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Evaluating educational service quality in novel pharmacy programmes

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Abstract

To continuously improve educational service quality (ESQ), student-focused educational outcome assessment is crucial for professional programmes such as pharmacy. This study aims (1) to evaluate the new Bachelor of Pharmacy (Hons) (BPharm) programme, and (2) to explore relationships between ESQ domains. The modified 39-item ESQ instrument (Holdford & Reinders, 2001) consists of the following themes: *Facilities*, *Lecturers' Interpersonal Behaviour, Lecturers' Expertise, Lecturers' Communication* and *Administrative Staff*. In addition to this measure, supplementary items on *Courses*, *Satisfaction* and *Miscellaneous Matters* were administered to all final year BPharm undergraduates in Malaysia ($n = 28$; mean age = 23 years; females = 23). Mean ESQ dimension scores were 3.52 (*Administrative Staff*), 4.25 (*Lecturers' Expertise*) and 3.84 (*Satisfaction*), indicating high quality services. Significantly strong associations were found between *Satisfaction* and *Lecturers' Interpersonal Behaviour* (Spearman's $rho = 0.64$, $p < 0.001$) and between *Satisfaction* and *Courses* ($rho = 0.78$, $p < 0.001$). Therefore, undergraduates' opinions were that the quality of the pharmacy degree programme was between *above average* to *good* in all ESQ dimensions, with the highest satisfaction being with lecturers' interpersonal conduct.

Keywords: *Educational service quality, Malaysia, pharmacy programme, undergraduate*

Introduction

As with other forms of professional education programmes, pharmaceutical education represents a big challenge to educators in maintaining and improving its structure and quality in accordance with changing developments worldwide. Consequently, ongoing assessment and evaluation of such programmes is highly recommended in order to ensure that the standards are met, the contents are effectively delivered and continuous improvement is made in order to produce the necessary quality of graduates. Of particular emphasis is students' own perspective of educational service quality (DiDominico & Bonnici, 1996). Several means of assessment have been used to measure educational outcomes such as course-specific and competency-based forms. However, these methods are limited in their scope in the sense that a complete view of educational quality cannot be gauged (Holdford & Reinders, 2001). For example, competency assessments do not show how those competencies were achieved. Therefore, a comprehensive evaluation of the quality of pharmaceutical education can be provided by assessing students' perception of both educational outcomes and the mechanisms involved in delivery.

In general terms, service quality refers to "*the post-consumption evaluation of services by consumers that compares expectations with perceptions of performance*" as defined in the marketing literature (Parasuraman, Zeithaml, & Berry, 1985) and its evaluations are based on the manner in which the service was delivered (termed *functional quality*) and the outcome of the service (termed *technical quality*) (Gronroos, 1993). Specifically with regard to pharmaceutical education, educational service quality (ESQ) refers to overall evaluation of services received as part of students' educational experience (Holdford & Reinders, 2001). In contrast to satisfaction, service quality is quality-specific while satisfaction includes both quality and non-quality evaluations. As such, the integration of inside plus outside educational experience which encompass classroom instruction, faculty facilities

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and interactions with the lecturers as well as administrative staff is crucial. The benefits of monitoring students' feedback on such matters are numerous and include the opportunity to improve services, create positive perceptions (Anderson, 1995; Pariseau & McDaniel, 1997) and identify the student-educator opinion gaps (Pariseau & McDaniel, 1997). Furthermore, the feedback will assist the provision of more desirable professional programmes, effective utilisation of resources and investigation into the implications of educational methods over time (Holdford & Reinders, 2001). The incidence and strength of student feelings can be identified via service quality measurements, which can also function as strategic marketing tools (Ford, Joseph, & Joseph, 1990). In growing and competitive pharmaceutical education environments, such tools are undoubtedly useful and invaluable. Efforts to revise existing courses and even to secure additional educational funding are also possibilities.

The Faculty of Pharmacy, Universiti Teknologi MARA (UiTM), Malaysia was established in 2001 and enrolled its first cohort of 29 undergraduate students in May 2002. This cohort is expected to officially graduate in September 2006. The 4-year undergraduate pharmacy curriculum was structured to provide sufficient knowledge and practical skills infused with heavy ethical elements to equip potential graduates with the essential competency, quality and attitude to become responsible pharmacists. Methods of assessment include end-of-semester written examinations supplemented by continuous assessments based on quizzes, assignments, laboratory reports, individual projects, group presentations, dissertation, counselling role play, communication skills and ICT-literacy.

In addition, the competency and quality of academic staff are also continuously being enhanced via a strong focus on the quality of teaching, depth of research, expertise in consultancy as well as student friendliness and approachability. Ample opportunities are available for academicians to instil self-development in areas most relevant to their interest and job specifications, such as application of innovative methodologies and tools in teaching. To ensure that the curriculum is relevant, up-to-date and highly required, important feedback from the market and industry are regularly obtained. Active communication and liaison with the Pharmacy Division, Ministry of Health, Malaysia as well as Certifying Authority of the pharmacy profession has been established and is constantly maintained. As for physical infrastructure and equipment, the Faculty has been provided with a 5-storey block in which generous financial assistance has been offered by the University for renovations and asset purchasing (e.g. laboratory equipments, technology-enhanced classrooms). More than 15 well-equipped laboratories have been set up for research and teaching, including three computer laboratories. Attempts to gradually increase the number of administrative and support staff are also constantly made to meet the requirements of the Faculty and assist in its vision, mission and objectives.

Although not identical to service quality, it is also vital to explore whether student satisfaction relates to any service quality dimensions. This would importantly detect areas of poor performance which require improvement, modification or addition. Therefore, the main aims of this study were to evaluate the Bachelor of Pharmacy (Hons.) programme based on students' general perceptions and to correlate the dimensions of educational service quality to satisfaction.

Methodology

Study design and sample selection

This was a prospective, cross-sectional study. Twenty-eight out of 29 undergraduates (96.6%) enrolled on the BPharm (Hons) programme at a university in Malaysia had completed all the compulsory modules and courses. The courses were based on six key areas in pharmacy, namely: Pharmaceutical Chemistry; Life Sciences; Pharmaceutics; Pharmacology; Pharmacy Practice; and, Clinical Pharmacy. The four-year (eight semester) programme serves to cater for professionals in accordance with the current pharmaceutical development in Malaysia. Students were all expected to graduate in September 2006 upon successful completion of the final examination in June 2006.

Educational service quality (ESQ) instrument

The 42-item original instrument was created by Holdford and Reinders (2001) to assess the quality of educational service with particular regard to pharmaceutical education. This instrument has been modified with permission into a 39-item ESQ to suit its use for educational service quality measurement of the UiTM pharmacy degree programme. The rating scale was based on Likert scores (1 = strongly disagree to 5 = strongly agree) for all five dimensions assessed: *Facilities* (seven items); *Lecturers' Interpersonal Behaviour* (eight items); *Lecturers' Expertise* (three items); *Lecturers' Communication* (six items); and, *Administrative Staff* (15 items). They assess the *functional quality*, i.e. the process of educational services. According to a related study, these were the dimensions of pharmaceutical education service quality that were significantly associated to satisfaction (Holdford & Patkar, 2003). The dimensions were further supplemented by items on *Courses* (10 items), *Satisfaction* (seven items) and *Miscellaneous Matters* (including *commitment to faculty* and *perceived value* -16 items) whereby the latter two dimensions included items measuring aspects of *technical quality*, i.e. outcomes of the service. These items were similarly

Table I. Demographic profile of first Cohort pharmacy undergraduates ($n = 28$).

Demographic characteristics	Frequencies (%)
Gender	
Male	5(17.9)
Female	23(82.1)
Age	
22 years	4(14.3)
23 years	14(50.0)
24 years	6(21.4)
25 years	3(10.7)
Missing	1(3.6)

scored on Likert rating scales as the ESQ dimensions. Several of these additional items (*satisfaction, commitment to faculty* and *perceived value*) were the criterion constructs for the original ESQ and had therefore been validated by experts and students (Holdford & Reinders, 2001). Additional comments were allowed at the end of the ESQ.

For this study, the overall internal consistency reliability of the ESQ as measured by Cronbach's alpha was $\alpha = 0.91$. Values for each dimension were $\alpha = 0.56$ (*Facilities*), $\alpha = 0.83$ (*Lecturers' Interpersonal Behaviour*), $\alpha = 0.69$ (*Lecturers' Expertise*), $\alpha = 0.85$ (*Lecturers' Communication*) to $\alpha = 0.92$ (*Administrative Staff*). Cronbach's alpha values for *Courses*, *Satisfaction* and *Miscellaneous Matters* were $\alpha = 0.84$, $\alpha = 0.82$ and $\alpha = 0.92$, respectively. Hence, with the exception of the dimension on *Facilities*, all dimensions of the ESQ as well as the supplementary items had fulfilled the 0.70 cut-off value for internal consistency reliability (Nunnally, 1978).

Study procedure and data collection method

On the final week of their lecture series, all 28 final year undergraduates were invited to complete the ESQ. Prior to that, the researchers first explained the importance and benefits of educational service quality evaluation, especially with regard to rating from the students' point of view for a new professional programme such as pharmacy. Following that, students were briefed about what was required from them when answering the questions and they were asked to complete all items as sincerely as possible. In view of other non-pharmacy subjects they were sitting for to fulfil the university requirements, students were also reminded to confine their responses to reflect the pharmacy syllabus only. Confidentiality and anonymity of the information provided were also assured. Help in clarifying the questions was offered upon request. Once completed, they were thanked for their participation and assistance.

Statistical analysis

Data obtained was analysed using the statistical package SPSS v.12 for Windows. Descriptive analysis was performed on students' socio-demographic data and presented as frequencies. Score ranges and means for ESQ dimensions were calculated, with higher scores indicating more favourable opinions, hence considered as better quality. For the purpose of this study, an overall outcome rating for the ESQ dimensions as well as for the supplementary item was interpreted as: 1 = Poor, 2 = Fair, 3 = Average, 4 = Good, 5 = Excellent. This rating was based on all customer satisfaction surveys carried out in the faculty. The associations between dimensions of the ESQ, supplementary scales (*Courses* and *Miscellaneous Matters*) and *Satisfaction* was measured via Spearman's correlation coefficient, *rho*. The value of $rho \geq 0.40$ was considered as strong correlation while $p < 0.05$ was taken as significant.

Results

Student demographic profile

All 28 undergraduates completed the ESQ as intended (response rate = 100%). On average they were 23 years old, ranging from 22 to 25 years. In this small, pioneer batch of students, the majority were females ($n = 23$). The full detail of their demographic profile is presented in Table I.

Mean score: ESQ dimensions and supplementary items

The mean ESQ dimension scores ranged from 3.52 (*Administrative Staff*) to 4.25 (*Lecturers' Expertise*). The supplementary item *Satisfaction* had a mean score

Table II. Descriptive outcomes for ESQ and supplementary items.

ESQ dimension/supplementary items	Minimum score	Maximum score	Mean	Standard deviation
Facilities	3.00	5.00	3.80	0.41
Lecturers' interpersonal behaviour	3.00	5.00	3.90	0.46
Lecturers' expertise	3.33	5.00	4.25	0.47
Lecturers' communication	2.33	5.00	3.67	0.54
Lecturers (overall)	3.06	5.00	3.88	0.43
Administrative staff	2.20	5.00	3.52	0.52
Satisfaction	3.14	5.00	3.84	0.45
Courses	2.80	5.00	3.88	0.46
Miscellaneous	3.19	5.00	4.06	0.46

of 3.84 while the means for *Courses* and *Miscellaneous Matters* were 3.88 and 4.06, respectively (Table II).

Correlation: ESQ dimensions/supplementary items vs. satisfaction

Overall, the strength of all associations between *Satisfaction* and the ESQ dimensions/supplementary items was significant and strong (Table III). The strongest correlation was found between *Satisfaction* and *Courses* ($rho = 0.78$, $p < 0.001$), followed by *Miscellaneous Matters* ($rho = 0.69$, $p < 0.001$) and *Lecturers' Interpersonal Behaviour* ($rho = 0.64$, $p < 0.001$). All other dimensions' correlation coefficients were between $rho = 0.43$ and $rho = 0.58$.

Additional comments

Out of the 28 responses completed, 17 (61%) contained extra comments (Table IV). The majority consisted of general good remarks or praises on the faculty's progress so far ($n = 8$). Other useful comments centred around the lack of resources and lecturers as well as improvements desired on the courses. Among others, complaints about the inadequate number of computers in the lab, laptops for teaching purposes, LCDs and general lab facilities were common. Furthermore, it was claimed that students' access to electronic journals was rather problematic while the computer lab was always full and exposed to frequent attack from viruses. Undergraduates also felt that the number of lecturers was still inadequate and the suggestion forwarded was to hire academicians with more experience and skills as well as to minimise the utilisation of invited lecturers. Several respondents were concerned about the need to have more case studies and hands-on experience for teaching and learning. Students were also in favour of a less exam–oriented approach in assessment. The workload in comparison to the credit hours for certain subjects were also deemed not appropriately balanced.

Discussion

The practice of gathering feedback from students has long been used by professionals in education in order to gain the subjective perceptions of, as well as satisfaction towards, educational experience. In relation to this, educational service quality has become part of overall educational experience (Holdford & Reinders, 2001). From the marketing point of view, an excellent assessment of service quality would overcome the challenge of today's competitiveness and lends a huge advantage in promotional efforts with regard to educational programmes. Following this realisation, five service quality dimensions have been identified as factors significantly related to overall satisfaction in the context of pharmaceutical education. These are resources, interpersonal behaviour of lecturers, lecturers' expertise, lecturers' communication and administration (Holdford & Patkar, 2003). Therefore, being a young Faculty of Pharmacy, there is an overwhelming need to determine a student-centred evaluation of the BPharm (Hons) programme offered in order to ensure quality of education and the degree awarded.

Outcomes from this study indicated that in general, the service quality was beteween *above average* to *good*. Students were clearly impressed with the expertise of their lecturers, which explained the highest mean score for this dimension. In fact, even the minimum score for *Lecturers' Expertise* was the highest among all other scales, signalling a good perception of the lecturers' knowledge, its currency and relevance to

Table III. Correlation between ESQ/supplementary items and satisfaction.

ESQ dimension/supplementary items	Satisfaction (Spearman's *rho*)	*P* value
Facilities	0.432	0.022
Lecturers' interpersonal behaviour	0.644	<0.001
Lecturers' expertise	0.491	0.008
Lecturers' communication	0.582	0.001
Lecturers (overall)	0.653	< 0.001
Administrative staff	0.583	0.001
Courses	0.782	< 0.001
Miscellaneous	0.685	< 0.001

Table IV. Additional comments from students.

Comments	Frequency
Resources	7
• Lack of computers/laptops/LCDs/lab facilities	
• Difficult to access to e-journals	
• PC lab always full and attacked by viruses	
• Unavailability of Micromedex	
Lecturers	6
• Number inadequate	
• Lack of experience and skills	
• Minimise the number of invited lecturers	
• Frequent class cancellation	
Courses	6
• Request for more case studies and hands-on experience/tests	
• Less exam oriented	
• Imbalance of workload	
Clinical clerkship training	2
• Continuous assessment should be 50%	
• Limited time in hospital	
Administration and management	3
• Disorganised service	
Juniors	1
• Should feel thankful and not complain too much	
General positive remarks	8
• Satisfaction	
• Feeling proud	
• "Thank you"	
• "Congratulations"	
• "Good luck"	

teaching. This may be due to the high percentage of lecturers possessing a PhD in the faculty (50%), who are therefore experts in their respective fields. The results for *Administrative Staff* were not deemed a failure, because the lowest mean score was only relative to other dimensions. On its own, a mean of 3.50 can be considered as above average. Nevertheless, the item relating to "administrative attempts in keeping students informed about issues concerning them" required improvement as 21% had scored "disagree" for this item. This may have affected the mean score for this scale. This is crucial in view of the findings by Holdford and Patkar (2003) whereby administration was the second most important contributor to students' satisfaction. Among the supplementary scales, the high mean for *Miscellaneous* items could be due to the nature of the questions in which the majority were focused on students' evaluation of themselves.

The strong relationship between *Satisfaction* and all ESQ scales delivered an overall impression of an excellent educational service quality. Undergraduates' satisfaction with the courses was most strongly associated with *Lecturers' Interpersonal Behaviour*. Similar outcomes were also demonstrated by Holdford and Patkar (2003), who had encouragingly suggested that students were generally "pleased" with their lecturers' friendliness, approachability, willingness to help, availability, honesty, ability to instil confidence and respectful behaviour. Since this attribute described behaviour associated with the development of interpersonal relationships, it was clear that service quality in this context depended upon social and behavioural elements. Consequently their role in contributing to the standard of pharmaceutical education is important. Interestingly too, despite students' impressive perceptions of the expertise of their lecturers, they were not highly satisfied with this component, alongside the facilities of the faculty. Again, this mirrored Holdford and Patkar's (2003) discovery, whereby expertise was the least important determinant of student satisfaction. Unsurprisingly in a new faculty like ours, the issues highlighted in their extra comments involved those concerning resources (computers, e-journals, labs, etc.) and lecturers (number, skill, experience, etc.). Therefore, these findings warrant improvised strategies by the faculty to produce better achievement in future. Nevertheless, their additional comments requesting case-study-based learning, less examination-oriented approach and more balanced workload (vs. credit hours) should also be taken into account to assist future curricular revamp efforts. Moreover, changes in programmes and curriculum that enhanced student-faculty interactions could lead to improved professional commitment (Fjortoft & Lee, 1994)—a vital attitude for pharmacists in training.

As with other studies of similar nature, our study was limited by the absolute focus on the final year undergraduates as well as the imbalance in the demographic composition of the sample, for example geographical origin; all were from Peninsular Malaysia. Obviously our small number of respondents did not allow the utilisation of more powerful parametric statistical tests, which would enable more concrete interpretations. In addition, the ESQ dimensions may need further investigation and modifications to suit its application for the Malaysian pharmaceutical education scenarios because of the variability of settings, culture and personnel involved. To obtain a more complete picture, specific assessments on hospital clerkship and community pharmacy, as well as industrial placements, could be incorporated into this evaluation. This is because high quality practice placement experiences have always been a compulsory feature of professional educational programmes such as medicine, nursing (Lynn Brown, Herd, Humphries, & Paton, 2005) and pharmacy. It would also be worthwhile to investigate whether these perceptions are similarly shared by students in other universities offering pharmacy degree programmes.

Conclusions

The overall service quality of the Bachelor of Pharmacy (Hons) programme has been rated between *above average* to *good* in all the ESQ dimensions by its students. Highest satisfaction level among students was associated with courses undertaken and the lecturers' interpersonal behaviour. In general, this outcome is suggestive of the high educational service quality offered by the faculty. Additionally, it could importantly serve as a yardstick for future evaluation comparisons as well as facilitating the attainment of appropriate recognitions from professional pharmacy bodies.

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