



An Analysis of the New UK Master of Pharmacy Degree Programme: Rhetoric and Reality*

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In 2001, the first cohort of pharmacy students graduated after completing a new four-year degree programme leading to the award of Master's (MPharm). This study questions whether the current MPharm programmes meet National Qualifications Framework (NQF) descriptors. For its data, all Directors of Undergraduate Studies (DUGS) were invited for semi-structured interviews regarding this new programme. Ten interviews were completed and were transcribed and coded thematically.

These results show that the change from Bachelor's to Master's appellation was led by contention and insecurity rather than debate. Additionally, though schools have re-designed programmes, a lack of homogeneity was identified. Further, even though schools run postgraduate Master's level programmes in tandem with the MPharm, it is debatable whether the educational approach, nature and delivery of each are equivalent. QAA uses the term *integrated Master's* to denote significant study at both undergraduate and Master's levels, while an emergent demarcation between both levels, in terms of quality and equity of learning experience, was identified in the new programme that needs to be resolved.

The current MPharm programmes may not merit the title Master's. It is difficult to backtrack now; the only way forward is to ensure that the programmes continue to develop to meet QAA criteria to insure the competency of the educational experience.

Keywords: Master's; Bachelors; Descriptors; Pharmacy; National Qualifications Framework; Qualitative

INTRODUCTION

In 1997, the formal provision of undergraduate pharmacy education in the United Kingdom

changed. Before this, the route to becoming a pharmacist was a three-year degree programme leading to the award of a Bachelor of Pharmacy (BPharm) or a Bachelor of Science in Pharmacy (BSc), followed by a pre-registration training period of one year. Subsequent to this, individuals were granted registration with the Royal Pharmaceutical Society of Great Britain on successful completion of a national registration examination. In 1997, the degree programme was extended by one year upgrading the award to a Master of Pharmacy degree (MPharm). Graduates taking the four-year degree programme still had to complete a pre-registration year and national examination. The first cohort of MPharm students graduated in June, 2001.

In response to the Dearing and Harris reports published in 1996 and 1997 (Harris, 1996; Dearing, 1997), respectively, which questioned the provision, standards and quality assurance of higher education in the UK, the Quality Assurance Agency (QAA) was established as an independent agency. Its remit was to establish public confidence that provision, quality and standards of awards in higher education were being safeguarded and enhanced. One method of achieving this was by the publication of the National Qualifications Framework (NQF) and statements of subject benchmark standards in 2001 (Quality Assurance Agency, 2001). The aims were to ensure consistency in the range of awards recognising intellectual endeavour and achievement, review of academic standards and analysis of quality of teaching and learning in each subject area. The NQF effectively defined five levels of higher education, three undergraduate and two postgraduate (Table I).

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TABLE I The National Qualifications Framework

Certificate (HE1, C level)—Certificates of higher Education
Intermediate (HE2, I level)—Foundation degrees, ordinary (Bachelor's) degrees, Diplomas of Higher Education and other higher diplomas
Honours (HE3, H level)—Bachelor's degrees with Honours, Graduate Certificates and Graduate Diplomas
Masters (HE4, M level)—Masters degrees, Postgraduate Certificates and Postgraduate Diplomas
Doctorate (HE5, D level)—Doctorates

The NQF described the template for each level that constitutes the base of the particular benchmark for each degree. Table II describes the essential differences between qualification descriptors for Honours (HE3) and Master's (HE4) undergraduate levels.

Additionally, within the European Union, an ideology of freedom of movement and trade between member states has developed that is applicable to the higher education sector. In most European countries, a pharmacy student undertakes a five-to-six year education programme to attain the equivalent registration status as the three-year UK Bachelor's degree in pharmacy. Such disparities of degree programmes amongst EU member states led to the Declaration of Bologna. This pledge, made by 29 European countries in 1999, was to "create a European common market in higher education" and reform the structures of their higher education systems in a convergent way. The Declaration was a binding commitment to an action programme, not just a political statement (The Bologna Declaration, 1997). The aim would be both to encourage mobility and employability of the academic staff, researchers, students and professionals and to forge a single coherent system in Europe. With growing awareness within UK higher education of the Declaration's significance, this was one of the factors taken into

account by QAA when framing UK higher education qualifications frameworks.

The NQF benchmarks were unavailable in 1997 when the existing pharmacy degree programmes upgraded from Bachelor's to Master's appellation. In the current climate of increasing emphasis of evidence of quality, it is pertinent to question whether the current UK MPharm degree programmes meet the NQF Master level descriptors. This study thus investigates the current characteristics of provision in UK undergraduate pharmacy education and determines if the MPharm degree currently merits the title of Master's.

METHOD

An empirical approach to this research question was undertaken. Little research had been conducted in this topic area, so a qualitative approach was chosen to explore relevant issues. The sample consisted of Directors of Undergraduate Studies (DUGS) representing each School of Pharmacy in the UK. DUGS are responsible for the delivery, structure, content and philosophy of the undergraduate programme. They are usually drawn from the pool of existing academic staff, are well respected and have an interest in both educational and scientific matters. They should possess a working knowledge of the undergraduate programme at each academic institution.

A semi-structured interview schedule was developed using the descriptors for Bachelor's and Master's degree programmes from the NQF as a template. At the beginning of the interview, each DUGS was asked to describe their role to determine their extent of involvement in the design and delivery of the MPharm programme. Additionally,

TABLE II Qualification descriptors for Honours (HE3) level and Master's (HE4) level quoted from the framework for higher education qualifications in England, Wales and Northern Ireland, QAA for Higher Education, 2001 (essential differences highlighted in bold)

Bachelor's degrees with Honours (HE3)	Master's degrees (HE4)
<i>Are awarded to students who have demonstrated:</i>	
A systematic understanding of key aspects of their field of study, including acquisition of coherent and detailed knowledge, at least some of which is at or informed by, the forefront of defined aspects of a discipline	A systematic understanding of knowledge and a critical awareness of current problems and/or new insights much of which is at or informed by, the forefront of their academic discipline, field of study or area of professional practice
An ability to deploy accurately established techniques of analysis and enquiry within a new discipline	A comprehensive understanding if techniques applicable to their own research and advanced scholarship
Conceptual understanding that enables the student to:	Conceptual understanding that enables the student to:
<ul style="list-style-type: none"> • Devise and sustain arguments and/or solve problems, using ideas and techniques, some of which are the forefront of a discipline; and • Describe and comment upon particular aspects of current research, or equivalent advanced scholarship, in the discipline 	<ul style="list-style-type: none"> • Evaluate critically current research and advanced scholarship in the discipline; and, • Evaluate methodologies and develop critiques of them and, where appropriate, to propose new hypotheses
An appreciation of the uncertainty, ambiguity and limits of knowledge; and the ability to manage their own learning and to make use of scholarly reviews and primary sources	Originality in the application of knowledge, together with a practical understanding of how established techniques of research and enquiry are used to create and interpret knowledge in the discipline

TABLE III Demographic details of interviewed Director of Undergraduate Studies (DUGS)

Interviewee code	Position and responsibilities	Involvement in MPharm design	Interview type	Interview length/min
I1	Senior lecturer in medicinal chemistry, First year MPharm admissions tutor	Specialist module design input into design of other modules	Telephone	42
I2	MPharm programme leader	Coordinator of overall design	Telephone	54
I3	Director of Undergraduate Studies, Course leader for clinical pharmacy	Chair of MPharm design committee	Face to face	34
I4	Director of Undergraduate Studies, Senior lecturer in pharmacology	No involvement in design of original programme, Will re-design current programme	Face to face	64
I5	Head of School, Course leader for MPharm, Senior lecturer in pharmaceutical care	Involved in re-design of MPharm	Telephone	54
I6	Senior lecturer in pharmacy practice, Deputy programme leader, Member of Pharmacy Programmes, Member of Research Committee	Member of committee that overviewed re-design of MPharm	Face to face	70
I7	Director of Undergraduate Studies	Chair of MPharm re-design group	Face to face	56
I8	Director of Undergraduate Studies	Involved in overall design team	Face to face	62
I9	Course leader for MPharm	Chair of course development team	Face to face	67
I10	Deputy course leader for MPharm, Principal lecturer in pharmaceuticals and microbiology	Course leader during re-design of MPharm	Face to face	43
I11	Director of Undergraduate Studies, Senior lecturer in pharmacology	Little involvement in re-design of MPharm, Now manages the MPharm	Face to face	52

each DUGS was asked their personal opinion as to whether the degree programme offered by their institution warranted the appellation of Master's. A pilot interview was conducted by the researcher (DS), which resulted in some changes to the original interview schedule.

An introductory letter and invitation for interview was sent to each DUGS outlining the purpose of the research and ensuring anonymity and confidentiality in reporting. Wherever possible, face-to-face interviews were conducted with either the DUGS or a nominated deputy. In some cases, telephone interviews had to be conducted for reasons of flexibility. Each interview was recorded with the permission of the interviewee, transcribed, coded and analysed thematically. Hand-written field notes made by the researcher (DS) aided the reflection and analysis process. The pilot interview transcript was excluded from final data analysis.

The initial coding frame was developed from two transcripts. It provided a method for deconstructing the textual information into smaller pieces of data that could then be "tagged," manipulated and grouped together in sections of similar concepts or themes. New codes were assigned to all new themes discovered in the remaining interviews. All responses pertaining to a particular theme were grouped together and indexed.

RESULTS

From the sixteen schools of pharmacy in the UK, the researcher conducted ten interviews with appointed

or nominated individuals. Seven interviews were completed face-to-face and three on the telephone. Three DUGS were keen to take part in the interview but were unable to be accommodated due to time constraints. One DUGS initially agreed, but later withdrew without providing a reason. The other two schools of pharmacy failed to respond to the researcher despite numerous attempts.

Table III shows the characteristics of each of the DUGS interviewed (including the pilot interview). Interviews lasted between 34 and 70 min with an average duration of 55 min. All interviews were completed within a four-week period during July–August 2001.

Change in Programme Length

Respondents cited a variety of implications resulting from the change of the programme length, now four-years, which included the increased quantity of content. According to the respondents, this increase disallowed students from reflecting and make sense of the material being taught, unlike the previous three-year programme:

"...the existing three year course...didn't give enough time to teach all of the things that a pharmacy graduate needed to know..." I1 [48]

"...there was little if any time available...to actually reflect on what they were doing and why they were doing it" [19 61].

There was consequently some concern that the overall scientific knowledge and academic standards of students were lower than in previous years. This was addressed by introducing foundation programmes ensuring a common scientific basis

and standard to lead students into greater specialisation in later years. The Bologna Declaration and harmonisation with Europe was also given as a driver for the extension of the degree programme.

“...widening access and taking non A-level students...” I1 [66] and “...quality of students coming in, even though A-level results were going up, appeared [to] not be as good...” I2 [98]

“...students didn’t have the necessary background in science...the first six months of the four-year course were a top up of the A-levels...to try and make up some of the deficit...” I10 [55].

“...we had to come in line with Europe...both with the length of the course and the hours of study” I10 [100].

Change of Appellation

“...School X had regulations...that [if students] were there for four-years it had to be at M-level. They were going to call their degree a Master’s of Pharmacy. Well, the rest of us felt that if School X is going to have a Master’s and we’re just going to have a Bachelor’s degree...well they are better than us. Everybody had to follow suit and make an MPharm...” I1 [106]

All interviewees identified the above as the central motivational factor behind the change of appellation to Master’s. Additionally, it was highlighted that other disciplines (e.g. engineering) offered a four-year degree programme leading to an undergraduate Master’s (MEng). Therefore, pharmacy students should have an equivalent reward and value for undertaking a four-year undergraduate programme:

“Why [should] students who were doing a four-year undergraduate programme...be disadvantaged in terms of qualification compared to others...doing a different four-year undergraduate Master’s” I7 [93]

Additionally, many interviewees believed it was untenable to allow for the coexistence of the same title with different grades. The competitive nature of “recruiting” students for schools of pharmacy made this impossible:

“...A student has got the option of...two places both which are four-years, but [if] the end one offers a Master’s and the other a Bachelor’s degree, then, all other things being equal, they’ll go for the Master” I19 [85].

Only one interviewee commented that the change in status was warranted due to the amount of work that was being done. Moreover, another interviewee maintained that no national guidance had been given to individual universities regarding standards necessary for undergraduate Master’s at the time of change. These same universities allegedly “would have been perfectly happy to keep it as a BSc or BPharm” I2 [137].

At that time, few implications seem to have been considered. However, since the publication of the benchmarks in January 2001, universities have had

to reconsider their degree programmes and attempt to align them to national criteria.

Provision of the M.Pharm Programme

The extra year for the undergraduate programmes prompted a redesign of curricula for all universities. For some programmes, the approach was...

“...more integrated instead of having separate departments teaching...knowledge compartmentalised...the idea was to bring things together...to correlate information from different subjects” I4 [88].

The traditional emphasis from the “scientific” element of the programme was shifted to encourage greater clinical contact and perspective. This was achieved by increasing the number and extent of hospital visits and, in some universities, an expectation for final year students to produce pharmaceutical care plans for individual patients. The following comment is illustrative of this strategy:

“The emphasis now is less on science and more on pharmacy practice/clinical pharmacy. So our old course was very heavy in the pure science which the students weren’t coping with. With the change in emphasis now on actual practice and on hospital and clinical pharmacy, then there was a change in the balance of the degree away from the pure sciences. We trimmed a lot of the chemistry because the students just couldn’t cope with it and, with the change in emphasis, it wasn’t needed so much” I10 [82].

New subject areas are being taught in many universities, which include biotechnology, pharmacoeconomics, pharmacovigilance, critical appraisal and, in one school, management skills.

The other main differential between the old three-year and the new four-year degree programme has been the incorporation of a research component usually completed by students in the final year. Time devoted to the research element varied widely between schools ranging from 175 to 450 h (i.e. “half the final year”). Students from all universities were involved in research that involved data generation, manipulation and analysis. However, one university did allow library-based research projects, which were defended by the DUGS as being equally valid to laboratory-based projects since they developed analytical and critical skills. Though schools did not expect students to be involved in ground breaking novel research, many undergraduates had submitted for peer-reviewed publication. The biggest complaint for research projects was associated with the lack of resources in terms of staff, equipment and funding.

Teaching Philosophy

There seems to have been a significant cultural shift away from a didactic lecture-based programme to one that has a more student-centred approach. Despite lecture-based delivery still being the mainstay

of the curriculum, most programmes set aside substantial periods for reflection, self-directed learning and the allowance for students to take greater responsibility for their learning.

“Right from the word ‘go’ we try and instil into them [the idea] that they... be responsible for their own learning and that they are not going to be spoon-fed everything. They have got to do a lot of work on their own and generate a lot of their own information. And certainly, as [they] go through the course, the amount of that is increased and reinforced.” I2 [493].

Even though the course had been extended by a year, there was still a feeling that it was not possible to teach students everything they needed to learn and, therefore, the programme aimed to provide a strong, scientific basis that students would use to continually build upon:

“...For them to have a 40-year career, there is no way we could teach them all they need to know...[what] we have to do is empower them to learn from themselves” I5 [266].

All schools purported to have implemented a version of problem-based learning. Respondents commented that students found it hard to cope with the demands of this approach and some have correspondingly tried to titrate it according to student level.

“Titrate your learning approaches to where the students are... [There is] nothing wrong with didactic teaching... [We] have to use it if students are at that stage... then you have to try and encourage them to go through the boundaries into more self-directed learning approaches” I3 [174].

With the expansion of student centred learning, greater self-direction has been built into the MPharm programme. However, the provision of an indicative syllabus from the RPSGB was cited as rigid and constraining. This did not allow students the freedom to pursue topics of individual interest:

“...not allowing a great deal of room outside of that” I7 [440].

“The programme is fairly rigid...because of the Society’s indicative syllabus” I9 [407].

However, some schools did cite the use of research projects and Erasmus programmes as extending the opportunities available to students during their degree programme.

Teaching Material at Forefront of Science

Respondents cited a variety of methods for maintaining the intellectual content of the MPharm programme. Inherent professionalism, along with the research-active nature of academic staff, was considered a vital component for ensuring that material taught was current, relevant and appropriate for students. One respondent commented upon the necessity of...

“...giving all lecturers staff-development time...to pursue research [in] any other disciplines...[This would] enable

them to be informed at the forefront of their respective disciplines” I5 [208].

Teacher-practitioners and guest speakers were used to enhance the clinical component of the programme, thus endowing it with a different perspective.

Formal methods of review ranging from internal assessment to external scrutiny by RPSGB and agencies including QAA have encouraged regular appraisal and consideration of teaching method and content. Student evaluation and feedback also ensure the currency of material:

“We have an almost constant subject review...the pharmacy programme committee meets monthly” I6 [277].

“[The evaluations] give feedback on all of our units...[We] get comments like ‘this was old or your reference is out of date’...[It is] quite good at keeping tabs on that” I10 [203].

Is the Current Programme at Master’s Level?

Each interviewee was asked their subjective view of whether their current programme warranted the MPharm appellation. There was a consensus that that the whole of the final year *should be* at Master’s level. However, none of the interviewees could currently demonstrate that all their modules are Master’s level, even though some of them are quite close:

“What we are looking to do is make all of our final year modules Master level. At the moment we have about 10 credits, which are not [at this level...it’s at intermediate level, level 3, I guess. So we have 110 out of 120 credits which are M-level” I7 [369].

Current marking schemes for examinations and assessments suggested that the Bachelor’s paradigm remains. However, nearly all the schools in the study reported that they were in the process of reviewing marks and the method of the degree categorisation in order to adapt to the new Master’s level:

“To be honest, probably what we didn’t do was, in some areas, to increase what we expected of the students, particularly in the final year compared with the third year. So I think some staff weren’t increasing their expectations to Master level. But it’s the first year that [we have] gone through and you have to learn by experience and [I] think that we have learnt quite a bit from this year. We have already made sure that we are going to make appropriate changes for the next year. I think other schools, speaking to people, have been a bit caught out that way as well” I2 [380].

One commentator even suggested that the current programme was not a Master’s but rather...

“...an extended Bachelor’s degree; we still have the first, 2.1, 2.2, third, pass, fail categories. When we move to a true Master’s degree it will be a Master’s degree with distinction, pass and a fail.” I9 [321].

Interviewees found it difficult to justify that their current MPharm graduates were able to think creatively by making sound judgements when not

all data were available. Several schools admitted that their programmes were currently not designed to meet these requirements. However, the research project was cited as capable of generating creative thought and originality:

"[What] happens in the project...[is] to get students to design an experiment [that] demonstrates creativity of thought" 19 [337].

There was strong evidence of an attitude believing that, even the current programme did not warrant the title Master's, schools were addressing this issue and, given time, the fulfilment of Master's criteria would be achievable.

"I think we are on our way towards it but we are not there yet" 15 [487].

Notwithstanding, respondents commented upon a qualitative maturity of graduates after having experienced the four-year degree programme, suggesting that the students

"...have very different attitudinal approaches which one might describe as being more mature" 16 [325].

"[There has been] considerable improvement in their...ability to self-reflect and implement and analyse issues in practice" 16 [589].

DISCUSSION

The undergraduate pharmacy programme was extended to four-years by the government and sanctioned by the Royal Pharmaceutical Society of Great Britain (RPSGB) in 1997. At this stage, the RPSGB did not participate in the decision to upgrade the title of the degree; this decision was left to individual schools. This study clearly indicates that the decision to change from Bachelor's to Master's appellation was led by contention and insecurity rather than debate. To remain competitive in a more "consumer-led educational era," all schools of pharmacy followed this metamorphosis. At this stage, no well-defined and accepted meaning for a "Master's programme" could be furnished. However, the publication of criteria for Master's level degrees by the QAA as part of the National Qualification Framework (NQF) (Quality Assurance Agency, 2001), along with the subject benchmarks for pharmacy (Quality Assurance Agency, 2002a), now changes this. Since publication, this has caused considerable anxiety for schools of pharmacy, as they now have to ensure their programmes do indeed justify the appellation of MPharm.

The RPSGB lays down an indicative syllabus that all schools are "invited to follow," but each school has developed a unique character and flavour to its teaching (Parker, 1992). In response to the extra year, several schools have re-designed their undergraduate programme to embrace the ideals of

self-directed learning, student empowerment and the Dearing Report vision of "lifelong learning." Schools did not doubt that students would graduate with a systematic understanding of knowledge and have greater vocational relevance. Newer topics relevant to the profession of pharmacy have been introduced into curricula to allow a wider spectrum of experience and relevance. This ties in closely with Department of Health requirements for inter-professional working and communication (Department of Health, 2001).

The research project and special options proved to be the biggest area of inconsistency between schools of pharmacy. QAA descriptors stipulate a minimum of 420 h of total student effort, which is equivalent to a full-time, three-month working period. However, this study found that there is still great variation among schools of pharmacy in not only length of time but also in terms of organisation and delivery. Most DUGS are aware of this "gap" between expectation and reality and are actively looking for strategies to rectify this. This lack of homogeneity between the schools needs to be closed if the profession wishes to avoid an emergent demarcation in terms of quality and equity of learning experience.

The study found that although some programmes came close to satisfying the QAA criteria for Master's level none satisfied them completely. Additionally, there are conceptual differences between postgraduate and undergraduate Master's programmes even though the QAA has not made this distinction (Quality Assurance Agency, 2002b). Historically, a student was enrolled on a Master's programme only after completing a Bachelor's programme, no matter which academic discipline. This is no longer true in a number of disciplines, such as engineering. But, now in pharmacy, this change is complicated because many schools also run postgraduate Master's level programmes for qualified pharmacists. It is debatable whether the undergraduate and postgraduate Master's programmes are equivalent in nature, delivery and educational approach. QAA does not consider this to be an issue and claims that either...

...a programme leads to an award that is demonstrably a Master's degree or it doesn't. The term "integrated Master's" is used where the programme includes significant study at both undergraduate and Master's levels and where the programme design leads the students to make progress toward and demonstrate the necessary learning outcomes to allow the award of a Master's degree (Quality Assurance Agency, 2002b).

This suggests that even QAA believes there are different "types" of Master's programmes even though the outcomes are supposed to be similar. With a confused message coming from QAA, it is little wonder that schools of pharmacy are uncertain of how to frame their current degree programmes.

Some schools did suggest the possibility of importing existing postgraduate modules into the final year of the MPharm programme. This would deliberately demonstrate that the final year of the MPharm met QAA criteria for Master's appellation. This could be acceptable if there was an opportunity for all students to exit the degree programme after three years with the award of a Bachelor's degree. This system does currently exist for some MPharm programmes in the United Kingdom. However, it is not clear if provision exists for these students to return to complete the final year at a later stage and be awarded an MPharm. Ensuring that only the final year of the degree programme was at Master's level would be at the overall expense of curriculum design. And in such a design, there would be little or no integration between different modules. Education is an agent of change and development for students; this should be titrated according to student level and curriculum intention. If students are ill-prepared for the demands of Master's level study by the time they reach their final year, this could have serious and far-reaching consequences.

In conclusion, it is clear that current undergraduate pharmacy programmes may not merit the title Master's. The fact that students have graduated with a Master's degree without having truly studied at Master's level questions the level of debate, congruency and communication within the academic fraternity. The implications could be far reaching, affecting not only the profession but also the credibility of the UK's higher educational system. It seems difficult to backtrack now. The argument between the appropriate grades of the title must be consigned to history. The only way forward now is to ensure that MPharm programmes do indeed meet QAA criteria so that the profession, newly qualified graduates and academia can be confident of the educational experience.

Limitations to the Study

This project aimed to extract the views of all programme leaders for MPharm in the UK. This was

not possible for a number of reasons previously outlined. This could affect transferability of the evidence; however, with more than half the programme leaders interviewed from a broad geographical area, this hypothetical is negligible. For greater credibility and veracity of the collected data, it would have been preferable to use a "triangulation" method for analysis. Either interviewing other members of staff at each school of pharmacy or juxtaposing qualitative data with quantitative data in terms of programme documents could have addressed this. Neither approach was possible due to time constraints within this project. However, the researcher (DS) used "peer debriefing" to develop ideas, understand key issues and allow new themes to occur. Educational views are in a constant state of flux due to changes in school and governmental policy. In the end, whilst opinions offered in this study offer credibility, they may not necessarily offer dependability.

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