غيره، يرجى التوضيح	Others (please specify:)	ج) غيره، يرجى التوضيح
17. Overseas/ international students	الطلاب الأجانب	Overseas/ international students	الطلاب الأجانب
a) Tuition fee for an OVERSEAS student per year	أ) الرسوم الدراسية السنوية للطلاب الأجنبي (غير المواطن)	Tuition fee for an OVERSEAS student per year	أ) الرسوم الدراسية السنوية للطلاب الأجنبي (غير المواطن)
b) Others (please specify:)	ب) غيره، يرجى التوضيح	Others (please specify:)	ب) غيره، يرجى التوضيح
<i>Academic programmes</i>	<i>البرامج الأكاديمية</i>	<i>Academic programmes</i>	<i>البرامج الأكاديمية</i>

Definition: An "academic programme" is a combination of courses or learning modules that give access to a degree, diploma, certificate or other credential, which is recognised in society outside the educational institution such as a Diploma, Baccalaureate Degree, Masters Degree, Professional Doctorate, and PhD.	تعريف: "البرنامج الأكاديمي" هنا يشير إلى مزيج الدورات أو وحدات التعليم التي تؤدي إلى درجة، شهادة، دبلوم، أو غيرها من الإعتمادات، المعروفة من قبل المجتمع (خارج المؤسسات التعليمية) كالديبلوم، شهادة البكالوريوس، شهادة الماجستير، الدكتوراه، والدكتوراه المهنية.	Definition: An "academic programme" is a combination of courses or learning modules that give access to a degree, diploma, certificate or other credential, which is recognised in society outside the educational institution such as a Diploma, Baccalaureate Degree, Masters Degree, Professional Doctorate, and PhD.	تعريف: "البرنامج الأكاديمي" هنا يشير إلى مزيج الدورات أو وحدات التعليم التي تؤدي إلى درجة، شهادة، دبلوم، أو غيرها من الإعتمادات، المعروفة من قبل المجتمع (خارج المؤسسات التعليمية) كالديبلوم، شهادة البكالوريوس، شهادة الماجستير، الدكتوراه، والدكتوراه المهنية.
The "National Higher Education Qualification Framework" here refers to a national, formal description of types of degree qualification (e.g. Bachelor, Master, Diploma, PhD, etc.), and associated standards.	تعريف: "الإطار الوطني لمؤهلات التعليم العالي" يشير إلى وصف وطني رسمي للمؤهلات المطلوبة من قبل مختلف الدرجات (البكالوريوس، الماجستير، الدكتوراه، والبايخ).	The "National Higher Education Qualification Framework" here refers to a national, formal description of types of degree qualification (e.g. Bachelor, Master, Diploma, PhD, etc.), and associated standards.	تعريف: "الإطار الوطني لمؤهلات التعليم العالي" يشير إلى وصف وطني رسمي للمؤهلات المطلوبة من قبل مختلف الدرجات (البكالوريوس، الماجستير، الدكتوراه، والبايخ).
What ACADEMIC PROGRAMMES lead to registration as a pharmacist?	ما هي البرامج الأكاديمية الرئيسية التي تؤدي إلى التسجيل كصيدلي في بلدك؟	What ACADEMIC PROGRAMMES lead to registration as a pharmacist?	ما هي البرامج الأكاديمية الرئيسية التي تؤدي إلى التسجيل كصيدلي في بلدك؟
Formal Name of Academic Programme (please spell out name in full and do not use abbreviations)	الإسم الرسمي للبرنامج الأكاديمي (يرجى توضيح الإسم الكامل وعدم استخدام الاختصارات)	Formal Name of Academic Programme (please spell out name in full and do not use abbreviations)	الإسم الرسمي للبرنامج الأكاديمي (يرجى توضيح الإسم الكامل وعدم استخدام الاختصارات)
Title of Qualifications Awarded	(لقب الدرجة الممنوحة (مثال: بكالوريوس	Title of Qualifications Awarded	(لقب الدرجة الممنوحة (مثال: بكالوريوس
Minimum duration of Programme (Years)	الحد الأدنى لعدد السنوات المطلوبة لإنهاء البرنامج	Minimum duration of Programme (Years)	الحد الأدنى لعدد السنوات المطلوبة لإنهاء البرنامج
18. (i) Academic programme 01	1 أ) البرنامج الأكاديمي الرئيسي	Academic programme 01	أ) البرنامج الأكاديمي الرئيسي 1
18. (ii) Academic programme 02	2 ب) البرنامج الأكاديمي الرئيسي	Academic programme 02	ب) البرنامج الأكاديمي الرئيسي 2
National Higher Education Qualifications Framework	الإطار الوطني لمؤهلات التعليم العالي	National Higher Education Qualifications Framework	الإطار الوطني لمؤهلات التعليم العالي
19. Is there any NATIONAL HIGHER EDUCATION QUALIFICATIONS FRAMEWORK in operation in your country?	هل هناك أي إطار وطني لمؤهلات التعليم العالي في بلدك؟	Is there any NATIONAL HIGHER EDUCATION QUALIFICATIONS FRAMEWORK in operation in your country?	هل هناك أي إطار وطني لمؤهلات التعليم العالي في بلدك؟
Is the internship or pre-registration training integrated in the main academic programme leading to the registration/licensure as a pharmacist?	هل التدريب أو التدريب الذي يسبق التسجيل مندمج في أو منفصل عن البرنامج الأكاديمي الرئيسي المؤدي إلى التسجيل/ الترخيص كصيدلي؟	Is the internship or pre-registration training integrated in the main academic programme leading to the registration/licensure as a pharmacist?	هل التدريب أو التدريب الذي يسبق التسجيل مندمج في أو منفصل عن البرنامج الأكاديمي الرئيسي المؤدي إلى التسجيل/ الترخيص كصيدلي؟
The kind of practice	قطاع أو قطاعات التدريب	The kind of practice	قطاع أو قطاعات التدريب
Length of training	مدة التدريب	Length of training	مدة التدريب
20a) Integrated	أ) مندمج	Integrated	أ) مندمج

Community	صيدلية المجتمع	Community	صيدلية المجتمع
Hospital	المستشفى	Hospital	المستشفى
Industry	الصناعة	Industry	الصناعة
Other (please specify:)	غيره (الرجاء التوضيح.....)	Other (please specify:)	غيره (الرجاء التوضيح.....)
months	أشهر	months	أشهر
20b) Separated	(ب) منفصل	Separated	(ب) منفصل
20c) No internship/pre-registration training for a registration as a pharmacist	(ج) التدريب/التدريب الذي يسبق التسجيل غير مطلوب لترخيص الصيدلة	No internship/pre-registration training for a registration as a pharmacist	(ج) التدريب/التدريب الذي يسبق التسجيل غير مطلوب لترخيص الصيدلة
The registration/licensure of pharmacy graduates	تسجيل/ ترخيص خريجو الصيدلة	The registration/licensure of pharmacy graduates	تسجيل/ ترخيص خريجو الصيدلة
21a) Do pharmacy students GRADUATE and REGISTER/are licensed as a pharmacist at the same time?	(أ) هل يتم تسجيل أو ترخيص طالب الصيدلة في نفس وقت تخرجه؟	Do pharmacy students GRADUATE and REGISTER/are licensed as a pharmacist at the same time?	(أ) هل يتم تسجيل أو ترخيص طالب الصيدلة في نفس وقت تخرجه؟
Yes	نعم	Yes	نعم
No (please specify in the Q21b)	(. ب21 لا يرجى التوضيح عند السؤال	No (please specify in the Q21b)	(لا يرجى التوضيح عند السؤال 21. ب
21b) If <u>NO</u> above, please specify what the requirements are to register/become licensed as a pharmacist after graduation	(ب) إذا كان الجواب "لا"، فيرجى تحديد متطلبات التسجيل أو الترخيص بعد التخرج	If <u>NO</u> above, please specify what the requirements are to register/become licensed as a pharmacist after graduation	(ب) إذا كان الجواب "لا"، فيرجى تحديد متطلبات التسجيل أو الترخيص بعد التخرج
<i>MINIMUM requirement for admission to a pharmacy degree programme</i>	الحد الأدنى لمتطلبات الإلتحاق ببرنامج الصيدلة	<i>MINIMUM requirement for admission to a pharmacy degree programme</i>	الحد الأدنى لمتطلبات الإلتحاق ببرنامج الصيدلة
<i>Definition: A "pharmacy degree" refers to the degree related to pharmacy, which leads to the registration as a pharmacist in your country.</i>	تعريف: "برنامج الصيدلة" يشير إلى درجة متعلقة بمجال الصيدلة، والتي تؤدي إلى التسجيل كصيدلي في بلدك	<i>Definition: A "pharmacy degree" refers to the degree related to pharmacy, which leads to the registration as a pharmacist in your country.</i>	تعريف: "برنامج الصيدلة" يشير إلى درجة متعلقة بمجال الصيدلة، والتي تؤدي إلى التسجيل كصيدلي في بلدك
Which of the following are required for admission to university to study pharmacy? (You can indicate more than one option.)	الرجاء تحديد متطلبات القبول في الجامعة لدراسة الصيدلة من القائمة أدناه	Which of the following are required for admission to university to study pharmacy? (You can indicate more than one option.)	الرجاء تحديد متطلبات القبول في الجامعة لدراسة الصيدلة من القائمة أدناه
22a) Secondary school leaving exam	(أ) شهادة الثانوية	Secondary school leaving exam	(أ) شهادة الثانوية
Additional information:	:معلومات إضافية	Additional information:	:معلومات إضافية
22b) A special branch of secondary school (please specify which branch in the space provided on the right)	(ب) فرع خاص لشهادة الثانوية (يرجى تحديد الفرع في الخانة المخصصة على اليسار	A special branch of secondary school (please specify which branch in the space provided on the right)	(ب) فرع خاص لشهادة الثانوية (يرجى تحديد الفرع في الخانة المخصصة على اليسار
22c) Diploma, degree or certificate (please specify what type in the space provided on the right)	(ج) دبلوم، درجة، أو شهادة أخرى (يرجى تحديد النوع و/أو حالة إحتياج أي من هذه المتطلبات في الخانة المخصصة على اليسار	Diploma, degree or certificate (please specify what type in the space provided on the right)	(ج) دبلوم، درجة، أو شهادة أخرى (يرجى تحديد النوع و/أو حالة إحتياج أي من هذه المتطلبات في الخانة المخصصة على اليسار

22d) A special course (please specify what course in the space provided on the right)	د) دورة خاصة (يرجى تحديد طبيعة الدورة في الخانة المخصصة على اليسار)	A special course (please specify what course in the space provided on the right)	د) دورة خاصة (يرجى تحديد طبيعة الدورة في الخانة المخصصة على اليسار)
22e) Entrance examination (national or supra-national)	ه) امتحان قبول (وطني أو فوق وطني)	Entrance examination (national or supra-national)	ه) امتحان قبول (وطني أو فوق وطني)
22f) Entrance examination of the faculty or school	و) امتحان قبول خاص بالكلية أو القسم	Entrance examination of the faculty or school	و) امتحان قبول خاص بالكلية أو القسم
22g) Interview	ز) مقابلة	Interview	ز) مقابلة
22h) Others (please provide details in the space provided on the right)	ح) غيره (يرجى تحديد أي متطلبات أخرى في الخانة المخصصة على اليسار)	Others (please provide details in the space provided on the right)	ح) غيره (يرجى تحديد أي متطلبات أخرى في الخانة المخصصة على اليسار)
Core curriculum or syllabus for pharmacy degree	المنهج الدراسي الأساسي لبرنامج الصيدلة	Core curriculum or syllabus for pharmacy degree	المنهج الدراسي الأساسي لبرنامج الصيدلة
Definition: "Core curriculum or syllabus" here refers to a common, standardised, or indicative curriculum for qualification.	تعريف: "المنهج الدراسي الأساسي" هنا يشير إلى منهج مشترك أو موحد يؤدي إلى شهادة صيدلة	Definition: "Core curriculum or syllabus" here refers to a common, standardised, or indicative curriculum for qualification.	تعريف: "المنهج الدراسي الأساسي" هنا يشير إلى منهج مشترك أو موحد يؤدي إلى شهادة صيدلة
A "pharmacy degree" is the degree related to pharmacy, which leads to registration as a pharmacist in your country.	تعريف: "شهادة الصيدلة" تشير إلى الشهادة الجامعية المتعلقة بمجال الصيدلة، والتي تؤدي إلى التسجيل كصيدلي في بلدك	A "pharmacy degree" is the degree related to pharmacy, which leads to registration as a pharmacist in your country.	تعريف: "شهادة الصيدلة" تشير إلى الشهادة الجامعية المتعلقة بمجال الصيدلة، والتي تؤدي إلى التسجيل كصيدلي في بلدك
Use of core curriculum or syllabus	استخدام المنهج الدراسي الأساسي	Use of core curriculum or syllabus	استخدام المنهج الدراسي الأساسي
23a) Does your country use any nationally agreed core curriculum or syllabus for pharmacy degree?	أ) هل يستخدم بلدكم أي منهج دراسي أساسي متفق عليه وطنياً للحصول على درجة الصيدلة؟	Does your country use any nationally agreed core curriculum or syllabus for pharmacy degree?	أ) هل يستخدم بلدكم أي منهج دراسي أساسي متفق عليه وطنياً للحصول على درجة الصيدلة؟
Yes (please specify in Q23b)	نعم	Yes (please specify in Q23b)	نعم
23b) If <u>YES</u> in above, please provide the related documents for the core curriculum or integrated curriculum	إذا كان الجواب "نعم" أعلاه، يرجى إرفاق الوثائق المتصلة بالمنهج الدراسي الأساسي أو المندمج	If <u>YES</u> in above, please provide the related documents for the core curriculum or integrated curriculum	إذا كان الجواب "نعم" أعلاه، يرجى إرفاق الوثائق المتصلة بالمنهج الدراسي الأساسي أو المندمج
Attached	مرفق	Attached	مرفق
Information on website (Please specify the URL address: http://)	معلومات عن الموقع	Information on website (Please specify the URL address: http://)	معلومات عن الموقع
MINIMUM proportion of time for practice in science-based laboratories in the core curriculum or syllabus	الحد الأدنى من نسبة الوقت المخصص للممارسة في المختبرات العلمية في المنهج الأساسي	MINIMUM proportion of time for practice in science-based laboratories in the core curriculum or syllabus	الحد الأدنى من نسبة الوقت المخصص للممارسة في المختبرات العلمية في المنهج الأساسي
24. What proportion of time is dedicated to LABORATORY PRACTICE in the core curriculum or syllabus? (Please respond as an approximate percentage, and enter a	ما هو نسبة الوقت المخصص للممارسة في المختبرات العلمية في المنهج الأساسي؟ (يرجى الإجابة بنسبة مئوية 100 و 0 تقريبية وإدخال قيمة بين	24. What proportion of time is dedicated to LABORATORY PRACTICE in the core curriculum or syllabus? (Please respond as an approximate percentage, and enter a	ما هو نسبة الوقت المخصص للممارسة في المختبرات العلمية في المنهج الأساسي؟ (يرجى الإجابة بنسبة مئوية تقريبية وإدخال قيمة بين 100 و 0

<i>value between 0 and 100)</i>		<i>value between 0 and 100)</i>	
Curriculum in the EARLY year(s) of the pharmacy degree	المنهج الدراسي في السنوات الأولى من درجة الصيدلة	Curriculum in the EARLY year(s) of the pharmacy degree	المنهج الدراسي في السنوات الأولى من درجة الصيدلة
25. For the EARLY years of the university curriculum, which of the following best describes the content/expectations in general?	بالنسبة للمنهج الدراسي في السنوات الأولى، أي مما يلي يقدم أفضل وصف للمحتوى بشكل عام؟	For the EARLY years of the university curriculum, which of the following best describes the content/expectations in general?	بالنسبة للمنهج الدراسي في السنوات الأولى، أي مما يلي يقدم أفضل وصف للمحتوى بشكل عام؟
Wholly general science, with very little pharmacy practice component	علوم عامة كلياً، مع القليل جداً من مكونات الممارسة الصيدلانية.	Wholly general science, with very little pharmacy practice component	علوم عامة كلياً، مع القليل جداً من مكونات الممارسة الصيدلانية.
Mostly general science orientation, with small/moderate pharmacy practice components	التوجه الغالب للعلوم العامة، مع مكونات ممارسة صيدلانية متوسطة.	Mostly general science orientation, with small/moderate pharmacy practice components	التوجه الغالب للعلوم العامة، مع مكونات ممارسة صيدلانية متوسطة.
A mix of general science and pharmacy practice	مزيج من العلوم العامة والممارسة الصيدلانية	A mix of general science and pharmacy practice	مزيج من العلوم العامة والممارسة الصيدلانية
<i>Licensure of practice</i>	<i>ترخيص الممارسة</i>	<i>Licensure of practice</i>	<i>ترخيص الممارسة</i>
To practice pharmacy in your country	بخصوص ممارسة الصيدلة في بلدكم	To practice pharmacy in your country	بخصوص ممارسة الصيدلة في بلدكم
26. Do pharmacy graduates require a LICENSE, registration or other authorization to practice pharmacy?	هل يحتاج خريجو الصيدلة لتسجيل، ترخيص أو اعتماد آخر لممارسة الصيدلة؟	Do pharmacy graduates require a LICENSE, registration or other authorization to practice pharmacy?	هل يحتاج خريجو الصيدلة لتسجيل، ترخيص أو اعتماد آخر لممارسة الصيدلة؟
How do students from the main academic pharmacy programme obtain a LICENSE, registration or other authorisation to practice pharmacy? (You can indicate more than one option.)	كيف يتم حصول طالب الصيدلة على التسجيل، الترخيص أو غيره من الإعتمادات اللازمة لممارسة الصيدلة؟	How do students from the main academic pharmacy programme obtain a LICENSE, registration or other authorisation to practice pharmacy? (You can indicate more than one option.)	كيف يتم حصول طالب الصيدلة على التسجيل، الترخيص أو غيره من الإعتمادات اللازمة لممارسة الصيدلة؟
27a) Immediately upon graduation	(أ) فور التخرج	Immediately upon graduation	(أ) فور التخرج
27b) After passing a further examination after graduation	(ب) بعد اجتياز فحص إضافي بعد التخرج	After passing a further examination after graduation	(ب) بعد اجتياز فحص إضافي بعد التخرج
27c) After a period of practical experience after graduation (if yes, please specify length of time)	(ج) بعد فترة من الخبرة العملية بعد التخرج (إذا كانت الإجابة نعم، يرجى تحديد الفترة الزمنية اللازمة)	After a period of practical experience after graduation (if yes, please specify length of time)	(ج) بعد فترة من الخبرة العملية بعد التخرج (إذا كانت الإجابة نعم، يرجى تحديد الفترة الزمنية اللازمة)
27d) Others (If yes, please specify in the provided space on the right)	(د) غيره (يرجى تحديد أي متطلبات أخرى)	Others (If yes, please specify in the provided space on the right)	(د) غيره (يرجى تحديد أي متطلبات أخرى)
Please specify: <input type="text"/>	يرجى التحديد	Please specify: <input type="text"/>	يرجى التحديد
Licensing authority	سلطة الترخيص أو التسجيل	Licensing authority	سلطة الترخيص أو التسجيل
28. Which authority awards graduates	ما هي الجهة المخولة لمنح الترخيص أو التسجيل للممارسة؟	Which authority awards graduates with a LICENSE, registration or other	ما هي الجهة المخولة لمنح الترخيص أو التسجيل للممارسة؟

with a LICENSE, registration or other authorisation to practice?		authorisation to practice?	
<i>Quality assurance</i>	<i>ضمان الجودة</i>	<i>Quality assurance</i>	<i>ضمان الجودة</i>
Quality assurance mechanisms and processes	آليات وعمليات ضمان الجودة	Quality assurance mechanisms and processes	آليات وعمليات ضمان الجودة
29. Are the faculties or schools subject to PERIODIC ACCREDITATION or similar process by an external body in your country? <i>(This is usually an evaluation conducted by an organisation or agency outside of the faculty or school).</i>	هل تخضع كليات الصيدلة لآلية اعتماد دورية أو مشابهة من قبل هيئة خارجية في بلدكم؟ (هذا عادة ما يكون تقييم تجريه منظمة أو وكالة خارج الكلية)	Are the faculties or schools subject to PERIODIC ACCREDITATION or similar process by an external body in your country? <i>(This is usually an evaluation conducted by an organisation or agency outside of the faculty or school).</i>	هل تخضع كليات الصيدلة لآلية اعتماد دورية أو مشابهة من قبل هيئة خارجية في بلدكم؟ (هذا عادة ما يكون تقييم تجريه منظمة أو وكالة خارج الكلية)
No (if <u>NO</u> , skip to the Q33)	33) لا (انتقل إلى السؤال	No (if <u>NO</u> , skip to the Q33)	33) لا (انتقل إلى السؤال
How frequently is accreditation conducted?	ما هي عدد مرات خضوع الكليات لهذه الآليات؟	How frequently is accreditation conducted?	ما هي عدد مرات خضوع الكليات لهذه الآليات؟
30a) Requires to be accredited only once after the establishment of the faculty/school	أ) يتطلب أن تكون معتمدة مرة واحدة فقط بعد إنشاء الكلية	Requires to be accredited only once after the establishment of the faculty/school	أ) يتطلب أن تكون معتمدة مرة واحدة فقط بعد إنشاء الكلية
30b) More than once a year	ب) أكثر من مرة في السنة	More than once a year	ب) أكثر من مرة في السنة
30c) Once a year	ج) مرة في السنة	Once a year	ج) مرة في السنة
30d) Once every 2 years	د) مرة كل سنتين	Once every 2 years	د) مرة كل سنتين
30e) Once every 3 years	هـ) سنوياً 3 مرات كل	Once every 3 years	هـ) مرة كل 3 سنوات
30f) Once every 5 years	و) سنوياً 5 مرات كل	Once every 5 years	و) مرة كل 5 سنوات
30g) Other frequency <i>(please provide details in the space provided on the right)</i>	ز) غيره (يرجى التوضيح في الخانة المخصصة	Other frequency <i>(please provide details in the space provided on the right)</i>	ز) غيره (يرجى التوضيح في الخانة المخصصة
What is accredited? <i>(You can indicate more than one option.)</i>	ما المعتمد من التالي؟	What is accredited? <i>(You can indicate more than one option.)</i>	ما المعتمد من التالي؟
31a) The educational institution/university	أ) المؤسسة التعليمية/ الجامعة	The educational institution/university	أ) المؤسسة التعليمية/ الجامعة
31b) The faculty or school (e.g. school of pharmacy)	ب) كلية، مدرسة، أو قسم الصيدلة	The faculty or school (e.g. school of Pharmacy)	ب) كلية، مدرسة، أو قسم الصيدلة
31c) The academic programme <i>(please provide details in the space provided on the right)</i>	ج) البرنامج الأكاديمي (يرجى التوضيح في الخانة المخصصة)	The academic programme <i>(please provide details in the space provided on the right)</i>	ج) البرنامج الأكاديمي (يرجى التوضيح في الخانة المخصصة)
Who is the ACCREDITING BODY?	ما هي جهة الإعتماد؟	Who is the ACCREDITING BODY?	ما هي جهة الإعتماد؟

32a) Ministry of Health	(أ) وزارة الصحة	Ministry of Health	(أ) وزارة الصحة
32b) Ministry of Education	(ب) وزارة التعليم	Ministry of Education	(ب) وزارة التعليم
32c) Other governmental agency	(ج) غيره من الجهات الحكومية	Other governmental agency	(ج) غيره من الجهات الحكومية
32d) National professional organisation	(د) منظمة وطنية مهنية	National professional organisation	(د) منظمة وطنية مهنية
32e) Private accrediting body	(هـ) هيئة اعتماد خاصة	Private accrediting body	(هـ) هيئة اعتماد خاصة
32f) Other	(ز) غيره (يرجى التوضيح في الخانة المخصصة	Other	(ز) غيره (يرجى التوضيح في الخانة المخصصة
Other Quality assurance mechanisms or processes	آليات وعمليات أخرى لضمان الجودة	Other Quality assurance mechanisms or processes	آليات وعمليات أخرى لضمان الجودة
33a) Are there any other internal or external QUALITY ASSURANCE mechanisms or processes used by higher education institutions?	(أ) هل هناك آليات أو عمليات ضمان جودة أخرى، داخلية أو خارجية، مستخدمة من قبل مؤسسات التعليم العالي؟	Are there any other internal or external QUALITY ASSURANCE mechanisms or processes used by higher education institutions?	(أ) هل هناك آليات أو عمليات ضمان جودة أخرى، داخلية أو خارجية، مستخدمة من قبل مؤسسات التعليم العالي؟
Yes (please specify in the Q33b))	نعم	Yes (please specify in the Q33b))	نعم
33b) If YES in the Q33a), please provide additional information	(ب) إذا كان الجواب "نعم" للسؤال أعلاه، فيرجى تقديم معلومات إضافية	If YES in the Q33a), please provide additional information	(ب) إذا كان الجواب "نعم" للسؤال أعلاه، فيرجى تقديم معلومات إضافية
<i>Related document</i>	<i>وثائق ذات صلة</i>	<i>Related document</i>	<i>وثائق ذات صلة</i>
34. Please include any relevant document (report, research, article references) related to pharmacy education and the academic programmes in your school/country with the submission of this survey.	الرجاء إرفاق أي وثائق ذات صلة (تقارير، دراسات أو مراجع) متعلقة بالتعليم الصيدلاني والبرامج الأكاديمية في كليتك/ قسمك/ بلدكم عند تقديم هذا المسح	Please include any relevant document (report, research, article references) related to pharmacy education and the academic programmes in your school/country with the submission of this survey.	الرجاء إرفاق أي وثائق ذات صلة (تقارير، دراسات أو مراجع) متعلقة بالتعليم الصيدلاني والبرامج الأكاديمية في كليتك/ قسمك/ بلدكم عند تقديم هذا المسح
Your participation in this survey is vital to provide a better understanding of current pharmacy education issues, and will assist in the development of global pharmacy education policy recommendations.	مشاركتم في هذه الدراسة مهمة جداً لتوفير فهم أفضل لقضايا تعليم الصيدلة الحالية، وستساعد في تطوير توصيات سياسة تعليم الصيدلة عالمياً	Your participation in this survey is vital to provide a better understanding of current pharmacy education issues, and will assist in the development of global pharmacy education policy recommendations.	مشاركتم في هذه الدراسة مهمة جداً لتوفير فهم أفضل لقضايا تعليم الصيدلة الحالية، وستساعد في تطوير توصيات سياسة تعليم الصيدلة عالمياً
Please save the completed form and return to education@fip.org	يرجى حفظ النموذج المعبأ وإرساله إلى education@fip.org	Please save the completed form and return to education@fip.org	يرجى حفظ النموذج المعبأ وإرساله إلى education@fip.org
Thank you for your participation	شاكرين لكم حسن تعاونكم	Thank you for your participation	شاكرين لكم حسن تعاونكم

Appendix 13: Forward-back translation of the Pharmacy Education Survey (French)

Original School Survey Country	Forward translation	Back translation	Final translation
FIP-WHO Global Survey of Pharmacy Schools Country	Etude globale de la FIP et l'OMS sur les écoles des pharmacie Pays	FIP-WHO Global Survey of Pharmacy Schools Country	Etude globale de la FIP et l'OMS sur les écoles des pharmacie Pays
This global survey aims to collect information to ascertain the educational background of the pharmacy workforce as well as the quality assurance accreditation mechanisms and processes.	Cette étude a pour but de rassembler des informations afin de déterminer le niveau d'éducation de la main-d'oeuvre en pharmacie ainsi que les mécanismes et les processus de l'accréditation de l'assurance qualité.	This study aims to gather information in order to determinate the educational level of people involved in the pharmacy curricula, as well as the mechanisms and the process of quality assurance accreditation.	Cette étude a pour but de rassembler des informations afin de déterminer le niveau d'éducation de la main-d'oeuvre en pharmacie ainsi que les mécanismes et les processus de l'accréditation de l'assurance qualité.
The data will be used to identify gaps, shortages and cooperation opportunities, and will provide the evidence-based information needed for investment policies that will reduce existing gaps and increase pharmacy education capacity.	Les données seront utilisées pour déterminer les lacunes, les pénuries et les opportunités de coopération et fourniront des information fondées sur des preuves necessaires pour les politiques d'investissement qui vont réduire les lacunes existantes et augmenter la capacité de formation en pharmacie.	The information will be used to understand the obstacles and the opportunities of cooperation and will furnish necessary proof for the investors in order to enlarge the training capacity and the suppress any obstacle to achieve these goals.	Les données seront utilisées pour déterminer les lacunes, les pénuries et les opportunités de coopération et fourniront des information fondées sur des preuves necessaires pour les politiques d'investissement qui vont réduire les lacunes existantes et augmenter la capacité de formation en pharmacie.
Please reply to this questionnaire on behalf of your country .	S'il vous plait veuillez remplir ce formulaire au nom de votre pays .	Please fill in this survey in the name of your country.	S'il vous plait veuillez remplir ce formulaire au nom de votre pays .
<i>Country and contact information</i>	<i>Pays et information</i>	<i>Country and Information</i>	<i>Pays et information</i>
Country information	Informations du pays	Country information	Informations du pays
1. State the country	Citez le pays	Country	Citez le pays
Contact completing this questionnaire	La personne remplissant ce questionnaire	Information about you	La personne remplissant ce questionnaire
2. Title	Titre	Title	Titre
3. First name	Prénom	First name	Prénom
4. Last name	Nom	Last name	Nom
5. Job title	Titre de poste	Position	Titre de poste
6. Organisation/Agency	Organisation/agence	Organisation/agency	Organisation/agence
7. Email address (the email format is xxxx@yyyy.zzz)	Adresse mail (le format de l'adresse xxxx@yyyy.zzz)	Email adress (xxxx@yyyy.zzz)	Adresse mail (le format de l'adresse xxxx@yyyy.zzz)
8. Website (the URL format is http://xxxxx)	Site web (le format de l'URL http://xxxxx)	Website (URL http://xxxxx)	Site web (le format de l'URL http://xxxxx)
9. Phone number	Numéro de téléphone	Phone number	Numéro de téléphone
10. Fax number	Numéro de fax	Fax	Numéro de fax

11. Address	Adresse	Adress	Adresse
<i>Production of pharmacists</i>	<i>Nombre des diplômés et des écoles</i>	<i>Number of graduates and schools</i>	<i>Nombre des diplômés et des écoles</i>
<i>Definition: A “pharmacy degree” refers to the degree related to pharmacy, which leads to the registration as a pharmacist in your country.</i>	<i>Définition: Un “diplôme en pharmacie” signifie un diplôme lié à la pharmacie ce qui aboutit à l'inscription en tant que pharmacien dans votre pays.</i>	<i>Definition: the pharmacy diploma means the degree related to pharmacy, which leads to the recognition of your title by your country.</i>	<i>Définition: Un “diplôme en pharmacie” signifie un diplôme lié à la pharmacie ce qui aboutit à l'inscription en tant que pharmacien dans votre pays.</i>
The number of pharmacy graduates (at National level)	Nombre de diplômés en pharmacie (au niveau national)	Number of graduates	Nombre de diplômés en pharmacie (au niveau national)
Number	Nombre	Number	Nombre
Year of data	Date des données	date	Date des données
12a) Total number of pharmacy graduates per year	Nombre total des diplômés en pharmacie par an	Total number of graduates/year	Nombre total des diplômés en pharmacie par an
12b) Total number of FEMALE pharmacy graduates per year	Nombre totale des diplômées (Femmes) par ans	Total number of female graduates/year	Nombre totale des diplômées (Femmes) par ans
The number of faculties, schools or departments of pharmacy	Nombre des facultés, écoles et département de pharmacie	Number of schools, departments of pharmacy	Nombre des facultés, écoles et département de pharmacie
13. Total number of faculties, schools or departments of pharmacy that currently provide a pharmacy degree	Nombre totale des facultés, écoles ou départements de pharmacie qui fournissent actuellement un diplôme de pharmacie	Total number of departments, schools and faculties that offer a pharmacy degree	Nombre totale des facultés, écoles ou départements de pharmacie qui fournissent actuellement un diplôme de pharmacie
Usual starting age for university study	L'age de départ pour des études universitaires	Starting age for pharmacy degree	L'age de départ pour des études universitaires
Age	Âge	Age	Âge
Year of data	Date des données	Date	Date des données
14. What is the age of university entry level to study pharmacy?	Quel est l'age de départ des études en pharmacie?	What is the starting age for a pharmacy degree?	Quel est l'age de départ des études en pharmacie?
<i>OWNERSHIP of the faculties, schools or departments of pharmacy</i>	<i>Propriété des facultés, des écoles ou des départements de pharmacie:</i>	<i>Ownership of faculties, schools and departments of pharmacy</i>	<i>Propriété des facultés, des écoles ou des départements de pharmacie</i>
What is the OWNERSHIP of the faculties, schools or departments of pharmacy?	Qui est le propriétaire des facultés, écoles ou départements de pharmacie	Who is the owner of faculties, schools and department of pharmacy?	Qui est le propriétaire des facultés, écoles ou départements de pharmacie
Faculty Owned by: (Please select the most appropriate description)	Propriétaire de la faculté: (S'il vous plait veuillez choisissez la description la plus appropriée)	Owner of the faculty (please choose the appropriate option)	Propriétaire de la faculté: (S'il vous plait veuillez choisissez la description la plus appropriée)
Number of faculties/schools/departments	Nombre des facultés/écoles/départements	Number of schools/faculties/departments	Nombre des facultés/écoles/départements
Yes	Oui	Yes	Oui

No	Non	No	Non
Details:	Détails:	Details:	Détails:
15a) Ministry of Health	Ministère de santé	Ministry of health	Ministère de santé
15b) Ministry of Higher Education	Ministère des études supérieures	Ministry of superior education	Ministère des études supérieures
15c) Public state/government owned	Public	Public	Public
15d) Private not for profit	Privé à but non lucratif	Private non profit	Privé à but non lucratif
15e) Private for profit	Privé à but lucratif	Private with profit	Privé à but lucratif
15f) Public/private mix (Please provide details in the space provided on the right)	Public/privé (S'il vous plait veuillez fournir les détails dans l'espace à droite)	Public/private (please add details in the box)	Public/privé (S'il vous plait veuillez fournir les détails dans l'espace à droite)
15g) Others (Please provide details in the space provided on the right)	Autres (S'il vous plait veuillez fournir les détails dans l'espace à droite)	Other (please add details in the box)	Autres (S'il vous plait veuillez fournir les détails dans l'espace à droite)
<i>Financing of education</i>	<i>Financement des études</i>	<i>Degree financing</i>	<i>Financement des études</i>
<i>Definition: "Tuition fee" refers to any fee directly paid by students, and "per capita or capitation provision from public funds" here means the per capita proportion of funding from taxes or government.</i>	<i>Définition: "Frais de scolarité" désigne tout frais directement payés par les étudiants, la provision de capitaion à partir des fonds public ou par habitant</i>	<i>Definition: "scholarship" means all fees directly paid by students.</i>	<i>Définition: "Frais de scolarité" désigne tout frais directement payés par les étudiants, la provision de capitaion à partir des fonds public ou par habitant</i>
<i>(Please note that the responses added in 16a), 16b) and 16c), or 17a) and 17c) should sum up to a total of 100%)</i>	<i>(S'il vous plait notez que les réponses au 16a), 16b) et 16c), ou 17a) et 17c) doivent avoir la somme de 100%)</i>	<i>Please note that 16a), 16b) and 16c), or 17a) and 17c) should have 100% in total</i>	<i>(S'il vous plait notez que les réponses au 16a),16b) et 16c), ou 17a) et 17c) doivent avoir la somme de 100%)</i>
Cost for educating pharmacy students	Le cout pour l'éducation des études en pharmacie	The pharmacy education costs	Le cout pour l'éducation des études en pharmacie
Amount (please response in numbers e.g. 1000)	Somme (S'il vous plait veuillez repondre par un nombre exp. 1000)	Total (Please answer with a number exp. 1000)	Somme (S'il vous plait veuillez repondre par un nombre exp. 1000)
Currency	Monnais	Money	Monnaie
Proportion of the total student funding (%)	Proportion du finacement total des étudiants (%)	Total student share (%)	Proportion du finacement total des étudiants (%)
Year of data	Date des données	Date	Date des données
16. Domestic students	Etudiants locaux	Local students	Etudiants locaux
a) Tuition fee for domestic (HOME) students per year	Frais de scolarité pour les étudiants locaux	Fees for local students	Frais de scolarité pour les étudiants locaux
b) Per capita or capitation provision from public funds per year (e.g. taxes, government)	Provision de capitation à partir des fond public ou par habitant par an (exp:taxes,gouvernement)	Provision from public funds or per inhabitant per year (ex, taxes, government)	Provision de capitation à partir des fond public ou par habitant par an (exp: taxes, gouvenement)
c) Others (please specify: <input type="text"/>)	Autres (S'il vous plait précisez: <input type="text"/>)	Other (Please precise: <input type="text"/>)	Autres (S'il vous plait précisez: <input type="text"/>)

17. Overseas/ international students	Etudiants étrangers ou internationaux	International students	Etudiants étrangers ou internationaux
a) Tuition fee for an OVERSEAS student per year	Frais de scolarité pour les étudiants étrangers	Fees for International students	Frais de scolarité pour les étudiants étrangers
b) Others (please specify: <input type="text"/>)	Autres (S'il vous plait précisez: <input type="text"/>)	Other (Please precise: <input type="text"/>)	Autres (S'il vous plait précisez: <input type="text"/>)
<i>Academic programmes</i>	<i>Programmes académiques</i>	<i>Academic programs</i>	<i>Programmes académiques</i>
<i>Definition: An “academic programme” is a combination of courses or learning modules that give access to a degree, diploma, certificate or other credential, which is recognised in society outside the educational institution such as a Diploma, Baccalaureate Degree, Masters Degree, Professional Doctorate, and PhD.</i>	<i>Définition: “Un programme académique” est une combinaison de cours ou de modules d'apprentissage qui donne accès au diplôme, certificat ou autres titres de compétence, ce qui est reconnu dans la société en dehors de l'institution scolaire comme un diplôme, baccalauréat, master, doctorat et doctorat professionnel.</i>	<i>Definition: The academic program is a combination of courses or learning modules which grant access to the degree, certificate or other titles of competency, which is recognized by the society, like a diploma, bachelor, master, doctorate.</i>	<i>Définition: “Un programme académique” est une combinaison de cours ou de modules d'apprentissage qui donne accès au diplôme, certificat ou autres titres de compétence, ce qui est reconnu dans la société en dehors de l'institution scolaire comme un diplôme, baccalauréat, master, doctorat et doctorat professionnel.</i>
<i>The “National Higher Education Qualification Framework” here refers to a national, formal description of types of degree qualification (e.g. Bachelor, Master, Diploma, PhD, etc.), and associated standards.</i>	<i>Le “cadre nationale de qualification des études supérieur” signifie ici une description nationale officielle des types de qualification des diplomes (exp: baccalauréat, master, diplôme, doctorat, etc.)</i>	<i>The “national framework of qualifications higher education” means here a description of the types of formal national qualification diplomas (exp: bachelor, master, diploma, doctorate, etc.).</i>	<i>Le “cadre nationale de qualification des études supérieur” signifie ici une description nationale officielle des types de qualification des diplomes (exp: baccalauréat, master, diplôme, doctorat, etc.)</i>
What ACADEMIC PROGRAMMES lead to registration as a pharmacist?	Quels Programmes académiques mènent à l'inscription comme pharmacien?	Which academic programs lead to the recognition as a pharmacist	Quels Programmes académiques mènent à l'inscription comme pharmacien?
Formal Name of Academic Programme (please spell out name in full and do not use abbreviations)	Nom officiel du programme académique(S'il vous plait écrivez le nom complet et n'utilisez pas d'abréviations)	Official academic name of the program (Please state the whole name without abbreviations)	Nom officiel du programme académique (S'il vous plait écrivez le nom complet et n'utilisez pas d'abréviations)
Title of Qualifications Awarded	Diplome attribué	degree	Diplome attribué
Minimum duration of Programme (Years)	Durée minimale du programme (années)	Minimum degree duration (years)	Durée minimale du programme (années)
18. (i) Academic programme 01	Programme académique 01	Academic program 01	Programme académique 01
18. (ii) Academic programme 02	Programme académique 02	Academic program 02	Programme académique 02
National Higher Education Qualifications Framework	Cadre national des diplomes des études supérieurs	National framework for higher education graduates	Cadre national des diplomes des études supérieurs
19. Is there any NATIONAL HIGHER EDUCATION QUALIFICATIONS FRAMEWORK	Y'a t il un cadre national des diplomes des études supérieurs qui fonctionnent dans	Is there a <i>Le national framework of higher education qualification in</i>	Y'a t il un cadre national des diplomes des études supérieurs qui fonctionnent

in operation in your country?	votre pays?	<i>your country?</i>	dans votre pays?
Is the internship or pre-registration training integrated in the main academic programme leading to the registration/licensure as a pharmacist?	Est ce que l'internat ou le programme de pré-inscription sont intégrés dans le programme académique principal menant à l'inscription/licensure autant que pharmacien?	Is residency or internships are required to get the pharmacy degree?	Est ce que l'internat ou le programme de pré-inscription sont intégrés dans le programme académique principal menant à l'inscription/licensure autant que pharmacien?
The kind of practice	Type de pratique	Type of practice	Type de pratique
Length of training	Durée de la formation	Duration	Durée de la formation
20a) Integrated	Intégrés	required	Intégrés
Community	Publique	Public	Communauté
Hospital	Hopital	Hospital	Hopital
Industry	Industrie	Industry	Industrie
Other (please specify:)	Autres (S'il vous plait précisez:)	Other (Please precise:)	Autres (S'il vous plait précisez:)
months	mois	months	mois
20b) Separated	Separés	Separated	Separés
20c) No internship/pre-registration training for a registration as a pharmacist	Aucune formation pour l'inscription autant que pharmacien	No training needed to be recognized as a pharmacist	Aucune formation pour l'inscription autant que pharmacien
The registration/licensure of pharmacy graduates	L'inscription et l'obtention de licences des diplômés en pharmacie	The licensure for pharmacy graduates	L'inscription et l'obtention de licences des diplômés en pharmacie
21a) Do pharmacy students GRADUATE and REGISTER/are licensed as a pharmacist at the same time?	Les étudiants en pharmacie terminent-ils leurs études et s'inscrivent/obtiennent leurs licence au meme temps?	Pharmacy students get their licensure just after the graduation?	Les étudiants en pharmacie terminent-ils leurs études et s'inscrivent/obtiennent leurs licence au meme temps?
Yes	Oui	Yes	Oui
No (please specify in the Q21b)	Non (S'il vous plait précisez dans la Q21 b)	No (please precise in Q21 b)	Non (S'il vous plait précisez dans la Q21 b)
21b) If <u>NO</u> above, please specify what the requirements are to register/become licensed as a pharmacist after graduation	Si <u>NON</u> , s'il vous plait veuillez préciser les conditions pour l'inscription/obtention de licence autant que pharmacien après graduation	If no, please detail the requirements needed for the licensure after graduation	Si <u>NON</u> , s'il vous plait veuillez préciser les conditions pour l'inscription/obtention de licence autant que pharmacien après graduation
<i>MINIMUM requirement for admission to a pharmacy degree programme</i>	<i>Conditions minimales d'admission dans un programme de diplôme en pharmacie:</i>	<i>Minimum conditions for admittance in pharmacy programs</i>	<i>Conditions minimales d'admission dans un programme de diplôme en pharmacie:</i>
<i>Definition: A "pharmacy degree" refers to the degree related to pharmacy, which leads to the registration as a pharmacist in your country.</i>	<i>Définition: Un "diplôme en pharmacie" signifie un diplôme lié à la pharmacie ce qui aboutit à l'inscription en tant que pharmacien dans votre pays.</i>	<i>Definition: the pharmacy diploma means the degree related to pharmacy, which leads to the recognition of your title by your country.</i>	<i>Définition: Un "diplôme en pharmacie" signifie un diplôme lié à la pharmacie ce qui aboutit à l'inscription en tant que pharmacien dans votre pays.</i>

Which of the following are required for admission to university to study pharmacy? (You can indicate more than one option.)	Lequel des énoncés suivants sont requis pour l'admission à l'université pour suivre des études en pharmacie? (Vous pouvez indiquer plus qu'un choix.)	Which of the following is required to for the entrance to the pharmacy school?	Lequel des énoncés suivants sont requis pour l'admission à l'université pour suivre des études en pharmacie? (Vous pouvez indiquer plus qu'un choix.)
22a) Secondary school leaving exam	Exameen de fin d'études secondaires	Secondary education diploma	Exameen de fin d'études secondaires
Additional information: 	Autres informations: 	Other information: 	Autres informations:
22b) A special branch of secondary school (please specify which branch in the space provided on the right)	Une branche spéciale au lycée (S'il vous plait veuillez préciser quelle branche dans l'espace à droite)	A special section in high school (please precise the section in the box)	Une branche spéciale au lycée (S'il vous plait veuillez préciser quelle branche dans l'espace à droite)
22c) Diploma, degree or certificate (please specify what type in the space provided on the right)	Diplome ou certificat (S'il vous plait veuillez préciser quel type dans l'espace à droite)	Diploma or certificate (Please precise which type in the box)	Diplome ou certificat (S'il vous plait veuillez préciser quel type dans l'espace à droite)
22d) A special course (please specify what course in the space provided on the right)	Cours spéciaux (S'il vous plait veuillez préciser quel cour dans l'espace à droite)	Special courses (please precise which courses in the box)	Cours spéciaux (S'il vous plait veuillez préciser quel cour dans l'espace à droite)
22e) Entrance examination (national or supra-national)	Examen d'entrée (national ou supra-national)	Entrance examination (national)	Examen d'entrée (national ou supra-national)
22f) Entrance examination of the faculty or school	Examen d'entrée à la faculté ou l'école	Entrance examination- proper to the school	Examen d'entrée à la faculté ou l'école
22g) Interview	Entretien	Interview	Entretien
22h) Others (please provide details in the space provided on the right)	Autres (S'il vous plait veuillez fournir des détails dans l'espace à droite)	Other (Please add details in the box)	Autres (S'il vous plait veuillez fournir des détails dans l'espace à droite)
<i>Core curriculum or syllabus for pharmacy degree</i>	<i>Tronc commun ou programme pour le un diplôme ne pharmacie</i>	<i>Common branch or program of pharmacy</i>	<i>Tronc commun ou programme pour le un diplôme ne pharmacie</i>
<i>Definition: "Core curriculum or syllabus" here refers to a common, standardised, or indicative curriculum for qualification.</i>	<i>Definition: "Tronc commun ou programme" signifie un programme commun, normalisé ou a titre indicatif pour la qualification.</i>	<i>Definition: Common branch or program means a joint program, normalized, for the qualification for the pharmacy degree.</i>	<i>Definition: "Tronc commun ou programme" signifie un programme commun, normalisé ou a titre indicatif pour la qualification.</i>
<i>A "pharmacy degree" is the degree related to pharmacy, which leads to registration as a pharmacist in your country.</i>	<i>Un "diplôme en pharmacie" signifie un diplôme lié à la pharmacie ce qui aboutit à l'inscription en tant que pharmacien dans votre pays.</i>	<i>The pharmacy diploma means the degree related to pharmacy, which leads to the recognition of your title by your country.</i>	<i>Un "diplôme en pharmacie" signifie un diplôme lié à la pharmacie ce qui aboutit à l'inscription en tant que pharmacien dans votre pays.</i>
Use of core curriculum or syllabus	L'utilisation du tronc commun ou du programme	The use of the common program	L'utilisation du tronc commun ou du programme
23a) Does your country use any nationally agreed core curriculum or syllabus for	Votre pays utilise t-il un tronc commun ou un programme agréé à l'échelon national?	Does your country use the common program?	Votre pays utilise t-il un tronc commun ou un programme agréé à l'échelon

pharmacy degree?			national?
Yes (please specify in Q23b)	Oui (S'il vous plait précisez dans la Q23b)	Yes (Please precise in Q23b)	Oui (S'il vous plait précisez dans la Q23b)
23b) If YES in above, please provide the related documents for the core curriculum or integrated curriculum	Si OUI , S'il vous plait veuillez fournir des documents lié au tronc commun ou au programme	If yes, please provide documents that explain the common program	Si OUI , S'il vous plait veuillez fournir des documents lié au tronc commun ou au programme
Attached	Ci-joint	Enclosed	Ci-joint
Information on website (Please specify the URL address: http://)	Informations sur site web (S'il vous plait veuillez préciser l'adresse URL: http://)	Precise the website, in which we will find the information (URL: http://)	Informations sur site web (S'il vous plait veuillez préciser l'adresse URL: http://)
MINIMUM proportion of time for practice in science-based laboratories in the core curriculum or syllabus	Le pourcentage de temps minimal destiné à la pratique dans des laboratoires scientifiques au cour du tronc commun ou du programme	Minimum time of practice in the labs in the common program	Le pourcentage de temps minimal destiné à la pratique dans des laboratoires scientifiques au cour du tronc commun ou du programme
24. What proportion of time is dedicated to LABORATORY PRACTICE in the core curriculum or syllabus? (Please respond as an approximate percentage, and enter a value between 0 and 100)	Quel est le pourcentage de temps consacré à la pratique au laboratoire dans le tronc commun ou dans le programme ? (S'il vous plait veuillez répnre par un pourcentage et entrer la valeur entre 0 et 100)	<i>What is the minimum time of practice in the labs in the common program (Please answer with a percentage between 0 and 100 %)</i>	Quel est le pourcentage de temps consacré à la pratique au laboratoire dans le tronc commun ou dans le programme ? (S'il vous plait veuillez répnre par un pourcentage et entrer la valeur entre 0 et 100)
Curriculum in the EARLY year(s) of the pharmacy degree	Programme des premieres années du diplôme en pharmacie	First years program	Programme des premieres années du diplôme en pharmacie
25. For the EARLY years of the university curriculum, which of the following best describes the content/expectations in general?	Concernant les premieres années du programme universitaire, laquelle de ces proposiyions qui décrit en général le contenu/les prévisions	About the first years of the pharmacy programs, which best describes the content?	Concernant les premieres années du programme universitaire, laquelle de ces proposiyions qui décrit en général le contenu/les prévisions
Wholly general science, with very little pharmacy practice component	Entierement den la sccience générale avec un peu de pratique en pharmacie	Entirely sciences with little practice	Entierement den la sccience générale avec un peu de pratique en pharmacie
Mostly general science orientation, with small/moderate pharmacy practice components	Essentiellement de l'orientation en science générale avec de la pratique limitée en pharmacie	A great part of sciences with average practice	Essentiellement de l'orientation en science générale avec de la pratique limitée en pharmacie
A mix of general science and pharmacy practice	Mélange de science générale et de pratique en phrmacie	A combination of both	Mélange de science générale et de pratique en phrmacie
<i>Licensure of practice</i>	<i>Obtention de licence de pratique</i>	<i>Obtention of the practice licensure</i>	<i>Obtention de licence de pratique</i>
To practice pharmacy in your country	Pratiquer la pharmacie dans votre pays	Pharmacy practice in your country	Pratiquer la pharmacie dans votre pays
26. Do pharmacy graduates require a LICENSE, registration or other	Les diplômés en pharmacie ont ils besoin d'une licence, inscription ou autres	The pharmacy graduates need a license or an inscription in order to practice	Les diplômés en pharmacie ont ils besoin d'une licence, inscription ou autres

authorization to practice pharmacy?	autorisation pour la pratique de leur métier?	pharmacy?	autorisation pour la pratique de leur métier?
How do students from the main academic pharmacy programme obtain a LICENSE, registration or other authorisation to practice pharmacy? <i>(You can indicate more than one option.)</i>	Comment les étudiants du programme académique principal en pharmacie obtiennent ils une licence inscription ou autre autorisation pour la pratique de la pharmacie? <i>(Vous pouvez indiquer plus qu'un choix)</i>	How recent graduates get the practice license? <i>(You can state more than one choice)</i>	Comment les étudiants du programme académique principal en pharmacie obtiennent ils une licence inscription ou autre autorisation pour la pratique de la pharmacie? <i>(Vous pouvez indiquer plus qu'un choix)</i>
27a) Immediately upon graduation	Immédiatement après graduation	Immediately after graduation	Immédiatement après graduation
27b) After passing a further examination after graduation	Après avoir passé un examen de plus après obtention du diplôme.	Additional exam after graduation	Après avoir passé un examen de plus après obtention du diplôme.
27c) After a period of practical experience after graduation <i>(if yes, please specify length of time)</i>	Après une période d'expérience pratique après l'obtention du diplôme <i>(Si oui s'il vous plaît précisez la durée)</i>	After a practical experience, after the graduation <i>(please precise the duration)</i>	Après une période d'expérience pratique après l'obtention du diplôme <i>(Si oui s'il vous plaît précisez la durée)</i>
27d) Others <i>(If yes, please specify in the provided space on the right)</i>	Autres <i>(Si oui s'il vous plaît précisez dans l'espace à droite)</i>	Other <i>(Please indicate in the box)</i>	Autres <i>(Si oui s'il vous plaît précisez dans l'espace à droite)</i>
Please specify: <input type="text"/>	S'il vous plaît précisez: <input type="text"/>	Please precise: <input type="text"/>	S'il vous plaît précisez: <input type="text"/>
Licensing authority	Autorité délivrant les licences	Authorities delivering the licensure	Autorité délivrant les licences
28. Which authority awards graduates with a LICENSE, registration or other authorisation to practice?	Quelle autorité accorde t elle aux diplômés une licence, inscription ou autre autorisation de pratique?	Which authority provides the license?	Quelle autorité accorde t elle aux diplômés une licence, inscription ou autre autorisation de pratique?
<i>Quality assurance</i>	<i>Assurance qualité</i>	<i>Quality assurance</i>	<i>Assurance qualité</i>
Quality assurance mechanisms and processes	Mécanisme et processus de l'assurance qualité	Mechanism and process	Mécanisme et processus de l'assurance qualité
29. Are the faculties or schools subject to PERIODIC ACCREDITATION or similar process by an external body in your country? <i>(This is usually an evaluation conducted by an organisation or agency outside of the faculty or school).</i>	A les facultés ou les écoles sont elles soumises à l'accréditation périodique ou un processus similaire par un organisme externe dans votre pays? <i>(Il s'agit généralement d'une évaluation menée par une organisation ou un organisme de l'extérieur de la faculté ou de l'école.)</i>	Do pharmacy schools go through a process of accreditation or similar, in your country? <i>(This is usually an evaluation conducted by an organisation or agency outside of the faculty or school).</i>	A les facultés ou les écoles sont elles soumises à l'accréditation périodique ou un processus similaire par un organisme externe dans votre pays? <i>(Il s'agit généralement d'une évaluation menée par une organisation ou un organisme de l'extérieur de la faculté ou de l'école.)</i>
No (if <u>NO</u> , skip to the Q33)	Non (Si <u>NON</u> , sautez à la Q33)	No (if no, go to Q33)	Non (Si <u>NON</u> , sautez à la Q33)
How frequently is accreditation	Comment l'accréditation est elle souvent menée?	The accreditation process	Comment l'accréditation est elle souvent menée?

conducted?			
30a) Requires to be accredited only once after the establishment of the faculty/school	Necessite d'etre accrediter une fois après établissement de la faculté/école	Only once after the opening of the school	Necessite d'etre accrediter une fois après établissement de la faculté/école
30b) More than once a year	Plus qu'une fois par an	More than once/year	Plus qu'une fois par an
30c) Once a year	Une fois par an	Once a year	Une fois par an
30d) Once every 2 years	Une fois tout les 2ans	Once every two years	Une fois tout les 2ans
30e) Once every 3 years	Une fois tout les 3ans	Once every three years	Une fois tout les 3ans
30f) Once every 5 years	Une fois tout les 5 ans	Once every five years	Une fois tout les 5 ans
30g) Other frequency (please provide details in the space provided on the right)	Autres fréquence (S'il vous plait veuillez fournir plus de détails dans l'espace à droite)	Other frequencies (please detail in the box)	Autres fréquence (S'il vous plait veuillez fournir plus de détails dans l'espace à droite)
What is accredited? (You can indicate more than one option.)	Qu'est ce qui est accrédité? (Vous pouvez indiquer plus qu'un choix)	Who is accredited? (You can pick more than one choice)	Qu'est ce qui est accrédité? (Vous pouvez indiquer plus qu'un choix)
31a) The educational institution/university	L'institution/l'université	The institution / university	L'institution/l'université
31b) The faculty or school (e.g. school of pharmacy)	La faculté ou l'école (exp: L'école de pharmacie)	Faculty or school	La faculté ou l'école (exp: L'école de pharmacie)
31c) The academic programme (please provide details in the space provided on the right)	Le programme académique (S'il vous plait veuillez fournir plus de détail dans l'espace à droite)	The academic program (Please add details in the box)	Le programme académique (S'il vous plait veuillez fournir plus de détail dans l'espace à droite)
Who is the ACCREDITING BODY?	Qui est l'organisme d'accréditation?	Who is the accrediting organisation	Qui est l'organisme d'accréditation?
32a) Ministry of Health	Ministère de santé	Ministry of health	Ministère de santé
32b) Ministry of Education	Ministère de l'éducation	Ministry of education	Ministère de l'éducation
32c) Other governmental agency	Autres agences gouvernementales	Other government agencies	Autres agences gouvernementales
32d) National professional organisation	Organisation nationale professionnelle	National organisation	Organisation nationale professionnelle
32e) Private accrediting body	Organisme d'accréditationprivé	Private organisation	Organisme d'accréditationprivé
32f) Other	Autres	Other	Autres
Other Quality assurance mechanisms or processes	Autres mécanismes et processus de l'assurance qualité	Other process of quality assurance	Autres mécanismes et processus de l'assurance qualité
33a) Are there any other internal or external QUALITY ASSURANCE mechanisms or processes used by higher education institutions?	Y'a t il d'autres processus ou mécanisme interne ou externe de l'assurance qualité utilisé par les instituion de l'enseignement supérieur	Is there any other external or internal process of accreditation used by the school?	Y'a t il d'autres processus ou mécanisme interne ou externe de l'assurance qualité utilisé par les instituion de l'enseignement supérieur
Yes (please specify in the Q33b))	Oui (S'il vous plait précisez dans la Q33b)	Yes (please specify in the Q33b)	Oui (S'il vous plait précisez dans la Q33b)

33b) If YES in the Q33a), please provide additional information	Si OUI à la Q33a), s'il vous plait veuillez fournir plus d'information	If yes go to Q33a) please add more details	Si OUI à la Q33a), s'il vous plait veuillez fournir plus d'information
<i>Related document</i>	<i>Documents Connexes</i>	<i>Other Documents</i>	<i>Documents Connexes</i>
34. Please include any relevant document (report, research, article references) related to pharmacy education and the academic programmes in your school/country with the submission of this survey.	S'il vous plait veuillez joindre tout document pertinent (rapport, recherche, référence d'article) lié à la formation en pharmacie et les programmes académiques dans votre école/pays avec la soumission de ce sondage.	Please join any relevant document (report, research, article) related to the pharmacy degree, after submission of this survey.	S'il vous plait veuillez joindre tout document pertinent (rapport, recherche, référence d'article) lié à la formation en pharmacie et les programmes académiques dans votre école/pays avec la soumission de ce sondage.
Your participation in this survey is vital to provide a better understanding of current pharmacy education issues, and will assist in the development of global pharmacy education policy recommendations.	Votre participation est cruciale pour une meilleure compréhension des problèmes dans la formation en pharmacie actuelle et aidera dans le développement des recommandations de la politique de la formation globale en pharmacie.	Your participation is crucial for a better understanding of the problems encountered by pharmacy training and programs currently, and will help in the development of recommendation in the policy and the global pharmacy education	Votre participation est cruciale pour une meilleure compréhension des problèmes dans la formation en pharmacie actuelle et aidera dans le développement des recommandations de la politique de la formation globale en pharmacie.
Please save the completed form and return to education@fip.org	S'il vous plait enregistrez le formulaire complet et retournez vers education@fip.org	Please submit this survey and send it to education@fip.org	S'il vous plait enregistrez le formulaire complet et retournez vers education@fip.org
Thank you for your participation	Merci pour votre participation	Thanks for your participation	Merci pour votre participation

Appendix 14: Forward-back translation of the Pharmacy Education Survey (Japanese)

Original School Survey Country	Forward translation	Back translation	Final translation
FIP-WHO Global Survey of Pharmacy Schools Country	FIP-WHO 薬科大学国際調査：国別調査票	FIP-WHO International Survey of Pharmacy schools: Country questionnaire	FIP-WHO 薬科大学国際調査：国別調査票
This global survey aims to collect information to ascertain the educational background of the pharmacy workforce as well as the quality assurance accreditation mechanisms and processes.	この国際調査は、薬剤師の教育背景と質保証・認証の仕組みと課程を明確にするための情報収集を目的としています。	The purpose of this survey is to collect the information for elucidating the background of education for pharmacists and the process of quality assurance/ accreditation system.	この国際調査は、薬剤師の教育背景と質保証・認証の仕組みと過程を明確にするための情報収集を目的としています。
The data will be used to identify gaps, shortages and cooperation opportunities, and will provide the evidence-based information needed for investment policies that will reduce existing gaps and increase pharmacy education capacity.	データは教育の不均衡、不足、そして協力の機会を明らかにするために使われます。現状の教育における不均衡を減らし、薬学教育の能力を向上するための投資政策に必要とされる、エビデンスに基づく情報を提供します。	The data will be used for clarify inequality of education, insufficiency and opportunities to cooperate. We will provide evidence based information which is required for investment policy to reduce inequality in current education and improve the capacity of pharmacy education.	データは教育の格差、不足、そして協力の機会を明らかにするために使われます。現状の教育における格差を減らし、薬学教育の能力を向上するための投資政策に必要とされる、エビデンスに基づく情報を提供します。
Please reply to this questionnaire on behalf of your country .	貴国 を代表してこの質問票にお答え下さい。	Please answer this questionnaire on behalf of your country. (as a representative)	貴国 を代表してこの質問票にお答え下さい。
<i>Country and contact information</i>	<i>貴国と質問票にお答えいただいている方の連絡先 (英語表記)</i>	Your country and your contact information. (in English)	<i>貴国と質問票にお答えいただいている方の連絡先 (英語表記)</i>
Country information	国情報	Country information	国情報
1. State the country	State the country (国名)	Name of the country	国名をお書きください (英語)
Contact completing this questionnaire	質問票にお答えいただいている方の連絡先 (英語表記)	The contact information of the person who is answering the questionnaire. (in English)	質問票にお答えいただいている方の連絡先 (英語表記)
2. Title	Title (Mr, Miss, Mrs, Ms, Dr)	Title	Title (敬称: Mr, Miss, Mrs, Ms, Dr)
3. First name	First name (名前)	First name	First name (名前)
4. Last name	Last name (姓)	Last name	Last name (姓)
5. Job title	Job title (役職)	Job title	Job title (役職)
6. Organisation/Agency	Organisation/Agency (勤務先)	Organisation/Agency	Organisation/Agency (勤務先)
7. Email address (the email format is xxxx@yyyy.zzz)	Email address (eメールアドレス) (eメールアドレスの形式は	Email address (the email format is xxxx@yyy.zzz)	Email address (eメールアドレス) (eメールアドレスの形式は

	xxx@yyy.zzzでお書き下さい)		xxx@yyy.zzzでお書き下さい)
8. Website (the URL format is http://xxxx)	Website (ウェブサイト) (URLの形式は http://xxxx でお書き下さい)	Website (the URL format is http://xxxx)	Website (ウェブサイト) (URLの形式は http://xxxx でお書き下さい)
9. Phone number	Phone number (電話番号)	Phone number	Phone number (電話番号)
10. Fax number	Fax number (ファックス番号)	Fax number	Fax number (ファックス番号)
11. Address	Address (勤務先住所)	Address	Address (勤務先住所)
<i>Production of pharmacists</i>	薬剤師の生産	Production of pharmacists	薬剤師の産出
<i>Definition: A “pharmacy degree” refers to the degree related to pharmacy, which leads to the registration as a pharmacist in your country.</i>	定義：“薬学学位”とは、貴国での薬剤師としての登録に結びつく、薬学に関する学位のことを示す。	Definition: “Pharmacy degree” refers to pharmacy related degree that leads to register as pharmacist.	定義：“薬学学位”とは、貴国での薬剤師としての登録につながる、薬学に関する学位のことを示す。
The number of pharmacy graduates (at National level)	薬学卒業生徒数 (貴国全体で)	Number of graduates from pharmacy school (whole country)	薬学卒業生徒数 (貴国全体で)
Number	生徒数	Number of students	生徒数
Year of data	データ調査年	The year data obtained.	データ調査年
12a) Total number of pharmacy graduates per year	一年当たりの薬学卒業生徒の総数	Total number of pharmacy graduates per year.	一年当たりの薬学卒業生徒の総数
12b) Total number of FEMALE pharmacy graduates per year	一年当たりの薬学卒業女子生徒の総数	Total number of female graduates per year.	一年当たりの薬学卒業女子生徒の総数
The number of faculties, schools or departments of pharmacy	薬科大学、又は薬学部の総数	Number of pharmacy schools or faculties of pharmacy.	薬科大学、又は薬学部の総数
13. Total number of faculties, schools or departments of pharmacy that currently provide a pharmacy degree	現在薬学学位を与える薬科大学、又は薬学部の総数	Number of pharmacy schools or faculties of pharmacy which give degree of pharmacy.	現在薬学学位を与える薬科大学、又は薬学部の総数
Usual starting age for university study	大学における学業を開始する通常の年齢	Common age to start study in university.	大学における学業を開始する通常の年齢
Age	年齢	Age	年齢
Year of data	データ調査年	The year data obtained.	データ調査年
14. What is the age of university entry level to study pharmacy?	薬学を勉強する大学への入学時の年齢は？	The age of enrolment of university to study pharmacy.	薬学を勉強する大学への入学時の年齢は？
<i>OWNERSHIP of the faculties, schools or departments of pharmacy</i>	薬科大学・学部・部門の所有権	<i>Ownership of pharmacy school, faculty, department</i>	薬科大学・学部・学科の所有権
What is the OWNERSHIP of the faculties, schools or departments of pharmacy?	薬科大学・薬学部・部門の所有権と、その総数	Ownership of pharmacy schools, faculty of pharmacy, department and their total	薬科大学・薬学部・学科の所有権と、その総数

		number	
Faculty Owned by: <i>(Please select the most appropriate description)</i>	所有： <i>(一番適切な表現のものをお選び下さい)</i>	Ownership (select most appropriate representation)	所有： <i>(一番適切な表現のものをお選び下さい)</i>
Number of faculties/schools/departments	薬科大学・薬学部・部門数	Number of pharmacy schools, faculty of pharmacy, department	薬科大学・薬学部・学科数
Yes	はい	Yes	はい
No	いいえ	No	いいえ
Details:	詳細:	Details	詳細:
15a) Ministry of Health	厚生労働省	Ministry of health, labour and welfare	厚生労働省
15b) Ministry of Higher Education	文部科学省	Ministry of education, culture, sports, science	文部科学省
15c) Public state/government owned	公立・国立	Public/National	公立・国立
15d) Private not for profit	私立 (非営利)	Private (non-profit)	私立 (非営利)
15e) Private for profit	私立 (営利)	Private (profit)	私立 (営利)
15f) Public/private mix (Please provide details in the space provided on the right)	公立・私立混合 (右側に用意されたスペースに詳細をお書き下さい)	Mixture of public and private (please describe the details in the space provided on the right)	公立・私立混合 (右側に用意されたスペースに詳細をお書き下さい)
15g) Others (Please provide details in the space provided on the right)	他 (右側に用意されたスペースに詳細をお書き下さい)	Others (please describe the details in the space provided on the right)	その他 (右側に用意されたスペースに詳細をお書き下さい)
Financing of education	教育資金	Resource for education	教育資金
Definition: "Tuition fee" refers to any fee directly paid by students, and "per capita or capitation provision from public funds" here means the per capita proportion of funding from taxes or government.	定義: "学費"とは学生により直接支払われる全ての費用を示しています。ここでの"公的資金からの人頭支給"とは税金や政府からの公的資金の一人当たりの割り当てを示しています。	Definition: "tuition" refers to all the expenses which are directly paid by students. "Capitation payment from public resource" means public fund allocation from tax or government per person in this section.	定義: "学費"とは学生により直接支払われる全ての費用を示しています。ここでの"公的資金からの人頭支給"とは税金や政府からの公的資金の一人当たりの割り当てを示しています。
<i>(Please note that the responses added in 16a), 16b) and 16c), or 17a) and 17c) should sum up to a total of 100%)</i>	<i>(16a, 16b) そして 16c)、または17a) と 17c) のそれぞれの合計は100%となるようお答え下さい)</i>	<i>Please answer each of (16a, 16b) and 16c), or 17a) and 17c) to be 100%.</i>	<i>(16a, 16b) そして 16c)、または17a) と 17c) のそれぞれの合計は100%となるようお答え下さい)</i>
Cost for educating pharmacy students	薬学生教育費用	Education expense of pharmacy students	薬学生教育費用
Amount (please response in numbers e.g. 1000)	費用 (数字でお答え下さい。例: 1000)	expense	金額 (数字でお答え下さい。例: 1000)
Currency	通貨	currency	通貨
Proportion of the total student funding	学生の総資金内の割合 (%)	Percentage of students in total funding (%)	総学生資金内の割合(%)

(%)			
Year of data	データ調査年	The year data obtained.	データ調査年
16. Domestic students	国内の学生	Domestic students	国内の学生
a) Tuition fee for domestic (HOME) students per year	国内の（日本人）学生に対する一年当たりの学費	Tuition for a domestic (Japanese) student per year.	国内の（日本人）学生に対する一年当たりの学費
b) Per capita or capitation provision from public funds per year (e.g. taxes, government)	公的資金からの人頭支給（一年当たり）（例：税金、政府）	Capitation payment from public resource (per year) (ex. Tax, government)	公的資金からの人頭支給（一年当たり）（例：税金、政府）
c) Others (please specify:)	他（詳細を記載して下さい：)	Others (please describe in detail:)	その他（詳細を記載して下さい：)
17. Overseas/ international students	海外の学生	Foreign students	海外の学生
a) Tuition fee for an OVERSEAS student per year	海外の（日本人以外）学生に対する一年当たりの学費	Tuition for a foreign student per year.	海外の（日本人以外）学生に対する一年当たりの学費
b) Others (please specify:)	他（詳細を記載して下さい：)	Others (please describe in detail:)	その他（詳細を記載して下さい：)
<i>Academic programmes</i>	<i>学科課程</i>	<i>Curriculum of the department</i>	<i>学科課程</i>
<i>Definition: An “academic programme” is a combination of courses or learning modules that give access to a degree, diploma, certificate or other credential, which is recognised in society outside the educational institution such as a Diploma, Baccalaureate Degree, Masters Degree, Professional Doctorate, and PhD.</i>	<i>定義：“学科課程”とは、その教育機関外で認識される学位・資格免許・証明書又は他の資格等に通じる講習や短期課程学習の組み合わせたものを言い、ディプロマ、学士、修士、博士号などを言う。</i>	<i>Definition: “curriculum of the department” refers to degree/licence qualification/certification or a combination of lecturers or short term learning courses for other licences which are recognised outside of institute such as diploma, bachelor, master and doctorate.</i>	<i>定義：“学科課程”とは、その教育機関外で認識される学位・資格免許・証明書又は他の資格等に通じる講習や短期課程学習の組み合わせたものを言い、ディプロマ、学士、修士、博士号などを言う。</i>
<i>The “National Higher Education Qualification Framework” here refers to a national, formal description of types of degree qualification (e.g. Bachelor, Master, Diploma, PhD, etc.), and associated standards.</i>	<i>また、“国家高等教育資格フレームワーク”とは、国家による公的な学位・資格の種類（例：学士、修士、博士号、など）の定義説明、関連した基準を示している。</i>	<i>“National framework for higher education qualifications” refers to the explanation of definition and related standard of type of public degree/qualifications (bachelor, master, doctorate etc.)by national government</i>	<i>また、“国家高等教育資格フレームワーク”とは、学位・資格の種類（例：学士、修士、博士号、など）の国家による正式な定義説明、関連した基準を示している。</i>
What ACADEMIC PROGRAMMES lead to registration as a pharmacist?	薬剤師としての登録に結びつく学科課程は何ですか？（日本語・英語の両表記）	What is the course programme that leads to register as pharmacist? (Japanese and English)	薬剤師としての登録に結びつく学科課程は何ですか？（日本語・英語の両表記）
Formal Name of Academic Programme (please spell out name in full and do not use abbreviations)	公的な学科課程名（省略せずに完全名称でお書き下さい）（例：6年制薬学士課程・6-year Bachelor course in	Public title of the course programme. (please write in full name without abbreviation). (ex. 6-year Bachelor course	正式な学科課程名（省略せずに完全名称でお書き下さい）（例：6年制薬学士課程・6-year Bachelor course in

	Pharmacy)	in Pharmacy)	Pharmacy)
Title of Qualifications Awarded	授与される資格名称 (例: 学士 (薬学) ・ Bachelor of Science in Pharmacy)	Given title of qualification. (ex. Bachelor (pharmacy)/bachelor of science in pharmacy)	授与される資格名称 (例: 学士 (薬学) ・ Bachelor of Science in Pharmacy)
Minimum duration of Programme (Years)	プログラムの最短期間 (年) (例: 6 年 ・ 4 年)	The shortest duration of the programme (year)(ex. 6years/4years)	プログラムの最短期間 (年) (例: 6 年 ・ 4 年)
18. (i) Academic programme 01	学科課程 01	Course programme	学科課程 01
18. (ii) Academic programme 02	学科課程 02	Course programme	学科課程 02
National Higher Education Qualifications Framework	国家高等教育資格フレームワーク	Framework for national higher education qualifications	国家高等教育資格フレームワーク
19. Is there any NATIONAL HIGHER EDUCATION QUALIFICATIONS FRAMEWORK in operation in your country?	貴国で使用されている国家高等教育資格フレームワークはありますか?	Do you have a framework for national higher education qualification in your country?	貴国で使用されている国家高等教育資格フレームワークはありますか?
Is the internship or pre-registration training integrated in the main academic programme leading to the registration/licensure as a pharmacist?	インターンシップ又は登録前トレーニングは、薬剤師としての登録に結びつく主な学科課程に組み込まれておりますか?	Is the internships or pre-register training included in the degree curricula which lead to register as pharmacist?	インターンシップ又は登録前トレーニングは、薬剤師としての登録/免許取得に結びつく主な学科課程に組み込まれておりますか?
The kind of practice	実習の種類	Type of training	実習の種類
Length of training	トレーニングの期間	Duration of training	トレーニングの期間
20a) Integrated	組み込まれている	Included	組み込まれている
Community	地域薬局	Community pharmacy	地域薬局
Hospital	病院	Hospital pharmacy	病院
Industry	製薬業界	Pharmaceutical industry	製薬業界
Other (please specify:)	他 (詳細を記載してください:)	Others (please describe in detail)	他 (詳細を記載してください:)
months	ヶ月	Month	ヶ月
20b) Separated	分かれている	Separated	分かれている
20c) No internship/pre-registration training for a registration as a pharmacist	薬剤師として登録するためのインターンシップ・登録前トレーニングは無い	There is no internship or pre-register training	薬剤師として登録するためのインターンシップ・登録前トレーニングは無い
The registration/licensure of pharmacy graduates	薬学卒業生の登録・免許交付	Registration of graduates from pharmacy/ issue of license	薬学卒業生の登録・免許交付
21a) Do pharmacy students GRADUATE and REGISTER/are licensed as a pharmacist at the same time?	薬学生の卒業と登録・免許交付は同時ですか	Is it the same time that the graduation of pharmacy students and issue of license?	薬学生の卒業と登録・免許交付は同時ですか
Yes	はい	YES	はい

No (please specify in the Q21b)	いいえ (Q21b にて詳細をお書き下さい)	NO (please describe in detail in Q21b)	いいえ (Q21b にて詳細をお書き下さい)
21b) If NO above, please specify what the requirements are to register/become licensed as a pharmacist after graduation	上記で「いいえ」であった場合、卒業後、薬剤師として登録・免許交付を受けるために必要な要件が何か明記して下さい。	If you chose “NO” in above, please specify the requirements to register/ to be licensed as a pharmacist after graduation?	上記で「いいえ」であった場合、卒業後、薬剤師として登録・免許交付を受けるために必要な要件が何か明記して下さい。
<i>MINIMUM requirement for admission to a pharmacy degree programme</i>	薬学学位課程へ入学するための最低条件	Minimum requirements to enter the pharmacy degree course	薬学学位課程へ入学するための最低条件
<i>Definition: A “pharmacy degree” refers to the degree related to pharmacy, which leads to the registration as a pharmacist in your country.</i>	定義：“薬学学位”とは、貴国での薬剤師としての登録に結びつく、薬学に関する学位のことを示します。	<i>Definition: “Pharmacy degree” refer to the degree about pharmacy which lead to registration as a pharmacist in your country</i>	定義：“薬学学位”とは、貴国での薬剤師としての登録に結びつく、薬学に関する学位のことを示します。
Which of the following are required for admission to university to study pharmacy? (You can indicate more than one option.)	薬学を勉強するための大学への入学に必要な条件は次のうちどれですか？ (一つ以上選択することが可能です)	Which of the following conditions were required to enter the university to study pharmacy? (can select more than one)	薬学を勉強するための大学への入学に必要な条件は次のうちどれですか？ (一つ以上選択することが可能です)
22a) Secondary school leaving exam	高校卒業試験	High school graduation examination	高校卒業試験
Additional information: 	追加情報: 	Additional information:	追加情報:
22b) A special branch of secondary school (please specify which branch in the space provided on the right)	特別な高校 (右側に用意されたスペースにどの高校か明記してください)	Special high school. (Please specify the school name in the space provided on the right side).	特別な高校 (右側に用意されたスペースにどの高校か明記してください)
22c) Diploma, degree or certificate (please specify what type in the space provided on the right)	ディプロマ、学位、又は免許 (右側に用意されたスペースに詳細を明記してください)	Diploma, degree or licence (please specify the details in the space provided on the right side).	ディプロマ、学位、又は認証 (右側に用意されたスペースに詳細を明記してください)
22d) A special course (please specify what course in the space provided on the right)	特別コース (右側に用意されたスペースにどのコースが明記してください)	Special course (please specify the course)	特別コース (右側に用意されたスペースにどのコースが明記してください)
22e) Entrance examination (national or supra-national)	入学試験 (国全体、又はそれに準ずる) (例: センター試験)	Entrance examination. (nationwide or equivalent)	入学試験 (国全体、又はそれに準ずる) (例: センター試験)
22f) Entrance examination of the faculty or school	各大学・学部による入学試験	Entrance examination by each university/faculty	各大学・学部による入学試験
22g) Interview	面接	Interview	面接
22h) Others (please provide details in the space provided on the right)	他 (例: 推薦等) (右側に用意されたスペースに詳細を明記してください)	Others (ex. recommendation) (please specify the details in the space provided on the right side)	その他 (例: 推薦等) (右側に用意されたスペースに詳細を明記してください)

<i>Core curriculum or syllabus for pharmacy degree</i>	薬学学位のためのコア・カリキュラム又はシラバス	<i>Core curriculum or syllabus for pharmacy degree</i>	薬学学位のためのコア・カリキュラム又はシラバス
<i>Definition: "Core curriculum or syllabus" here refers to a common, standardised, or indicative curriculum for qualification.</i>	定義：ここでの“コア・カリキュラム又はシラバス”とは、共通の、標準化され、指標となる、資格のためのカリキュラムを示しています。	<i>Definition: "Core curriculum or syllabus" refer the common and standardised curriculum which can be the indicator for license</i>	定義：ここでの“コア・カリキュラム又はシラバス”とは、共通の、標準化され、指標となる、資格のためのカリキュラムを示しています。
<i>A "pharmacy degree" is the degree related to pharmacy, which leads to registration as a pharmacist in your country.</i>	また、薬学学位”とは、貴国での薬剤師としての登録に結びつく、薬学に関する学位のことを示します。	<i>"pharmacy degree" refers the degree which leads to register as a pharmacist in your country.</i>	また、薬学学位”とは、貴国での薬剤師としての登録に結びつく、薬学に関する学位のことを示します。
<i>Use of core curriculum or syllabus</i>	コア・カリキュラム又はシラバスの使用	<i>Usage of core curriculum or syllabus</i>	コア・カリキュラム又はシラバスの使用
23a) Does your country use any nationally agreed core curriculum or syllabus for pharmacy degree?	貴国では国で認められた、薬学学位のためのコア・カリキュラム又はシラバスを使用していますか？	Do you use the core curriculum or syllabus admitted by the national government in your country?	貴国では国で認められた、薬学学位のためのコア・カリキュラム又はシラバスを使用していますか？
Yes (please specify in Q23b)	はい (Q23b にて明記してください)	Yes (please specify in Q23b)	はい (Q23b にて明記してください)
23b) If YES in above, please provide the related documents for the core curriculum or integrated curriculum	もし上記で「はい」の場合、そのコア・カリキュラム又は統一されたカリキュラムに関する資料を提供してください。	If you chose "YES" in the above, please submit documents related to universal curriculum.	もし上記で「はい」の場合、そのコア・カリキュラム又は統一されたカリキュラムに関する資料を提供してください。
Attached	添付	Attachment	添付
Information on website (Please specify the URL address: http://)	ウェブサイト上の情報(URL アドレスを明記してください: http://)	Information on the website (please specify the URL: http://)	ウェブサイト上の情報(URL アドレスを明記してください: http://)
MINIMUM proportion of time for practice in science-based laboratories in the core curriculum or syllabus	そのコア・カリキュラム又はシラバスにおける、化学実験室での実習時間の最低割合	Minimum proportion of practice in chemical laboratories in the core curriculum or syllabus.	そのコア・カリキュラム又はシラバスにおける、科学実験室での実習時間の最低割合
24. What proportion of time is dedicated to LABORATORY PRACTICE in the core curriculum or syllabus? (Please respond as an approximate percentage, and enter a value between 0 and 100)	そのコア・カリキュラム又はシラバスにおいて、科学実験室での実習はどれほどの割合が割り当てられていますか？ (おおよそのパーセンテージでお答えいただき、回答欄には 0 から 100 の数字をご記入ください)	How much is the proportion allocated into the practice in the science laboratories in the core curriculum or syllabus? (Please answer in approximate percentage, indicate from 0 to 100 in the column)	そのコア・カリキュラム又はシラバスにおいて、科学実験室での実習はどれほどの割合が割り当てられていますか？ (おおよそのパーセンテージでお答えいただき、回答欄には 0 から 100 の数字をご記入ください)
Curriculum in the EARLY year(s) of the pharmacy degree	薬学学位の初期学年のカリキュラム	Curricula of the first year of pharmacy degree	薬学学位の初学年又は早期学年のカリキュラム
25. For the EARLY years of the university curriculum, which of the following best	大学のカリキュラムにおける初期学年	Which of the following is most appropriate to describe the general	大学のカリキュラムにおける初期学年

describes the content/expectations in general?	では、次のうち、どれが一般的な内容・期待を一番適切に表していますか？	contents/expectation of the first year of the pharmacy degree in the university?	では、次のうち、どれが一般的な内容・期待を一番適切に表していますか？
Wholly general science, with very little pharmacy practice component	薬学実務に関するものをほとんどなく、全面的に一般科学が占める。	General science accounts for the most parts and there are very little on pharmacy practice.	薬学実務に関するものをほとんどなく、全面的に一般科学が占める。
Mostly general science orientation, with small/moderate pharmacy practice components	わずかに、又は適度に薬学実務に関するものもあるが、主に一般科学が占める傾向にある。	It tend to general science occupy the majority and there are a little or moderately on pharmacy practice.	わずかに、又は適度に薬学実務に関するものもあるが、主に一般科学が占める傾向にある。
A mix of general science and pharmacy practice	一般科学と薬学実務に関するものの混合	It is a mixture of general science and pharmacy practice.	一般科学と薬学実務に関するものの混合
<i>Licensure of practice</i>	<i>実務のための免許交付</i>	Issue of license to practice	<i>実務のための免許交付</i>
To practice pharmacy in your country	貴国で薬剤師業務を行うために	To do the pharmacy practice in your country	貴国で薬剤師業務を行うために
26. Do pharmacy graduates require a LICENSE, registration or other authorization to practice pharmacy?	薬学卒業生が薬剤師業務を行うためには、免許、登録、又は他の承認が必要ですか？	Is it required to have license, registration or any other approval to do the pharmacy practice by pharmacy graduates?	薬学卒業生が薬剤師業務を行うためには、免許、登録、又は他の承認が必要ですか？
How do students from the main academic pharmacy programme obtain a LICENSE, registration or other authorisation to practice pharmacy? (You can indicate more than one option.)	主な薬学科課程を卒業する学生は、薬剤師業務を行うための免許、登録、又は他の承認をどのように取得しますか？ (一つ以上選択することが可能です)	How do the pharmacy graduates acquire the license/registration or any other approval to do the pharmacy practice?	主な薬学科課程を卒業する学生は、薬剤師業務を行うための免許、登録、又は他の承認をどのように取得しますか？ (一つ以上選択することが可能です)
27a) Immediately upon graduation	卒業と同時に	Upon graduation	卒業と同時に
27b) After passing a further examination after graduation	卒業後、更なる試験に合格した後	After passing additional examination after the graduation	卒業後、更なる試験に合格した後
27c) After a period of practical experience after graduation (if yes, please specify length of time)	卒業後、実務研修後 (「はい」の場合、その研修の長さを明記してください)	After the internship after the graduation (if “yes”, please specify the length of the training)	卒業後、実務研修後 (「はい」の場合、その研修の長さを明記してください)
27d) Others (If yes, please specify in the provided space on the right)	他 (「はい」の場合、詳細を明記してください)	Others (if “yes”, please specify the details)	その他 (「はい」の場合、詳細を明記してください)
Please specify: 	詳細を明記してください: 	Please specify the details	詳細を明記してください:
Licensing authority	免許交付機関	Licensing agency	免許交付機関
28. Which authority awards graduates with a LICENSE, registration or other	卒業生に薬剤師業務を行うための免許、登録、又は他の承認を与えるのは	Which agency issues the license, registration or any other approval to do the pharmacy practice to the graduates?	卒業生に薬剤師業務を行うための免許、登録、又は他の承認を与えるのは

authorisation to practice?	どの機関ですか？		どの機関ですか？
<i>Quality assurance</i>	<i>質保証</i>	<i>Quality assurance</i>	<i>質保証</i>
Quality assurance mechanisms and processes	質保証の仕組みと過程	The system and process of quality assurance	質保証の仕組みと過程
29. Are the faculties or schools subject to PERIODIC ACCREDITATION or similar process by an external body in your country? <i>(This is usually an evaluation conducted by an organisation or agency outside of the faculty or school).</i>	その薬科大学又は薬学部は、定期的な認証評価又は同様な過程を第三者機関に受けますか？（これは通常、学部・大学以外の組織又は機関によって行われる評価です。）	Do the pharmacy schools or faculty of pharmacy undergo the certified evaluation and accreditation or similar process by a third party annually? <i>(the evaluation is usually conducted by the outside organisations or agencies)</i>	その薬科大学又は薬学部は、定期的な認証評価又は同様な過程を第三者機関に受けますか？（これは通常、学部・大学以外の組織又は機関によって行われる評価です。）
No (if NO, skip to the Q33)	いいえ（Q33へ飛んで下さい）	No (skip to Q33)	いいえ（Q33へ飛んで下さい）
How frequently is accreditation conducted?	認証評価はどれくらいの頻度で行われますか？	How often the certified evaluation and accreditation is conducted?	認証評価はどれくらいの頻度で行われますか？
30a) Requires to be accredited only once after the establishment of the faculty/school	その薬科大学・学部の設立後、一度だけ認可が必要	Only one time accreditation after the establishment of the pharmacy school or faculty.	その薬科大学・学部の設立後、一度だけ認可が必要
30b) More than once a year	年に一度以上	More than once in a year	年に一度以上
30c) Once a year	年に一度	Once in a year	年に一度
30d) Once every 2 years	二年に一度	Once in two years	二年に一度
30e) Once every 3 years	三年に一度	Once in three years	三年に一度
30f) Once every 5 years	五年に一度	Once in five years	五年に一度
30g) Other frequency <i>(please provide details in the space provided on the right)</i>	他の頻度（右側に用意されたスペースに詳細を記載してください）	Other frequency. <i>(please specify the details in the space on the right side)</i>	他の頻度（右側に用意されたスペースに詳細を記載してください）
What is accredited? <i>(You can indicate more than one option.)</i>	認可対象は何ですか？	What is the subject for approval?	認可対象は何ですか？
31a) The educational institution/university	その教育機関又は大学	The educational institute or university	その教育機関又は大学
31b) The faculty or school (e.g. school of pharmacy)	その学部・又は学校（例：薬学部）	The faculty or schools (ex. Faculty of pharmacy)	その学部・又は学校（例：薬学部）
31c) The academic programme <i>(please provide details in the space provided on the right)</i>	その学科課程（右側に用意されたスペースに詳細を記載してください）	The course programme <i>(please describe in detail in the space provided right side)</i>	その学科課程（右側に用意されたスペースに詳細を記載してください）
Who is the ACCREDITING BODY?	認可を与える機関はどこですか？	Which agency gives accreditation?	認可を与える機関はどこですか？

32a) Ministry of Health	厚生労働省	Ministry of Health, Welfare and Labour	厚生労働省
32b) Ministry of Education	文部科学省	Ministry of education, culture, sports, science	文部科学省
32c) Other governmental agency	他の政府機関（右側に用意されたスペースに詳細を記載してください）	Other governmental agencies (please describe in detail in the space provided on the right side)	他の政府機関（右側に用意されたスペースに詳細を記載してください）
32d) National professional organisation	国の専門職機関（右側に用意されたスペースに詳細を記載してください）	National professional agency (please describe in detail in the space provided on the right side)	国の専門職機関（右側に用意されたスペースに詳細を記載してください）
32e) Private accrediting body	私立認可機関（右側に用意されたスペースに詳細を記載してください）	Private accreditation agency (please describe in detail in the space provided on the right side)	私立認可機関（右側に用意されたスペースに詳細を記載してください）
32f) Other	他（右側に用意されたスペースに詳細を記載してください）	Others (please describe in detail in the space provided on the right side)	他（右側に用意されたスペースに詳細を記載してください）
Other Quality assurance mechanisms or processes	他の質保証の仕組みと過程	Other quality assurance system and process	他の質保証の仕組みと過程
33a) Are there any other internal or external QUALITY ASSURANCE mechanisms or processes used by higher education institutions?	他に高等教育機関によって使用されている学内・学外の質保証の仕組み又は過程はありますか？	Are there any other quality assurance systems or process used by higher educational institute?	他に高等教育機関によって使用されている学内・学外の質保証の仕組み又は過程はありますか？
Yes (please specify in the Q33b))	はい（Q33b にて詳細を明記してください）	Yes (please specify the details in Q33b)	はい（Q33b にて詳細を明記してください）
33b) If YES in the Q33a), please provide additional information	Q33a にて「はい」の場合、追加の情報を記載してください	If yes in Q33a, please describe additional information	Q33a にて「はい」の場合、追加の情報を記載してください
<i>Related document</i>	<i>関係書類</i>	Related documents	<i>関係書類</i>
34. Please include any relevant document (report, research, article references) related to pharmacy education and the academic programmes in your school/country with the submission of this survey.	貴国における薬学教育とその学科過程に関する書類（レポート、研究、論文参考文献）はどのようなものでもこの調査の提出と共に提出してください。	Please submit any related documents about pharmacy education and course programme (report, research, thesis, reference) in your country with this survey.	貴国における薬学教育とその学科課程に関する書類（レポート、研究、論文参考文献）はどのようなものでもこの調査の提出と共に提出してください。
Your participation in this survey is vital to provide a better understanding of current pharmacy education issues, and will assist in the development of global pharmacy education policy recommendations.	この調査における貴国の参加は、現在の薬学教育問題へのより良い理解を提供するために必要不可欠なものであり、世界の薬学教育政策への提言の作成に役立つでしょう。	It is essential the participation of your country in this survey to provide better understanding of the current problems of pharmacy education and will help to make the recommendations for pharmacy	この調査における貴国の参加は、現在の薬学教育問題へのより良い理解を提供するために必要不可欠なものであり、世界の薬学教育政策への提言の作成に役立つでしょう。

<p>Please save the completed form and return to education@fip.org</p>	<p>質問票へ入力後保存し、education@fip.org まで返信してください。</p>	<p>educational policy. After filling the questionnaire, save it and send back to education@fip.org</p>	<p>質問票へ入力後保存し、education@fip.org まで返信してください。</p>
<p>Thank you for your participation</p>	<p>ご参加いただき誠にありがとうございます。</p>	<p>Thank you so much for your participation.</p>	<p>ご参加いただき誠にありがとうございます。</p>

Appendix 15: Forward-back translation of the Pharmacy Education Survey (Portuguese)

Original School Survey Country	Forward translation	Back translation	Final translation
FIP-WHO Global Survey of Pharmacy Schools Country	Inquérito Global de Faculdades de Farmácia FIP-WHO País	FIP-WHO Global Survey of Pharmacy Schools Country	Inquérito Global de Faculdades de Farmácia FIP-WHO País
This global survey aims to collect information to ascertain the educational background of the pharmacy workforce as well as the quality assurance accreditation mechanisms and processes.	Este inquérito global pretende recolher informação com vista a averiguar a experiência educacional da força de trabalho farmacêutica bem como garantir a qualidade dos mecanismos e processos da acreditação.	This global survey aims to collect information to ascertain the educational background of the pharmacy workforce as well as the quality assurance accreditation mechanisms and processes.	Este inquérito global pretende recolher informação com vista a averiguar a experiência educacional da força de trabalho farmacêutica bem como garantir a qualidade dos mecanismos e processos da acreditação.
The data will be used to identify gaps, shortages and cooperation opportunities, and will provide the evidence-based information needed for investment policies that will reduce existing gaps and increase pharmacy education capacity.	Os dados serão usados para identificar lacunas, falhas e oportunidades de cooperação, e irão providenciar informação baseada na evidência necessária para políticas de investimento que irão diminuir as lacunas existentes e aumentar a qualidade do ensino farmacêutico.	The data will be used to identify gaps, shortages and cooperation opportunities, and will provide the evidence-based information needed for investment policies that will reduce existing gaps and increase pharmacy education capacity.	Os dados serão usados para identificar lacunas, faltas e oportunidades de cooperação, e irão providenciar informação baseada na evidência necessária para políticas de investimento que irão diminuir as lacunas existentes e aumentar a qualidade do ensino farmacêutico.
Please reply to this questionnaire on behalf of your country .	Por favor responda a este questionário em representação do seu país .	Please reply to this questionnaire on behalf of your country .	Por favor responda a este questionário em representação do seu país .
<i>Country and contact information</i>	<i>País e informação de contato</i>	<i>Country and contact information</i>	<i>País e informação de contato</i>
Country information	Informação sobre o país	Country information	Informação sobre o país
1. State the country	Especifique o país	State the country	Especifique o país
Contact completing this questionnaire	Contacto do respondente	Contact completing this questionnaire	Contacto do respondente
2. Title	Título	Title	Título
3. First name	Nome Próprio	First name	Nome Próprio
4. Last name	Apelido	Last name	Apelido
5. Job title	Habilitações	Job title	Habilitações
6. Organisation/Agency	Organização/Agência	Organisation/Agency	Organização/Agência
7. Email address (the email format is xxx@yyy.zzz)	Endereço de Email (o formato de email é xxx@yyy.zzz)	Email address (the email format is xxx@yyy.zzz)	Endereço de Email (o formato de email é xxx@yyy.zzz)
8. Website (the URL format is http://xxxx)	Website (o formato URL é http://xxxx)	Website (the URL format is http://xxxx)	Website (o formato URL é http://xxxx)
9. Phone number	Número de Telefone	Phone number	Número de Telefone

10. Fax number	Número de Fax	Fax number	Número de Fax
11. Address	Morada	Address	Morada
<i>Production of pharmacists</i>	<i>Produção de farmacêuticos</i>	<i>Production of pharmacists</i>	<i>Produção de farmacêuticos</i>
<i>Definition: A “pharmacy degree” refers to the degree related to pharmacy, which leads to the registration as a pharmacist in your country.</i>	<i>Definição: O “curso de farmácia” refere-se ao curso relacionado com farmácia, que permite o registo como farmacêutico na seu país.</i>	<i>Definition: A “pharmacy degree” refers to the degree related to pharmacy, which leads to the registration as a pharmacist in your country.</i>	<i>Definição: O “curso de farmácia” refere-se ao curso relacionado com farmácia, que permite o registo como farmacêutico na seu país.</i>
The number of pharmacy graduates (at National level)	Número de farmacêuticos graduados (a nível Nacional)	The number of pharmacy graduates (at National level)	Número de farmacêuticos graduados (a nível Nacional)
Number	Número	Number	Número
Year of data	Ano dos dados	Year of data	Ano dos dados
12a) Total number of pharmacy graduates per year	Número total de farmacêuticos graduados por ano	12a) Total number of pharmacy graduates per year	Número total de farmacêuticos graduados por ano
12b) Total number of FEMALE pharmacy graduates per year	Número total de farmacêuticos do sexo FEMININO graduados por ano	12b) Total number of FEMALE pharmacy graduates per year	Número total de farmacêuticos do sexo FEMININO graduados por ano
The number of faculties, schools or departments of pharmacy	Número de faculdades, escolas e departamentos de farmácia	The number of faculties, schools or departments of pharmacy	Número de faculdades, escolas e departamentos de farmácia
13. Total number of faculties, schools or departments of pharmacy that currently provide a pharmacy degree	Número total de faculdades, escolas ou departamentos de farmácia que ministram o curso de farmácia	13. Total number of faculties, schools or departments of pharmacy that currently provide a pharmacy degree	Número total de faculdades, escolas ou departamentos de farmácia que ministram o curso de farmácia
Usual starting age for university study	Idade com a qual se iniciam os estudos universitários	Usual starting age for university study	Idade com a qual se iniciam os estudos universitários
Age	Idade	Age	Idade
Year of data	Ano dos dados	Year of data	Ano dos dados
14. What is the age of university entry level to study pharmacy?	Qual a idade de entrada na faculdade para estudar farmácia?	14. What is the age of university entry level to study pharmacy?	Qual a idade de entrada na faculdade para estudar farmácia?
<i>OWNERSHIP of the faculties, schools or departments of pharmacy</i>	<i>PROPRIEDADE da faculdade, escola ou do departamento de farmácia</i>	<i>OWNERSHIP of the faculties, schools or departments of pharmacy</i>	<i>PROPRIEDADE da faculdade, escola ou do departamento de farmácia</i>
What is the OWNERSHIP of the faculties, schools or departments of pharmacy?	Qual o PROPRIETÁRIO da faculdade, escola ou departamento de farmácia?	What is the OWNERSHIP of the faculties, schools or departments of pharmacy?	Qual o PROPRIETÁRIO da faculdade, escola ou departamento de farmácia?
Faculty Owned by: (Please select the most appropriate description)	Faculdade detida por: (Por favor seleccione a descrição mais adequada)	Faculty Owned by: (Please select the most appropriate description)	Faculdade detida por: (Por favor seleccione a descrição mais adequada)
Number of faculties/schools/departments	Número de faculdades/escolas/departamentos	Number of faculties/schools/departments	Número de faculdades/escolas/departamentos
Yes	Sim	Yes	Sim

No	Não	No	Não
Details:	Detalhes	Details:	Detalhes
15a) Ministry of Health	Ministério da Saúde	Ministry of Health	Ministério da Saúde
15b) Ministry of Higher Education	Ministério da Educação Superior	Ministry of Higher Education	Ministério da Educação Superior
15c) Public state/government owned	Estado/Propriedade do Governo	Public state/government owned	Estado/Propriedade do Governo
15d) Private not for profit	Privada sem fins lucrativos	Private not for profit	Privada sem fins lucrativos
15e) Private for profit	Privada com fins lucrativos	Private for profit	Privada com fins lucrativos
15f) Public/private mix (Please provide details in the space provided on the right)	Pública/Parceria Público ou Privada (Por favor forneça mais detalhes no espaço à direita)	Public/private mix (Please provide details in the space provided on the right)	Pública/Parceria Público ou Privada (Por favor forneça mais detalhes no espaço à direita)
15g) Others (Please provide details in the space provided on the right)	Outros (Por favor forneça mais detalhes no espaço à direita)	Others (Please provide details in the space provided on the right)	Outros (Por favor forneça mais detalhes no espaço à direita)
<i>Financing of education</i>	<i>FINANCIAMENTO da educação</i>	<i>Financing of education</i>	<i>FINANCIAMENTO da educação</i>
<i>Definition: "Tuition fee" refers to any fee directly paid by students, and "per capita or capitation provision from public funds" here means the per capita proportion of funding from taxes or government.</i>	<i>Definição: "Propina" refere-se a qualquer quantia diretamente paga pelo estudante, e "por habitante ou prestação de capitação de fundos públicos" significa a proporção de financiamento por impostos ou governo.</i>	<i>Definition: "Tuition fee" refers to any fee directly paid by students, and "per capita or capitation provision from public funds" here means the per capita proportion of funding from taxes or government.</i>	<i>Definição: "Propina" refere-se a qualquer quantia diretamente paga pelo estudante, e "por habitante ou prestação de capitação de fundos públicos" significa a proporção de financiamento por impostos ou governo.</i>
<i>(Please note that the responses added in 16a), 16b) and 16c), or 17a) and 17c) should sum up to a total of 100%)</i>	<i>(Por favor note que as respostas dadas em 16a), 16b) e 16c), ou 17a) e 17c) devem somar um total de 100%.</i>	<i>(Please note that the responses added in 16a), 16b) and 16c), or 17a) and 17c) should sum up to a total of 100%)</i>	<i>(Por favor note que as respostas dadas em 16a), 16b) e 16c), ou 17a) e 17c) devem somar um total de 100%.</i>
Cost for educating pharmacy students	Custos com a educação de estudantes de farmácia	Cost for educating pharmacy students	Custos com a educação de estudantes de farmácia
Amount (please response in numbers e.g. 1000)	Quantia (por favor responda em números ex.1000)	Amount (please response in numbers e.g. 1000)	Quantia (por favor responda em números ex.1000)
Currency	Moeda	Currency	Moeda
Proportion of the total student funding (%)	Proporção de estudantes financiados (%)	Proportion of the total student funding (%)	Proporção de estudantes financiados (%)
Year of data	Ano dos Dados	Year of data	Ano dos Dados
16. Domestic students	Estudantes Domésticos	Domestic students	Estudantes Domésticos
a) Tuition fee for domestic (HOME) students per year	Propina para estudantes domésticos (Nacionais) por ano	Tuition fee for domestic (HOME) students per year	Propina para estudantes domésticos (Nacionais) por ano
b) Per capita or capitation provision from public funds per year (e.g. taxes,	Por habitante ou por capitação de fundos públicos por ano (ex. impostos,	Per capita or capitation provision from public funds per year (e.g. taxes,	Por habitante ou por capitação de fundos públicos por ano (ex. impostos,

government)	administração pública)	government)	administração pública)
c) Others (please specify: <input type="text"/>)	Outros (Por favor especifique: <input type="text"/>)	Others (please specify: <input type="text"/>)	Outros (Por favor especifique: <input type="text"/>)
17. Overseas/ international students	Outras nacionalidades/ estudantes internacionais	Overseas/ international students	Outras nacionalidades/ estudantes internacionais
a) Tuition fee for an OVERSEAS student per year	Propina de estudante além fronteiras por ano	Tuition fee for an OVERSEAS student per year	Propina de estudante além fronteiras por ano
b) Others (please specify: <input type="text"/>)	Outros (Por favor especifique: <input type="text"/>)	Others (please specify: <input type="text"/>)	Outros (Por favor especifique: <input type="text"/>)
<i>Academic programmes</i>	<i>Programas Académicos</i>	<i>Academic programmes</i>	<i>Programas Académicos</i>
<i>Definition: An “academic programme” is a combination of courses or learning modules that give access to a degree, diploma, certificate or other credential, which is recognised in society outside the educational institution such as a Diploma, Baccalaureate Degree, Masters Degree, Professional Doctorate, and PhD.</i>	<i>Definição: Um “plano curricular” é a combinação de cadeiras ou módulos de aprendizagem que permitem o acesso ao curso, diploma, certificado ou outra credencial, que é reconhecida em sociedade, fora da instituição de ensino como Diploma, Bacharelato, Mestrado, Doutorado profissional, Doutoramento.</i>	<i>Definition: An “academic programme” is a combination of courses or learning modules that give access to a degree, diploma, certificate or other credential, which is recognised in society outside the educational institution such as a Diploma, Baccalaureate Degree, Masters Degree, Professional Doctorate, and PhD.</i>	<i>Definição: Um “plano curricular” é a combinação de cadeiras ou módulos de aprendizagem que permitem o acesso ao curso, diploma, certificado ou outra credencial, que é reconhecido em sociedade, fora da instituição de ensino como Diploma, Bacharelato, Mestrado, Doutorado profissional, Doutoramento.</i>
<i>The “National Higher Education Qualification Framework” here refers to a national, formal description of types of degree qualification (e.g. Bachelor, Master, Diploma, PhD, etc.), and associated standards.</i>	<i>O “Quadro nacional de Educação Superior” refere-se à descrição nacional e tipos de qualificação do curso (ex. Bacharel, Mestre, Licenciado, Doutorado, etc.), e padrões associados.</i>	<i>The “National Higher Education Qualification Framework” here refers to a national, formal description of types of degree qualification (e.g. Bachelor, Master, Diploma, PhD, etc.), and associated standards.</i>	<i>O “Quadro nacional de Educação Superior” refere-se à descrição nacional e tipos de qualificação do curso (ex. Bacharel, Mestre, Licenciado, Doutorado, etc.), e padrões associados.</i>
What ACADEMIC PROGRAMMES lead to registration as a pharmacist?	Que PROGRAMAS ACADÉMICOS permitem a inscrição como farmacêutico?	What ACADEMIC PROGRAMMES lead to registration as a pharmacist?	Que PROGRAMAS ACADÉMICOS permitem a inscrição como farmacêutico?
Formal Name of Academic Programme (please spell out name in full and do not use abbreviations)	Nome formal do plano académico (Por favor escreva o nome completo e não com abreviaturas)	Formal Name of Academic Programme (please spell out name in full and do not use abbreviations)	Nome formal do plano académico (Por favor escreva o nome completo e não com abreviaturas)
Title of Qualifications Awarded	Titulo da Qualificação Reconhecida	Title of Qualifications Awarded	Titulo da Qualificação Reconhecida
Minimum duration of Programme (Years)	Duração Mínima do Programa (Anos)	Minimum duration of Programme (Years)	Duração Mínima do Programa (Anos)
18. (i) Academic programme 01	Programa Académico 01	Academic programme 01	Programa Académico 01
18. (ii) Academic programme 02	Programa Académico 02	Academic programme 02	Programa Académico 02
National Higher Education Qualifications Framework	Quadro Nacional de Educação Superior	National Higher Education Qualifications Framework	Quadro Nacional de Educação Superior
19. Is there any NATIONAL HIGHER EDUCATION QUALIFICATIONS	Existem algum QUADRO NACIONAL DE EDUCAÇÃO SUPERIOR em funcionamento	Is there any NATIONAL HIGHER EDUCATION QUALIFICATIONS	Existem algum QUADRO NACIONAL DE EDUCAÇÃO SUPERIOR em funcionamento

FRAMEWORK in operation in your country?	no seu pai?	FRAMEWORK in operation in your country?	no seu pai?
Is the internship or pre-registration training integrated in the main academic programme leading to the registration/licensure as a pharmacist?	O estagio ou formação de pré-registo estão integrados no programa de formação principal que permite o registo/licença como farmacêutico?	Is the internship or pre-registration training integrated in the main academic programme leading to the registration/licensure as a pharmacist?	Estão o estagio ou formação de pré-registo integrados no programa de formação principal que permite o registo/licença como farmacêutico?
The kind of practice	Tipo de prática	The kind of practice	Tipo de prática
Length of training	Período de estágio	Length of training	Período de estágio
20a) Integrated	Integrado	Integrated	Integrado
Community	Comunitária	Community	Comunitária
Hospital	Hospitalar	Hospital	Hospitalar
Industry	Indústria	Industry	Indústria
Other (please specify:)	Outro (Por favor especifique:	Other (please specify:)	Outro (Por favor especifique:
months	meses	months	meses
20b) Separated	Separado	Separated	Separado
20c) No internship/pre-registration training for a registration as a pharmacist	Sem estagio/formação pré-registo para registo como farmacêutico	No internship/pre-registration training for a registration as a pharmacist	Sem estagio/formação pré-registo para registo como farmacêutico
The registration/licensure of pharmacy graduates	Registo/Licença de farmacêuticos graduados	The registration/licensure of pharmacy graduates	Registo/Licença de farmacêuticos graduados
21a) Do pharmacy students GRADUATE and REGISTER/are licensed as a pharmacist at the same time?	São os estudantes de farmácia GRADUADOS e REGISTADOS/ detentores de licença ao mesmo tempo?	Do pharmacy students GRADUATE and REGISTER/are licensed as a pharmacist at the same time?	São os estudantes de farmácia GRADUADOS e REGISTADOS/ detentores de licença ao mesmo tempo?
Yes	Sim	Yes	Sim
No (please specify in the Q21b)	Não (por favor especifique na Q21b)	No (please specify in the Q21b)	Não (por favor especifique na Q21b)
21b) If NO above, please specify what the requirements are to register/become licensed as a pharmacist after graduation	Se NÃO acima, por favor especifique quais os requisitos para registo/ obtenção de licença como farmacêutico depois da graduação.	If NO above, please specify what the requirements are to register/become licensed as a pharmacist after graduation	Se NÃO acima, por favor especifique quais os requisitos para registo/ obtenção de licença como farmacêutico depois da graduação.
<i>MINIMUM requirement for admission to a pharmacy degree programme</i>	<i>Requisitos MÍNIMOS para admissão ao programa do curso de farmácia</i>	<i>MINIMUM requirement for admission to a pharmacy degree programme</i>	<i>Requisitos MÍNIMOS para admissão ao programa do curso de farmácia</i>
<i>Definition: A “pharmacy degree” refers to the degree related to pharmacy, which leads to the registration as a pharmacist in your country.</i>	<i>Definição: O “curso de farmácia” refere-se ao curso relacionado com farmácia, que permite o registo como farmacêutico no seu país.</i>	<i>Definition: A “pharmacy degree” refers to the degree related to pharmacy, which leads to the registration as a pharmacist in your country.</i>	<i>Definição: O “curso de farmácia” refere-se ao curso relacionado com farmácia, que permite o registo como farmacêutico no seu país.</i>
Which of the following are required for	Quais dos seguintes são requeridos para	Which of the following are required for	Quais dos seguintes são requeridos para

admission to university to study pharmacy? (<i>You can indicate more than one option.</i>)	admissão na universidade para estudar farmácia? (Pode indicar mais que uma opção)	admission to university to study pharmacy? (<i>You can indicate more than one option.</i>)	admissão na universidade para estudar farmácia? (Pode indicar mais que uma opção)
22a) Secondary school leaving exam	Exame Final no Ensino Secundário	Secondary school leaving exam	Exame Final no Ensino Secundário
Additional information: 	Informação Adicional: 	Additional information: 	Informação Adicional:
22b) A special branch of secondary school (<i>please specify which branch in the space provided on the right</i>)	Um ramo especial no Ensino Secundário (<i>por favor especifique o ramo no espaço à direita</i>)	A special branch of secondary school (<i>please specify which branch in the space provided on the right</i>)	Um ramo especial no Ensino Secundário (<i>por favor especifique o ramo no espaço à direita</i>)
22c) Diploma, degree or certificate (<i>please specify what type in the space provided on the right</i>)	Diploma, curso or certificado (<i>Por favor especifique o tipo no espaço à direita</i>)	Diploma, degree or certificate (<i>please specify what type in the space provided on the right</i>)	Diploma, curso or certificado (<i>Por favor especifique o tipo no espaço à direita</i>)
22d) A special course (<i>please specify what course in the space provided on the right</i>)	Um curso especial (<i>por favor especifique o curso no espaço a direita</i>)	A special course (<i>please specify what course in the space provided on the right</i>)	Um curso especial (<i>por favor especifique o curso no espaço a direita</i>)
22e) Entrance examination (national or supra-national)	Exame de Admissão (nacional or supranacional)	Entrance examination (national or supra-national)	Exame de Admissão (nacional or supranacional)
22f) Entrance examination of the faculty or school	Exame de Admissão da faculdade ou da escola	Entrance examination of the faculty or school	Exame de Admissão da faculdade ou da escola
22g) Interview	Entrevista	Interview	Entrevista
22h) Others (<i>please provide details in the space provided on the right</i>)	Outros (<i>Por favor forneça detalhes no espaço à direita</i>)	Others (<i>please provide details in the space provided on the right</i>)	Outros (<i>Por favor forneça detalhes no espaço à direita</i>)
<i>Core curriculum or syllabus for pharmacy degree</i>	<i>Currículo ou programa de estudos do curso de farmácia</i>	<i>Core curriculum or syllabus for pharmacy degree</i>	<i>Currículo ou programa de estudos do curso de farmácia</i>
<i>Definition: "Core curriculum or syllabus" here refers to a common, standardised, or indicative curriculum for qualification.</i>	<i>Definição: "Currículo ou programa de estudos" refere-se a um currículo comum e padronizado, ou indicativo para qualificação.</i>	<i>Definition: "Core curriculum or syllabus" here refers to a common, standardised, or indicative curriculum for qualification.</i>	<i>Definição: "Currículo ou programa de estudos" refere-se a um currículo comum e padronizado, ou indicativo para qualificação.</i>
<i>A "pharmacy degree" is the degree related to pharmacy, which leads to registration as a pharmacist in your country.</i>	<i>O "curso de farmácia" é o curso relacionado com farmácia que permite o registo como farmacêutico no seu país.</i>	<i>A "pharmacy degree" is the degree related to pharmacy, which leads to registration as a pharmacist in your country.</i>	<i>O "curso de farmácia" é o curso relacionado com farmácia que permite o registo como farmacêutico no seu país.</i>
Use of core curriculum or syllabus	Utilização do currículo ou programa de estudos	Use of core curriculum or syllabus	Utilização do currículo ou programa de estudos
23a) Does your country use any nationally agreed core curriculum or syllabus for pharmacy degree?	O seu país usa um currículo ou programa de estudos acordado a nível nacional para o curso de farmácia?	23a) Does your country use any nationally agreed core curriculum or syllabus for pharmacy degree?	O seu país utiliza um currículo ou programa de estudos acordado a nível nacional para o curso de farmácia?

Yes (please specify in Q23b)	Sim (Por favor especifique em Q23b)	Yes (please specify in Q23b)	Sim (Por favor especifique em Q23b)
23b) If <u>YES</u> in above, please provide the related documents for the core curriculum or integrated curriculum	Se <u>SIM</u> acima, por favor forneça os documentos relacionados com o currículo total ou integrado.	23b) If <u>YES</u> in above, please provide the related documents for the core curriculum or integrated curriculum	Se <u>SIM</u> acima, por favor forneça os documentos relacionados com o currículo total ou integrado.
Attached	Anexado	Attached	Anexado
Information on website (Please specify the URL address: http://)	Informação do website (Por favor especifique o URL: http://)	Information on website (Please specify the URL address: http://)	Informação do website (Por favor especifique o URL: http://)
MINIMUM proportion of time for practice in science-based laboratories in the core curriculum or syllabus	Proporção MÍNIMA de tempo de prática em laboratórios científicos durante o currículo ou programa de estudos	MINIMUM proportion of time for practice in science-based laboratories in the core curriculum or syllabus	Proporção MÍNIMA de tempo de prática em laboratórios científicos durante o currículo ou programa de estudos
24. What proportion of time is dedicated to LABORATORY PRACTICE in the core curriculum or syllabus? (Please respond as an approximate percentage, and enter a value between 0 and 100)	Que proporção de tempo é dedicado às PRÁTICAS LABORATORIAIS durante o currículo ou programa de estudos? (Por favor responda sob a forma de percentagem aproximada, e insira um valor entre 0 e 100)	24. What proportion of time is dedicated to LABORATORY PRACTICE in the core curriculum or syllabus? (Please respond as an approximate percentage, and enter a value between 0 and 100)	Que proporção de tempo é dedicado a PRÁTICAS LABORATORIAIS durante o currículo ou programa de estudos? (Por favor responda sob a forma de percentagem aproximada, e insira um valor entre 0 e 100)
Curriculum in the EARLY year(s) of the pharmacy degree	Currículo no(s) PRIMEIRO(S) anos do curso de farmácia.	Curriculum in the EARLY year(s) of the pharmacy degree	Currículo no(s) PRIMEIRO(S) anos do curso de farmácia.
25. For the EARLY years of the university curriculum, which of the following best describes the content/expectations in general?	Para os PRIMEIROS anos do programa curricular, quais dos seguintes melhor descrevem o conteúdo/expectativas em geral?	25. For the EARLY years of the university curriculum, which of the following best describes the content/expectations in general?	Para os PRIMEIROS anos do programa curricular, quais dos seguintes melhor descrevem o conteúdo/expectativas em geral?
Wholly general science, with very little pharmacy practice component	Integralmente ciência geral, com pouca quantidade de componente farmacêutica prática.	Wholly general science, with very little pharmacy practice component	Integralmente ciência geral, com pouca quantidade de componente farmacêutica prática.
Mostly general science orientation, with small/moderate pharmacy practice components	Maioritariamente orientado para a ciência geral, com pouca/moderada componente de farmácia pratica	Mostly general science orientation, with small/moderate pharmacy practice components	Maioritariamente orientado para a ciência geral, com pouca/moderada componente de farmácia pratica
A mix of general science and pharmacy practice	Uma mistura de componente científica geral e farmácia pratica	A mix of general science and pharmacy practice	Uma mistura de componente científica geral e farmácia pratica
<i>Licensure of practice</i>	<i>Licença de Prática</i>	<i>Licensure of practice</i>	<i>Licença de Prática</i>
To practice pharmacy in your country	Exercer farmácia no seu país	To practice pharmacy in your country	Exercer farmácia no seu país
26. Do pharmacy graduates require a LICENSE, registration or other authorization to practice pharmacy?	Necessitam os farmacêuticos recém licenciados de LICENÇA, registo ou outra autorização para exercer farmácia?	Do pharmacy graduates require a LICENSE, registration or other authorization to practice pharmacy?	Necessitam os farmacêuticos recém licenciados de LICENÇA, registo ou outra autorização para exercer farmácia?

How do students from the main academic pharmacy programme obtain a LICENSE, registration or other authorisation to practice pharmacy? <i>(You can indicate more than one option.)</i>	Como é que os estudantes do programa principal de farmácia obtêm a LICENÇA, registo ou outra autorização para exercer farmácia? <i>(Pode escolher mais que uma opção.)</i>	How do students from the main academic pharmacy programme obtain a LICENSE, registration or other authorisation to practice pharmacy? <i>(You can indicate more than one option.)</i>	Como é que os estudantes do programa principal de farmácia obtêm a LICENÇA, registo ou outra autorização para exercer farmácia? <i>(Pode escolher mais que uma opção.)</i>
27a) Immediately upon graduation	Imediatamente após a graduação	Immediately upon graduation	Imediatamente após a graduação
27b) After passing a further examination after graduation	Após passarem noutra exame após a graduação	After passing a further examination after graduation	Após passarem noutra exame após a graduação
27c) After a period of practical experience after graduation <i>(if yes, please specify length of time)</i>	Após um período de experiência prática, após a graduação <i>(Se sim, for favor especifique o período de tempo)</i>	After a period of practical experience after graduation <i>(if yes, please specify length of time)</i>	Após um período de experiência prática, após a graduação <i>(Se sim, for favor especifique o período de tempo)</i>
27d) Others <i>(If yes, please specify in the provided space on the right)</i>	Outros <i>(Se sim por favor especifique no espaço apropriado à direita)</i>	Others <i>(If yes, please specify in the provided space on the right)</i>	Outros <i>(Se sim por favor especifique no espaço apropriado à direita)</i>
Please specify: 	Por favor especifique: 	Please specify: 	Por favor especifique:
Licensing authority	Autoridade de Licenciamento	Licensing authority	Autoridade de Licenciamento
28. Which authority awards graduates with a LICENSE, registration or other authorisation to practice?	Que autoridade concede aos graduados a LICENÇA, registo ou outra autorização de prática?	Which authority awards graduates with a LICENSE, registration or other authorisation to practice?	Que autoridade concede aos graduados a LICENÇA, registo ou outra autorização de prática?
<i>Quality assurance</i>	<i>Controlo da Qualidade</i>	<i>Quality assurance</i>	<i>Controlo da Qualidade</i>
Quality assurance mechanisms and processes	Mecanismos do Controlo de Qualidade e Processos	Quality assurance mechanisms and processes	Mecanismos do Controlo de Qualidade e Processos
29. Are the faculties or schools subject to PERIODIC ACCREDITATION or similar process by an external body in your country? <i>(This is usually an evaluation conducted by an organisation or agency outside of the faculty or school).</i>	As faculdades de farmácia estão sujeitas a ACREDITAÇÃO PERIÓDICA ou processo similar por um organismo externo no seu país? <i>(Normalmente é uma avaliação conduzida por uma organização ou agência fora da faculdade)</i>	Are the faculties or schools subject to PERIODIC ACCREDITATION or similar process by an external body in your country? <i>(This is usually an evaluation conducted by an organisation or agency outside of the faculty or school).</i>	Estão as faculdades de farmácia sujeitas a ACREDITAÇÃO PERIÓDICA ou processo similar por um organismo externo no seu país? <i>(Normalmente é uma avaliação conduzida por uma organização ou agência fora da faculdade)</i>
No (if <u>NO</u> , skip to the Q33)	Não (Se <u>NÃO</u> , continue para a Q33)	No (if <u>NO</u> , skip to the Q33)	Não (Se <u>NÃO</u> , continue para a Q33)
How frequently is accreditation conducted?	Com que frequência é realizada a acreditação?	How frequently is accreditation conducted?	Com que frequência é realizada a acreditação?
30a) Requires to be accredited only once after the establishment of the faculty/school	Requer apenas uma acreditação após a fundação da faculdade/ escola	Requires to be accredited only once after the establishment of the faculty/school	Requer apenas uma acreditação após a fundação da faculdade/ escola

30b) More than once a year	Mais que uma vez ao ano	More than once a year	Mais que uma vez ao ano
30c) Once a year	Uma vez ao ano	Once a year	Uma vez ao ano
30d) Once every 2 years	Uma vez a cada dois anos	Once every 2 years	Uma vez a cada dois anos
30e) Once every 3 years	Uma vez a cada 3 anos	Once every 3 years	Uma vez a cada 3 anos
30f) Once every 5 years	Uma vez a cada 5 anos	Once every 5 years	Uma vez a cada 5 anos
30g) Other frequency <i>(please provide details in the space provided on the right)</i>	Outra frequência <i>(Por favor forneça detalhes no espaço apropriado à direita)</i>	Other frequency <i>(please provide details in the space provided on the right)</i>	Outra frequência <i>(Por favor forneça detalhes no espaço apropriado à direita)</i>
What is accredited? <i>(You can indicate more than one option.)</i>	O que é acreditado? <i>(Pode indicar mais que uma opção.)</i>	What is accredited? <i>(You can indicate more than one option.)</i>	O que é acreditado? <i>(Pode indicar mais que uma opção.)</i>
31a) The educational institution/university	A instituição educacional/faculdade	The educational institution/university	A instituição educacional/faculdade
31b) The faculty or school (e.g. school of pharmacy)	A faculdade ou escola (ex. Faculdade de Farmácia)	The faculty or school (e.g. school of pharmacy)	A faculdade ou escola (ex. Faculdade de Farmácia)
31c) The academic programme <i>(please provide details in the space provided on the right)</i>	O programa acadêmico <i>(Por favor forneça mais detalhes no espaço apropriado à direita)</i>	The academic programme <i>(please provide details in the space provided on the right)</i>	O programa acadêmico <i>(Por favor forneça mais detalhes no espaço apropriado à direita)</i>
Who is the ACCREDITING BODY?	Quem é a INSTITUIÇÃO DE ACREDITAÇÃO?	Who is the ACCREDITING BODY?	Quem é a INSTITUIÇÃO DE ACREDITAÇÃO?
32a) Ministry of Health	Ministério da Saúde	Ministry of Health	Ministério da Saúde
32b) Ministry of Education	Ministério da Educação	Ministry of Education	Ministério da Educação
32c) Other governmental agency	Outra agência governamental	Other governmental agency	Outra agência governamental
32d) National professional organisation	Organização nacional profissional	National professional organisation	Organização nacional profissional
32e) Private accrediting body	Corpo de acreditação privada	Private accrediting body	Corpo de acreditação privada
32f) Other	Outro	Other	Outro
Other Quality assurance mechanisms or processes	Outros mecanismos e processos de garantia do controlo da qualidade	Other Quality assurance mechanisms or processes	Outros mecanismos e processos de garantia do controlo da qualidade
33a) Are there any other internal or external QUALITY ASSURANCE mechanisms or processes used by higher education institutions?	Existem outros mecanismos ou processos externos e internos de garantia da qualidade usados pelas instituições de ensino superior?	Are there any other internal or external QUALITY ASSURANCE mechanisms or processes used by higher education institutions?	Existem outros mecanismos ou processos externos e internos de garantia da qualidade usados pelas instituições de ensino superior?
Yes (please specify in the Q33b))	Sim (Por favor especifique na Q33b))	Yes (please specify in the Q33b))	Sim (Por favor especifique na Q33b))
33b) If YES in the Q33a), please provide additional information	Se SIM na Q33a), por favor forneça informação adicional	If YES in the Q33a), please provide additional information	Se SIM na Q33a), por favor forneça informação adicional
<i>Related document</i>	<i>Documentos Relacionados</i>	<i>Related document</i>	<i>Documentos Relacionados</i>
34. Please include any relevant document (report, research, article references) related to pharmacy education and the	Por favor inclua qualquer outro documento relevante (relatório, pesquisa, artigo de referência) relacionado com a	34. Please include any relevant document (report, research, article references) related to pharmacy education and the	Por favor inclua qualquer outro documento relevante (relatório, pesquisa, artigo de referência) relacionado com a

academic programmes in your school/country with the submission of this survey.	educação farmacêutica e o programa acadêmico na sua escola/país com a submissão deste inquérito.	academic programmes in your school/country with the submission of this survey.	educação farmacêutica e o programa acadêmico na sua escola/país com a submissão deste inquérito.
Your participation in this survey is vital to provide a better understanding of current pharmacy education issues, and will assist in the development of global pharmacy education policy recommendations.	A sua participação neste inquérito é fulcral de forma a promover um melhor entendimento dos problemas atuais do ensino farmacêutico, e vai contribuir para o desenvolvimento de recomendações de política educacional.	Your participation in this survey is vital to provide a better understanding of current pharmacy education issues, and will assist in the development of global pharmacy education policy recommendations.	A sua participação neste inquérito é vital de forma a promover um melhor entendimento dos problemas atuais do ensino farmacêutico, e vai contribuir para o desenvolvimento de recomendações de política educacional.
Please save the completed form and return to education@fip.org	Por favor guarde o formulário completo e envie para education@fip.org	Please save the completed form and return to education@fip.org	Por favor guarde o formulário completo e envie para education@fip.org
Thank you for your participation	Obrigada pela sua participação.	Thank you for your participation	Obrigada pela sua participação.

Appendix 16: Forward-back translation of the Pharmacy Education Survey (Spanish)

Original School Survey Country	Forward translation	Back translation	Final translation
FIP-WHO Global Survey of Pharmacy Schools Country	FIP- OMS Encuesta mundial de Escuelas de Farmacia País	FIP-WHO Global Survey of Pharmacy Schools Country	FIP-OMS Encuesta mundial de Escuelas de Farmacia País
Thisglobalsurveyaimstocollectinformationtoascertaintheeducationalbackgroundofthepharmacy workforce as well as the quality assurance accreditation mechanisms and processes.	Esta encuesta apunta a recolectar información para determinar el nivel educativo de los farmacéuticos, el de los mecanismos de control de calidad y de los procesos de acreditación.	This survey is focused on determining the pharmaceuticals' educational level, quality of control mechanisms and accreditation process.	El objetivo de esta encuesta mundial es recoger información para determinar el nivel educativo de los farmacéuticos, así como los mecanismos de acreditación para garantizar la calidad.
The data will be used to identify gaps, shortages and cooperation opportunities, and will provide the evidence-based information needed for investment policies that will reduce existing gaps and increase pharmacy education capacity.	Los datos serán utilizados para identificar deficiencias, carencias y oportunidades de cooperación. Esta encuesta proporcionará la información basada en la evidencia, necesaria para adoptar políticas de inversión, que permitan reducir esas deficiencias y mejorar la capacitaciones de los farmacéuticos.	The data will be used to identify gaps, weaknesses and opportunities for cooperation. This survey will provide evidence-based information needed to adopt investment policies that can reduce these gaps and improve the training of pharmacists.	Los datos serán utilizados para identificar deficiencias y oportunidades de cooperación. Esta encuesta proporcionará información basada en la evidencia, necesaria para adoptar políticas de inversión que permitan reducir esas deficiencias y mejorar la capacidad de educación de los farmacéuticos.
Please reply to this questionnaire on behalf of your country .	Por favor responda este cuestionario en representación de supaís .	Please, reply this questionnaire on behalf of your country.	Por favor responda este cuestionario en representación de supaís .
<i>Country and contact information</i>	<i>Información del contacto y del país</i>	Country and contact information	Información del contacto y país
Country information	Información del país	Country information	Información del país
1. State the country	País	Country	País
Contact completing this questionnaire	Información personal	Personal information	Información personal
2. Title	Título	Title	Título
3. First name	Nombre	Forename	Nombre
4. Last name	Apellido	Surname	Apellido
5. Job title	Trabajo	Job	Trabajo
6. Organisation/Agency	Organización / Agencia	Organisation/Agency	Organización / Agencia
7. Email address (the email format is xxxx@yyyy.zzz)	Correoelectronico (el formato es: xxxx@yyyy.zzz)	Email address (the email format is xxxx@yyyy.zzz)	Correoelectronico (el formato es: xxxx@yyyy.zzz)
8. Website (the URL format is http://xxxxx)	Página Web (el URL formato es http://xxxxx)	Website (URL format is http://xxxxx)	Página Web (el URL formato es http://xxxxx)
9. Phone number	Número de teléfono	Phone number	Número de teléfono

10. Fax number	Número de Fax	Fax number	Número de Fax
11. Address	Dirección	Address	Dirección
<i>Production of pharmacists</i>	<i>Producción de farmacéuticos</i>	Production of pharmacists	<i>Producción de farmacéuticos</i>
<i>Definition: A "pharmacy degree" refers to the degree related to pharmacy, which leads to the registration as a pharmacist in your country.</i>	<i>Definición: Una "carrera de farmacia" se refiere a la carrera relacionada con la farmacia que permite a una persona ser farmacéutico en su país.</i>	<i>Definition: A "pharmacy degree" refers to a degree related to pharmacy that allows you being a pharmacist in your country.</i>	<i>Definición: La carrera de farmacia se define como la carrera relacionada con la farmacia que permite registrarte como farmacéutico para poder ejercer como tal en tu país.</i>
The number of pharmacy graduates (at National level)	Número de farmacéuticos graduados (a nivel Nacional)	Number of graduated pharmacists (at National level)	Número de farmacéuticos graduados (a nivel Nacional)
Number	Número	Number	Número
Year of data	Año de los datos	Year of data	Año de los datos
12a) Total number of pharmacy graduates per year	Número total de farmacéuticos graduados por año	Total number of graduated pharmacists per year	Número total de farmacéuticos graduados por año
12b) Total number of FEMALE pharmacy graduates per year	Número total de FARMACEUTICAS graduadas por año	Total number of female graduated pharmacists per year	Número total de FARMACEUTICAS graduadas por año
The number of faculties, schools or departments of pharmacy	Número de Facultades, Escuelas o Departamentos de Farmacia	Number of Faculties, Schools or Departments of Pharmacy	Número de Facultades, Escuelas o Departamentos de Farmacia
13. Total number of faculties, schools or departments of pharmacy that currently provide a pharmacy degree	Número total de Facultades, Escuelas o departamentos de farmacia que actualmente dictan la carrera de Farmacia	Total number of Faculties, Schools or Departments of pharmacy that currently dictate a pharmacy degree	Número total de facultades, escuelas o departamentos de farmacia que actualmente imparten la carrera de farmacia
Usual starting age for university study	Edad habitual para empezar los estudios	Usual age for starting the studies	Edad habitual para empezar los estudios universitarios
Age	Edad	Age	Edad
Year of data	Año de los datos	Year of data	Año de los datos
14. What is the age of university entry level to study pharmacy?	¿A qué edad se puede ingresar a estudiar Farmacia?	What is the age to start studying pharmacy?	¿A qué edad se puede se puede estudiar Farmacia?
<i>OWNERSHIP of the faculties, schools or departments of pharmacy</i>	<i>LA PROPIEDAD de las Facultades, Escuelas y departamentos de Farmacia</i>	Property of Faculties, Schools and departments of Pharmacy	<i>LA PROPIEDAD de las Facultades, Escuelas y departamentos de Farmacia</i>
What is the OWNERSHIP of the faculties, schools or departments of pharmacy?	¿Qué es la PROPIEDAD de las facultades, escuelas o departamentos de farmacia?	Which is the property of Faculties, Schools and departments of Pharmacy?	¿A quién pertenecen las facultades, escuelas o departamentos de farmacia?
Faculty Owned by: (Please select the most appropriate description)	La Propiedad de la Facultades de: (Por favour seleccione la opción mas apropiada.)	The faculty's property:????? (please select the most appropriate option)	La facultad es propiedad de: (Por favor seleccione la opción más apropiada)
Number of	Número de facultades / escuelas /	Number of Faculties/Schools/ departments	Número de facultades / escuelas /

faculties/schools/departments	departamentos		departamentos
Yes	Si	Yes	Si
No	No	No	No
Details:	Detalles	Details	Detalles
15a) Ministry of Health	Ministerio de Salud	Ministry of Health	Ministerio de Salud
15b) Ministry of Higher Education	Ministerio de Educación	Ministry of Education	Ministerio de Educación
15c) Public state/government owned	Estatal/ Propiedad del Gobierno	Public state/Property of Government	Estatal/ Propiedad del Gobierno
15d) Private not for profit	Privada sin fines de lucro	Private not for profit	Privada sin animos de lucro
15e) Private for profit	Privada con fines de lucro	Private for profit	Privada con animos de lucro
15f) Public/private mix (Please provide details in the space provided on the right)	Fusión Publica/privada (Por favor, proporcionar detalles en el espacio previsto a la derecha)	Public/private mix (please provide details in the space provided on the right)	Fusión Publica/privada (Por favor, proporcionar detalles en el espacio previsto a la derecha)
15g) Others (Please provide details in the space provided on the right)	Otro (proporcionar detalles en el espacio previsto a la derecha)	Others (please provide details in the space provided on the right)	Otros (proporcionar detalles en el espacio previsto a la derecha)
<i>Financing of education</i>	<i>Financiación de la educación</i>	<i>Financing of education</i>	<i>Financiación de la educación</i>
<i>Definition: "Tuition fee" refers to any fee directly paid by students, and "per capita or capitation provision from public funds" here means the per capita proportion of funding from taxes or government.</i>	<i>Definición: "Matrícula" se refiere a cualquier cuota pagada directamente por los estudiantes "per cápita o subvencionada por fondos públicos", significa aquí la proporción per cápita de los fondos de los impuestos o el gobierno.</i>	<i>Definition: "Tuition" refers to any fee directly paid by students "per capita or subsidized by public funds", here means the per capita ratio of funding from taxes or government.</i>	<i>Definición: "Matrícula" se refiere a cualquier cuota pagada directamente por los estudiantes "per cápita o subvencionada por fondos públicos", significa aquí la proporción per cápita de los fondos de los impuestos o el gobierno.</i>
<i>(Please note that the responses added in 16a), 16b) and 16c), or 17a) and 17c) should sum up to a total of 100%)</i>	<i>(Tenga en cuenta que las respuestas añadidas en 16a), 16b) y 16c), o 17a) y 17c) deben sumar hasta un total del 100%)</i>	<i>(Please note that the responses added in 16a), 16b) and 16c), or 17a) and 17c) should sum up to a total of 100%)</i>	<i>(Tenga en cuenta que las respuestas añadidas en 16a), 16b) y 16c), o 17a) y 17c) deben sumar hasta un total del 100%)</i>
Cost for educating pharmacy students	Costo de educar a los estudiantes de farmacia	Cost of educating pharmacy students	Coste de educar a los estudiantes de farmacia
Amount (please response in numbers e.g. 1000)	Cantidad (por favor respuesta en números, por ejemplo,1000)	Amount (please response in numbers e.g. 1000)	Cantidad (por favor responda en números, por ejemplo,1000)
Currency	Moneda	Currency	Moneda
Proportion of the total student funding (%)	Porcentaje de la financiación total de estudiantes (%)	Percentage of total student funding (%)	Porcentaje de la financiación total de estudiantes (%)
Year of data	Año de los datos	Year of data	Año de los datos
16. Domestic students	Estudiantes Nacionales	National students	Estudiantes Nacionales
a) Tuition fee for domestic (HOME) students per year	Gastos para la matrícula por año de los estudiantes	Tuition fee cost for students per year	Tasas/Gastos de matriculación de los estudiantes nacionales por año

b) Per capita or capitation provision from public funds per year (e.g. taxes, government)	Per capita o subvencionados por fondos públicos por año (por ejemplo, impuestos, gobierno)	Per capita or subsidized by public funds per year (e.g. taxes, government)	Per cápita o subvencionados por fondos públicos por año (por ejemplo, impuestos, gobierno)
c) Others (please specify: <input type="text"/>)	Otros (Por favor especifique: <input type="text"/>)	Others (please specify)	Otros (Por favor especifique: <input type="text"/>)
17. Overseas/ international students	Estudiantes extranjeros	International students	Estudiantes extranjeros
a) Tuition fee for an OVERSEAS student per year	Gastos de matriculación por año de los estudiantes extranjeros	Tuition fee for international students	Gastos de matriculación por año de los estudiantes extranjeros
b) Others (please specify: <input type="text"/>)	Otros (Por favor especifique: <input type="text"/>)	Others (please specify)	Otros (Por favor especifique: <input type="text"/>)
<i>Academic programmes</i>	<i>Programas Académicos</i>	Academic programmes	<i>Programas Académicos</i>
<i>Definition: An "academic programme" is a combination of courses or learning modules that give access to a degree, diploma, certificate or other credential, which is recognised in society outside the educational institution such as a Diploma, Baccalaureate Degree, Masters Degree, Professional Doctorate, and PhD.</i>	<i>Definición: Un "programa académico" es una combinación de cursos o módulos de aprendizaje que dan acceso a un título, diploma, certificado u otra credencial, con lo que el profesional será reconocido en la sociedad fuera de la institución educativa como un Diploma, Licenciatura de Bachillerato, Maestría, y Doctorado.</i>	<i>Definition: An "academic programme" is a combination of courses or learning modules that provide access to a degree, diploma, certificate or other credentials, which will be recognized in the professional society outside the educational institution as a Diploma, Bachelor Degree, Master degree, and Doctorate.</i>	<i>Definición: Un "programa académico" es una combinación de cursos o módulos de aprendizaje que dan acceso a una licenciatura, diploma, certificado u otra credencial, con el se reconoce en la sociedad, fuera de la institución educativa, como un Diploma, Licenciatura en Bachillerato, Máster o Doctorado.</i>
<i>The "National Higher Education Qualification Framework" here refers to a national, formal description of types of degree qualification (e.g. Bachelor, Master, Diploma, PhD, etc.), and associated standards.</i>	<i>El "Marco Nacional de Calificación de Educación Superior" hace referencia a una descripción nacional y formal de los tipos de titulación de grado (Por ejemplo: Bachiller, Master, Diplomado, Doctorado, etc).</i>	<i>The "National Qualification Framework for Higher Education" refers to a national and formal description of the types of degree (e.g. Bachelor, Master, Diploma, Doctorate, etc).</i>	<i>El "Marco Nacional de Calificación de Educación Superior" hace referencia a una descripción nacional y formal de los tipos de titulación de grado (Por ejemplo: Bachiller, Master, Diplomado, Doctorado, etc).</i>
What ACADEMIC PROGRAMMES lead to registration as a pharmacist?	¿Qué programas académicos es mas elegido para convertirse en farmacéutico?	Which academic programme is the most selected to become a pharmacist?	¿Qué programas académicos se dirigen a la registración posterior como farmacéutico?
Formal Name of Academic Programme (please spell out name in full and do not use abbreviations)	Nombre Formal del Programa Académico (por favor detalla nombre completo y no utilice abreviaturas)	Formal name of the Academic programme (please write the full name and do not use abbreviations)	Título otorgado
Title of Qualifications Awarded	Título otorgado	Title awarded	Duración mínima del programa (años)
Minimum duration of Programme (Years)	Duración mínima del programa (años)	Minimum duration of programme (years)	Programa Académico 01
18. (i) Academic programme 01	Programa Académico 01	Academic programme 01	Programa Académico 02
18. (ii) Academic programme 02	Programa Académico 02	Academic programme 02	Título otorgado
National Higher Education Qualifications Framework	Marco Nacional de Calificaciones de Educación Superior	National Higher Education Qualifications Framework	Marco Nacional de Calificaciones de Educación Superior

19. Is there any NATIONAL HIGHER EDUCATION QUALIFICATIONS FRAMEWORK in operation in your country?	¿Hay algún MARCO NACIONAL DE EDUCACIÓN SUPERIOR DE CALIFICACIONES en curso en su país?	Is there any National Higher Education Qualifications Framework in operation in your country?	¿Hay algún MARCO NACIONAL DE CALIFICACIONES DE EDUCACIÓN SUPERIOR en curso en su país?
Is the internship or pre-registration training integrated in the main academic programme leading to the registration/licensure as a pharmacist?	¿Las prácticas profesionales están incluidas en el programa académico que conduce a recibirse como farmacéutico?	Is the Internship included in the academic program leading to become as a pharmacist?	¿Están las prácticas profesionales incluidas en el programa académico que conduce a licenciarse/registrarse como farmacéutico?
The kind of practice	Lugar de la práctica	Place of training	Tipo o lugar de practica
Length of training	Duración de la práctica	Length of training	Duracion de las practicas
20a) Integrated	Integrada	Integrated	Integrada
Community	Oficina de Farmacia	Community Pharmacy	Oficina de Farmacia
Hospital	Hospital	Hospital	Hospital
Industry	Industria	Industry	Industria
Other (please specify:)	Otro (Por favor especifique:)	Other (please specify)	Otro (Por favor especifique:)
months	meses	Months	meses
20b) Separated	Separada	Separated	Separada
20c) No internship/pre-registration training for a registration as a pharmacist	No se realizan practicas profesionales para recibirse como farmacéutico	No intership for becoming a pharmacist	No se realizan prácticas profesionales para registrarse como farmacéutico.
The registration/licensure of pharmacy graduates	El registro como farmacéutico	The registration as a pharmacist	El registro como farmacéutico
21a) Do pharmacy students GRADUATE and REGISTER/are licensed as a pharmacist at the same time?	¿Al momento de graduarse los estudiantes son registrados como farmacéuticos?	Do the pharmacy students register as a pharmacist at the same time as they graduate?	¿Los estudiantes de farmacia se gradúan y registran al mismo tiempo?
Yes	Si	Yes	Si
No (please specify in the Q21b)	No (Por favor especifique en la pregunta 21b)	No (please specify in question 21b)	No (Por favor especifique en la pregunta 21b)
21b) If <u>NO</u> above, please specify what the requirements are to register/become licensed as a pharmacist after graduation	En caso <u>NEGATIVO</u> , por favor especificar cuáles son los requisitos para que los estudiantes obtengan su registro como farmacéutico después de la graduación.	If <u>NO</u> , please specify which the requirements are to register as a pharmacist after graduation	En caso <u>NEGATIVO</u> , por favor especifique cuáles son los requisitos para que los estudiantes obtengan su registro como farmacéutico después de la graduación.
<i>MINIMUM requirement for admission to a pharmacy degree programme</i>	<i>Requisitos MÍNIMOS para ingresar a estudiar la carrera de Farmacia</i>	<i>Minimum requirements for admission to a pharmacy degree</i>	<i>Requisitos MÍNIMOS para ingresar a estudiar la carrera de Farmacia</i>
<i>Definition: A "pharmacy degree" refers to the degree related to pharmacy, which leads to the registration as a pharmacist</i>	<i>Definición: Una "carrera de farmacia" se refiere a la carrera relacionada con la farmacia, tras la cual los estudiantes se</i>	<i>Definition: A "pharmacy degree" refers to a degree related to pharmacy, which leads the students to become pharmacists.</i>	<i>Definición: Una "carrera de farmacia" se refiere a la carrera relacionada con la farmacia, tras la cual los estudiantes se</i>

<i>in your country.</i>	<i>convierten en Farmacéuticos.</i>		<i>convierten en Farmacéuticos.</i>
Which of the following are required for admission to university to study pharmacy? (<i>You can indicate more than one option.</i>)	¿Cuáles de los siguientes requisitos son necesarios para la admisión de un estudiante en la universidad? (<i>Puede indicarse más de una opción.</i>)	Which of the following requirements are necessary to be admitted at the university? (you can indicate more than one option)	¿Cuáles de los siguientes requisitos son necesarios para ser admitidos como estudiantes de farmacia en la Universidad? (Puede elegir más de una opción)
22a) Secondary school leaving exam	Estudios secundarios finalizados	Secondary school studies completed	Estudios secundarios finalizados
Additional information: 	Información adicional: 	Additional information	Información adicional:
22b) A special branch of secondary school (<i>please specify which branch in the space provided on the right</i>)	Una orientación especial de la escuela secundaria (<i>por favor, especifique cuál orientación en el espacio a la derecha</i>)	A special orientation of secondary school. Please specify which orientation in the space provided on the right)	Una rama específica en la escuela secundaria (<i>Por favor, especifique la rama en el espacio provisto a la derecha</i>).
22c) Diploma, degree or certificate (<i>please specify what type in the space provided on the right</i>)	Diploma, grado o certificado (<i>por favor, especifique el tipo en el espacio a la derecha</i>)	Diploma, degree or certificate (please specify what type in the space provided on the right)	Diploma, grado o certificado (<i>por favor, especifique el tipo en el espacio provisto a la derecha</i>)
22d) A special course (<i>please specify what course in the space provided on the right</i>)	Un curso especial (<i>por favor, especifique qué curso en el espacio a la derecha</i>)	A special course (please specify what type in the space provided on the right)	Un curso especial (<i>por favor, especifique qué curso en el espacio provisto a la derecha</i>)
22e) Entrance examination (national or supra-national)	Curso de ingreso (Nacional o Internacional)	Entrance course (national or international)	Examen de acceso (nacional o internacional) (selectividad).
22f) Entrance examination of the faculty or school	Curso de ingreso de la Facultad o Escuela.	Entrance course of the faculty or school	Examen de acceso a la facultad o escuela.
22g) Interview	Entrevista	Interview	Entrevista
22h) Others (<i>please provide details in the space provided on the right</i>)	Otros (<i>por favor especifique en el espacio a la derecha.</i>)	Others (please provide details in the space provided on the right)	Otros (<i>por favor especifique en el espacio provisto a la derecha</i>)
<i>Core curriculum or syllabus for pharmacy degree</i>	<i>Plan de estudios de la carrera de farmacia.</i>	<i>Curriculum or syllabus for pharmacy degree</i>	<i>Plan de estudios de la carrera de farmacia.</i>
<i>Definition: "Core curriculum or syllabus" here refers to a common, standardised, or indicative curriculum for qualification.</i>	<i>Definición: "Plan de Estudios básicos" se refiere a las materias incluidas en la Carrera de Farmacia.</i>	<i>Definition: "curriculum or syllabus" refers to subject-matter of the pharmacy degree.</i>	<i>Definición: "Plan de estudios" se refiere a toda aquella materia incluida en la carrera. La carrera de farmacia se define aquella carrera relacionada con la farmacia que permite registrarte como farmacéutico en tu país.</i>
<i>A "pharmacy degree" is the degree related to pharmacy, which leads to registration as a pharmacist in your</i>	<i>Una "carrera de farmacia" se refiere a la carrera relacionada con la</i>	<i>A "pharmacy degree" refers to a degree related to pharmacy that allows you being a pharmacist in your country.</i>	<i>La carrera de farmacia se define aquella carrera relacionada con la farmacia que</i>

<i>country.</i>	<i>farmacia que permite a una persona ser farmacéutico en su país.</i>		<i>permite registrarte como farmacéutico en tu país.</i>
Use of core curriculum or syllabus	El uso del plan de estudios	Use of curriculum or syllabus	El uso del plan de estudios
23a) Does your country use any nationally agreed core curriculum or syllabus for pharmacy degree?	¿Utiliza su país algún plan de estudios a nivel nacional para la carrera de farmacia?	Does your country use a national curriculum or syllabus for the pharmacy degree?	¿Utiliza su país algún plan de estudios acordado a nivel nacional para la carrera de farmacia?
Yes (please specify in Q23b)	Si (Por favor especifique en la pregunta 23b)	Yes (please specify in question 23b)	Si (Por favor especifique en la pregunta 23b)
23b) If <u>YES</u> in above, please provide the related documents for the core curriculum or integrated curriculum	En caso <u>AFIRMATIVO</u> en lo anterior, por favor proporcione los documentos relacionados con el plan de estudios	If YES in above, please provide the documents related for the curriculum or syllabus	En caso <u>AFIRMATIVO</u> en lo anterior, por favor proporcione los documentos relacionados con el plan de estudios
Attached	Adjunto	Attached	Adjunto
Information on website (Please specify the URL address: http://)	Información en la página web (por favor especifique la dirección URL: http://)	Information on website (please specify the URL address http://)	Información en la página web (por favor especifique la dirección URL: http://)
MINIMUM proportion of time for practice in science-based laboratories in the core curriculum or syllabus	Proporción MÍNIMA de tiempo para las prácticas en los laboratorios en el plan de estudios	Minimum proportion of time for practice in laboratories in the curriculum or syllabus	Proporción mínima de tiempo para las prácticas en laboratorios científicos en el plan de estudios.
24. What proportion of time is dedicated to LABORATORY PRACTICE in the core curriculum or syllabus? (Please respond as an approximate percentage, and enter a value between 0 and 100)	¿Qué proporción de tiempo es dedicado a prácticas de laboratorio en el plan de estudios? (Por favor responda como un porcentaje aproximado e introduzca un valor entre 0 y 100)	What proportion of time is dedicated to laboratory practice in the curriculum or syllabus? (Please reply as an approximate percentage and enter a value between 0-100)	¿Qué proporción de tiempo es dedicado a prácticas de laboratorio en el plan de estudios? (Por favor responda como un porcentaje aproximado e introduzca un valor entre 0 y 100)
Curriculum in the EARLY year(s) of the pharmacy degree	Plan de estudios en los PRIMEROS años de la carrera	Curriculum or syllabus for the early years of the degree	Plan de estudios en los PRIMEROS años de la carrera de farmacia
25. For the EARLY years of the university curriculum, which of the following best describes the content/expectations in general?	Durante los primeros años del plan de estudios de la universidad, ¿cuál de las siguientes opciones describe mejor el contenido / expectativas en general?	During the early years of the university curriculum, which of the following describes the best the content / expectations in general?	Durante los primeros años del plan de estudios de la universidad, ¿cuál de las siguientes opciones describe mejor el contenido / expectativas en general?
Wholly general science, with very little pharmacy practice component	Únicamente ciencias generales, relacionado a la farmacia muy pocos componentes.	General science, only a few pharmacies related components.	Ciencias generales, con poca materia relacionada con la práctica farmacéutica.
Mostly general science orientation, with small/moderate pharmacy practice components	Mayormente se orienta a las ciencias generales, con una pequeña/moderada incorporación de prácticas relacionadas con la farmacia.	Mostly general science orientation, with little/moderate pharmacy practice's related components.	Orientada sobre todo a ciencias generales, con pocos/moderado componentes de práctica farmacéutica.
A mix of general science and pharmacy practice	Una mezcla de ciencia general con prácticas farmacéuticas.	A mix of general science and pharmacy practice	Una mezcla de ciencias generales y la práctica farmacéutica.

<i>Licensure of practice</i>	<i>Otorgamiento de licencias de práctica</i>	<i>Licensure of practice</i>	<i>Otorgamiento de licencias de práctica</i>
To practice pharmacy in your country	Para ejercer la profesión en tu país	To practise as a pharmacist in your country	Para ejercer la profesión farmacéutica en tu país
26. Do pharmacy graduates require a LICENSE, registration or other authorization to practice pharmacy?	¿Los graduados requieren una licencia, registro o alguna otra autorización para ejercer la profesión?	Do graduates require a license, registration or other authorization to practice?	¿Los graduados requieren una licencia, registro o alguna otra autorización para ejercer la profesión?
How do students from the main academic pharmacy programme obtain a LICENSE, registration or other authorisation to practice pharmacy? (You can indicate more than one option.)	¿Cómo los estudiantes de farmacia obtienen una autorización, licencia o registro para ejercer su profesión? (Puede indicar más de una opción.)	How do pharmacy students obtain a license, registration or other authorisation to practise as a pharmacist? (you can indicate more than one option)	¿Cómo obtienen los estudiantes de farmacia una autorización, licencia o registro para ejercer su profesión? (Puede indicar más de una opción)
27a) Immediately upon graduation	Inmediatamente después de la graduación	Immediately after graduation	Inmediatamente después de la graduación
27b) After passing a further examination after graduation	Luego de aprobar un examen post-graduación	After passing a post-graduation exam	Después de aprobar un examen final de toda la carrera.
27c) After a period of practical experience after graduation (if yes, please specify length of time)	Después de un período práctica post-graduación (en caso afirmativo, por favor especifique la longitud de tiempo)	After a post-graduation practical period (if yes, please specify length of time)	Después de un período de prácticas post-graduación (en caso afirmativo, especifique la duración de las prácticas)
27d) Others (If yes, please specify in the provided space on the right)	Otro (Por favor especifique en el espacio a la derecha)	Others (If yes, please specify in the provided space on the right)	Otro (Por favor especifique en el espacio provisto a la derecha)
Please specify: 	Por favor especifique: 	Please specify:	Por favor especifique:
Licensing authority	Autoridad de las Licencias	Licensing authority	Autoridad de las Licencias
28. Which authority awards graduates with a LICENSE, registration or other authorisation to practice?	¿Qué autoridad otorga la licencia, registro u otra autorización al graduado?	Which authority awards the license, registration or any other authorisation to the graduate?	¿Qué autoridad otorga la licencia, registro u otra autorización al graduado?
<i>Quality assurance</i>	<i>Garantía de calidad</i>	Quality assurance	<i>Garantía de calidad</i>
Quality assurance mechanisms and processes	Garantía de calidad de mecanismos y procesos	Quality assurance of mechanisms and processes	Mecanismos y procesos de garantía de calidad
29. Are the faculties or schools subject to PERIODIC ACCREDITATION or similar process by an external body in your country? (This is usually an evaluation conducted by an organisation or agency)	¿Las facultades o escuelas son sujetas a acreditación periódica o proceso similar, por un organismo externo de su país? (Esto es por lo general una evaluación realizada por una organización o agencia fuera de la facultad o escuela).	-	¿Están las facultades o escuelas de tu país sujetas a revisiones periódicas de acreditación o procesos similares por instituciones externas? (Esto suele ser una evaluación realizada por una organización o agencia ajena a la facultad o escuela)

<i>outside of the faculty or school).</i>			
No (if <u>NO</u> , skip to the Q33)	No (Si es <u>NO</u> , saltar la pregunta 33)	No (if <u>NO</u> , skip to the Q33)	No (si ha respondido <u>NO</u> , saltar a la pregunta 33)
How frequently is accreditation conducted?	¿Con qué frecuencia se realiza la acreditación?	How often is accreditation conducted?	¿Con qué frecuencia se realiza la acreditación?
30a) Requires to be accredited only once after the establishment of the faculty/school	Requiere ser acreditado solamente una vez después de la creación de la facultad / escuela	Requires to be accredited only once after the establishment of the faculty/school	Requiere ser acreditado solamente una vez después de la creación de la facultad / escuela
30b) More than once a year	Mas de unavez al año	More than once a year	Mas de unavez al año
30c) Once a year	Una vez al año	Once a year	Una vez al año
30d) Once every 2 years	Una vez cada 2 años	Once every 2 years	Una vez cada 2 años
30e) Once every 3 years	Una vez cada 3 años	Once every 3 years	Una vez cada 3 años
30f) Once every 5 years	Una vez cada 3 años	Once every 3 years	Una vez cada 5 anos
30g) Other frequency (please provide details in the space provided on the right)	Otra frecuencia (Por favour especifique en el espacio a la derecha.)	Other frequency (please specify in the space provided on the right)	Otra frecuencia (Por favor especifique en el espacio provisto a la derecha)
What is accredited? (You can indicate more than one option.)	¿Qué es acreditado? (Usted puede indicar mas de una opción)	What is accredited? (You can indicate more than one option.)	¿Qué está acreditado? (Usted puede indicar más de una opción)
31a) The educational institution/university	La institución educative / Universidad	The educational institution/University	La institucion educativa/ Universidad
31b) The faculty or school (e.g. school of pharmacy)	La facultad o escuela (Por ejemplo: de farmacia)	Faculty or school (e.g. school of pharmacy)	La facultad o escuela (Por ejemplo: de farmacia)
31c) The academic programme (please provide details in the space provided on the right)	El programa academico (Por favour especifique detalles a la derecha)	The academic programme (please provide details in the space provided on the right)	El programa academico (Por favour especifique detalles en el espacio provisto a la derecha)
Who is the ACCREDITING BODY?	¿Quiénes el CUERPO DE ACREDITACIÓN?	Who is the ACCREDITING BODY?	¿Quiénes el CUERPO DE ACREDITACIÓN?
32a) Ministry of Health	Ministerio de Salud	Ministry of Health	Ministerio de Salud
32b) Ministry of Education	Ministerio de Educación	Ministry of Education	Ministerio de Educación
32c) Other governmental agency	Otra Agencia del Gobierno	Other governmental agency	Otra agencia gubernamental
32d) National professional organisation	Organismos Nacionales de Profesionales	National Professional Organisations	Organismos Nacionales de Profesionales
32e) Private accrediting body	Cuerpos privados de acreditación	Private accrediting body	Organismos privados de acreditación
32f) Other	Otros	Others	Otros
Other Quality assurance mechanisms or processes	Otros aseguramientos de calidad de mecanismos y procesos	Other quality assurance mechanism and processes	Otros mecanismos o procesos de garantía de la calidad

33a) Are there any other internal or external QUALITY ASSURANCE mechanisms or processes used by higher education institutions?	¿Existen otros aseguramientos de calidad internos o externos de mecanismos y procesos utilizados por las Instituciones de Educación Superior?	Are there any other intern or extern quality assurance mechanisms or processes used by higher education institutions?	¿Existen otros procesos o mecanismos internos o externos que aseguren la calidad, utilizados por las instituciones de educacion?
Yes (please specify in the Q33b))	Por favour especifique: [REDACTED]	(please specify in the Q33b	Si (por favour, especifique en la pregunta 33b)
33b) If YES in the Q33a), please provide additional information	Si es "SI" en la Pregunta 33 a), porfavorapunteinformaciónadicional en el espacio a la derecha.	If YES in the Q33a), please provide additional information in the provided space on the right)	Si es "SI" en la Pregunta 33 a), porfavorapunteinformaciónadicional en el espacio a la derecha.
<i>Related document</i>	<i>Documentos relacionados</i>	Related documents	<i>Documentos relacionados</i>
34. Please include any relevant document (report, research, article references) related to pharmacy education and the academic programmes in your school/country with the submission of this survey.	Por favor, incluya cualquier documento pertinente (informe, investigación, referencias de artículos) relacionados con la educación farmacéutica y de los programas académicos de las escuelas de farmacia de su país con la presentación de esta encuesta.	Please include any relevant document (report, research, article references) related to pharmacy education and academic programmes of pharmacy schools and faculties of your country with the submission of this survey.	Por favor, incluya cualquier documento pertinente (informe, investigación, referencias de artículos) relacionados con la educación farmacéutica y de los programas académicos de las escuelas de farmacia de su país con la presentación de esta encuesta.
Your participation in this survey is vital to provide a better understanding of current pharmacy education issues, and will assist in the development of global pharmacy education policy recommendations.	Su participación en esta encuesta es vital para proporcionar una mejor comprensión de temas actuales de educación de la farmacia, y ayudará en la elaboración de recomendaciones globales para la política educativa de farmacia.	Your participation in this survey is vital to provide a better understanding of current issues in pharmacy education and help developing comprehensive recommendations for pharmacy education policy.	Su participación en esta encuesta es vital para proporcionar una mejor comprensión de temas actuales de educación de la farmacia, y ayudará en la elaboración de recomendaciones globales para la política educativa de farmacia.
Please save the completed form and return to education@fip.org	Por favor, guarde el formulario completo y devolverlo a education@fip.org	Please, save the complete form and return to education@fip.org	Por favor, uan vez rellenado el formulario, guardelo y mandelo a education@fip.org
Thank you for your participation	Muchas gracias por su participación	Thanks for your participation	Muchas gracias por su colaboracion.

Appendix 17: Invitation email template for the Pharmacy Education Survey

RE: FIP-WHO Global Survey of Pharmacy Education | deadline: 15th of March

Dear Colleague,

As part of the FIP Education Initiatives, and in partnership the World Health Organisation (WHO), the International Pharmaceutical Federation (FIP) are undertaking a collaborative programme of work to develop evidence-based data through which to facilitate the sustainable development of higher education and subsequent pharmacy workforce.

FIP and WHO are now implementing a global survey that aims to collect information at national level:

- To ascertain pharmacy education infrastructures worldwide;
- Capacity characteristics of pharmacy education across the globe;
- To ascertain characteristics of educational quality assurance, accreditation mechanisms and processes.

The data will be used to identify gaps, shortages and cooperation opportunities, and will provide the evidence-based information needed for investment policies that will reduce existing gaps and increase pharmacy education capacity.

Your participation in this survey is **vital** to provide a better understanding of current pharmacy education issues, and will assist in the development of global pharmacy education policy recommendations.

For these reasons, FIP and WHO are requesting your collaboration in completing the Global Survey of Pharmacy Education. Please complete the attached electronic version of the survey and submit to education@fip.org. The survey is also available in **French, Spanish, Portuguese and Arabic**.

If you have any comments or questions concerning the survey please send them to education@fip.org.

Kindly note that all responses should be returned by the **15th of March 2013**. If you are unable to complete the survey by this date, please let us know.

Please help us to ensure that your country is represented in this significant global survey. You can also forward the email to a contact you think is most suitable to reply to the survey.

Thank you in advance for your participation.

Sincerely (on behalf of),

Professor Ian Bates
Director, FIP Education Development.

Appendix 18: Invitation letter for the Pharmacy Education Survey



The Hague, 24 January 2013

RE: FIP-WHO Global Survey of Pharmacy Education

Dear Colleague,

As part of the FIP Education Initiatives, and in partnership the World Health Organisation (WHO), the International Pharmaceutical Federation (FIP) are undertaking a collaborative programme of work to develop evidence-based data through which to facilitate the sustainable development of higher education and subsequent pharmacy workforce.

FIP and WHO are now implementing a global survey that aims to collect information at national level:

- To ascertain pharmacy education infrastructures worldwide;
- Capacity characteristics of pharmacy education across the globe;
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Your participation in this survey is vital to provide a better understanding of current pharmacy education issues, and will assist in the development of global pharmacy education policy recommendations.

For these reasons, FIP and WHO are requesting your collaboration in completing the Global Survey of Pharmacy Education. Please complete the attached electronic version of the survey and submit to education@fip.org. If you have any comments or questions concerning the survey please send them to education@fip.org.

Kindly note that all responses should be returned by the **15th of March 2013**. If you are unable to complete the survey by this date, please let us know.

Please help to ensure that your country is represented in this significant global survey.

Sincerely,
Professor Ian Bates
Director, FIP Education Development.

The International Pharmaceutical Federation (www.FIP.org) is the global federation of national organizations of pharmacists and pharmaceutical scientists dedicated to improving the global health by advancing pharmacy practice and science to enable better discovery, development, access to and safe use of appropriate, cost-effective, quality medicines worldwide.

Are your students involved in the International Pharmaceutical Students' Federation (IPSF)? Share with them that it is a great opportunity to get involved in global pharmacy education see www.ipsf.org

Fédération
Internationale
Pharmaceutique

International
Pharmaceutical
Federation

Andries Bickerweg 5
P.O. Box 84200
2508 AE The Hague
The Netherlands
-
T +31 (0)70 302 19 70
F +31 (0)70 302 19 99
fip@fip.org
-
www.fip.org



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Appendix 19: A list of curriculum clusters and syllabus headings

Cluster	Description	Syllabus headings in the cluster
CHEM	Chemical Science (Pharmaceutical Chemistry and Biochemistry)	Analytical Chemistry Biochemistry Chemistry (General, Organic and Inorganic, Including Radiochemistry and Spectrometry) Chemical Laboratory / Instrumental Analysis Pharmaceutical Chemistry / Pharmacopeial Analysis / Pharmaceutical Analysis Physicochemistry (Medicinal Physicochemistry / Physical Chemistry / Biophysics / Structure Activity Relationships / Drug Design & Discovery)
MATH	Maths and Physics	Physics Mathematics / Statistics
MED	Pharmacology and Medicinal Science	Dermatology, Human Physiology, Anatomy Immunopharmacology / Immunology (including Haematology) Pharmacognosy, Plant Physiology, Phytotherapy and Homeopathy, Botany Pharmacology Pathophysiology (including Cytology and Histology) Medicinal Chemistry
PHAR	Pharmaceutics, Technology, and Formulation	Pharmaceutical Technology Veterinary Pharmacy Pharmaceutics / Galenics Formulation Pharmacokinetics and Biopharmacy (Drug disposition and metabolism / Drug Delivery) Quality Assurance in Pharmaceutical industry (Quality Assurance in Production) Toxicology and Environmental Chemistry Cosmetology
BIO	Biological Sciences	Biology (General and Cellular) Anti-infective Therapy (Bacteriology / Virology / Parasitology / Microbial Pathology / Chemotherapy) Biological Analysis and Lab Diagnosis Biostatistics Biotechnology Genetics Microbiology Molecular Biology (Molecular aspects of the action of drugs and their targets) Nutrition and Bromatology (including Food Hygiene and Technology)

Cluster	Description	Syllabus headings in the cluster
PRAC	<p style="text-align: center;">Pharmacy Practice, Pharmaceutical Care, Clinical Pharmacy, Law and Social Pharmacy</p>	<p>Clinical Pharmacy (Pharmacotherapy / Pharmaceutical Care) Dispensing Process, drug prescription, prescription analysis (detection of adverse effects and drug interactions) Ethics (Professional Ethics / Deontology) Legislation (Pharmacy Law) Management and Pharmaceutical Planning Management, Legislation and Economics applied to the Pharmaceutical Industry Pharmacy Practice / Clinical Training Medicine Information Industrial Pharmacy Public Health / Sociology / Epidemiology</p>
GEN	<p style="text-align: center;">Generic</p>	<p>Communication and Transferrable Skills Psychology Leadership Computer Science / Computer Skills History of Pharmacy Languages Physical Training / Sports Research Methods / Projects</p>

Appendix 20: Publications

- Yamamura, S., Takehira, R., and **Arakawa, N.** (2015). Part 4. Japan: Lifelong learning support system includes a clinical ladder with 10 steps of skills development. *in: A. Bruno, K. Galbraith, and I. Bates (eds.) Advanced Practice and Specialisation in Pharmacy: Global Report 2015.* The Hague: International Pharmaceutical Federation.
- **Arakawa, N.**, Nomura, K., Duggan, C., and Bates, I. (2015). A report from the Japanese Society of Drug Informatics Forum: The role of pharmacists providing self-care. *Pharmacy Education.* 15 (1): 182-8.
- **Arakawa, N.** (2015). Pharmacists of Japan in the Future. *Journal of Pharmaceutical Science and Technology, Japan.* 75 (3): 137-9.
- **Arakawa, N.** (2015). Pharmacy Education in the FIP: developing pharmacists and pharmaceutical scientists of the future (12). *Journal of the Japan Pharmaceutical Association.* 67 (4): 21.
- **Arakawa, N.** (2015). Pharmacy Education in the FIP: developing pharmacists and pharmaceutical scientists of the future (11). *Journal of the Japan Pharmaceutical Association.* 67 (3): 77.
- **Arakawa, N.** (2015). Pharmacy Education in the FIP: developing pharmacists and pharmaceutical scientists of the future (10). *Journal of the Japan Pharmaceutical Association.* 67 (2): 17.
- **Arakawa, N.** (2015). Pharmacy Education in the FIP: developing pharmacists and pharmaceutical scientists of the future (9). *Journal of the Japan Pharmaceutical Association.* 67 (1): 21.
- **Arakawa, N.** (2014). Pharmacy Education in the FIP: developing pharmacists and pharmaceutical scientists of the future (8). *Journal of the Japan Pharmaceutical Association.* 66 (12): 21.
- **Arakawa, N.** (2014). Pharmacy Education in the FIP: developing pharmacists and pharmaceutical scientists of the future (7). *Journal of the Japan Pharmaceutical Association.* 66 (11): 31.
- **Arakawa, N.** (2014). Pharmacy Education in the FIP: developing pharmacists and pharmaceutical scientists of the future (6). *Journal of the Japan Pharmaceutical Association.* 66 (10): 21.
- **Arakawa, N.** and Yamamura, S. (2014). Part4: Japan: Japan Pharmaceutical Association Lifelong Learning Support System, on-line portfolio system *in: A. Bruno, M. Rouse, T. Tofade and I. Bates (eds.) 2014 Continuing Professional Development/Continuing Education in Pharmacy: Global Report.* The Hague: International Pharmaceutical Federation (FIP).
- **Arakawa, N.** (2014). Pharmacy Education in the FIP: developing pharmacists and pharmaceutical scientists of the future (5). *Journal of the Japan Pharmaceutical Association.* 66 (9): 29.

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- **Arakawa, N.** (2014). Pharmacy Education in the FIP: developing pharmacists and pharmaceutical scientists of the future (4). *Journal of the Japan Pharmaceutical Association*. 66 (8): 33.
 - **Arakawa, N.** (2014). Pharmacy Education in the FIP: developing pharmacists and pharmaceutical scientists of the future (3). *Journal of the Japan Pharmaceutical Association*. 66 (7): 61.
 - **Arakawa, N.** (2014). Pharmacy Education in the FIP: developing pharmacists and pharmaceutical scientists of the future (2). *Journal of the Japan Pharmaceutical Association*. 66 (6): 23.
 - **Arakawa, N.** (2014). Pharmacy Education in the FIP: developing pharmacists and pharmaceutical scientists of the future (1). *Journal of the Japan Pharmaceutical Association*. 66 (5): 21.
 - **Arakawa, N.** (2013). The Best Basis for the Best Practice? *International Pharmacy Journal*. 31(2): 28-9.
 - Udoh, A. and **Arakawa, N.** (2013). Interprofessional Education in Pharmacy Education. *International Pharmacy Journal*. 31(2): 30-1.
 - **Arakawa, N.**, Carrasqueira, J. and John, C. (2013). Part 2: Introduction *in*: A. Bruno and I. Bates (eds.) *2013 FIPed Global Education Report*. The Hague: International Pharmaceutical Federation (FIP)
 - Bates, I., Bruno, A. and **Arakawa, N.** (2013). Part3: Global Education Description *in*: A. Bruno and I. Bates (eds.) *2013 FIPed Global Education Report*. The Hague: International Pharmaceutical Federation (FIP)
 - **Arakawa, N.** (2013). FIPed-IPSF Student Learning Experience Questionnaire: Students' input to the advancement of future pharmacy education. *IPSF Phuture*, 18: 20-1.
 - Yamamura, S., Takehira, R., Oide, S., Yamamoto, N., and **Arakawa, N.** (2012). Country case study: Japan *in*: D. Gal and I. Bates (eds.) *2012 FIP Global Pharmacy Workforce Report*. The Hague: International Pharmaceutical Federation (FIP)

Appendix 21: Posters and presentations

- **Arakawa, N.** (2015, September). Students' Learning Experiences in Pharmacy: A Global Survey. 15-minute talk presented at the 75th FIP World Congress of Pharmacy and Pharmaceutical Sciences in Dusseldorf, Germany.
- **Arakawa, N.**, Bruno, A. and Bates, I. (2014, September) *A Global Comparison of Initial Pharmacy Education Curricula*. Poster presented at the 74th FIP World Congress of Pharmacy and Pharmaceutical Sciences in Bangkok, Thailand.
- **Arakawa, N.**, Bruno, A. and Bates, I. (2014, September) *Students' Approaches to Learning in Pharmacy: A Global Survey*. Poster presented at the 74th FIP World Congress of Pharmacy and Pharmaceutical Sciences in Bangkok, Thailand.
- **Arakawa, N.** (2014, February). *The Role of Pharmacists in Self-care and its Relevant Pharmacy Education in the UK*. 90-minute talk presented at the Kanagawa Pharmaceutical Association, Japan.
- **Arakawa, N.** (2014, February). *Pharmacy education and post-registration training for developing research and evaluation skills of pharmacists: A global and British perspectives*. 90-minute talk presented at the Faculty Development course at Musashino University, School of Pharmacy, Japan.
- **Arakawa, N.** (2014, February). *Postgraduate schools for pharmacists in the UK*. 90-minute talk presented at the forum for the Collaborative pharmacy education reforms of universities in Shikoku-region, Japan.
- **Arakawa, N.** (2014, January). *The Role of Pharmacists in Self-care and its relevant pharmacy education in the UK*. 90-minute talk presented at the Japanese Society of Drug Informatics & Japan Pharmaceutical Communication Association collaborative forum, Japan.
- **Arakawa, N.**, Bruno, A. and Bates, I. (2013, September) *Student Learning Experiences: A Global Survey*. Poster presented at the 73rd FIP World Congress of Pharmacy and Pharmaceutical Sciences in Dublin, Ireland.
- **Arakawa, N.** (2013, September) *FIPed-IPSF Student Learning Experience Questionnaire*. 20-minute talk presented at the 73rd FIP World Congress of Pharmacy and Pharmaceutical Sciences in Dublin, Ireland.
- Bruno, A. and **Arakawa, N.** (2013, August). *Pharmacy Education Training – Research Methodology*. One-hour workshop presented at the 59th IPSF World Congress in Utrecht, the Netherlands.
- **Arakawa, N.** (2012, December) *Pharmacy Education: Developing the Healthcare Workforce of the Future*. One-hour talk presented at the 36th lecture in collaboration of St. Marianna University School of Medicine Hospital & Kawasaki Northern Pharmaceutical Association. Kawasaki, Japan

- Bruno, A., **Arakawa, N.** and Bates, I. (2012, October) *Global Students' Learning Experience*. Poster presented at the Centennial FIP World Congress of Pharmacy and Pharmaceutical Sciences in Amsterdam, the Netherlands.
- Bruno, A. and **Arakawa, N.** (2012, August). *Transnational Pharmacy Education: Reasons & Motivations for Studying Pharmacy*. One-hour workshop presented at the 58th IPSF World Congress in Hurghada, Egypt.