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Evaluation of Third Year Doctor of Pharmacy Students' Attitudes, Perceptions, and Behaviours on their Elective Decisions

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Abstract

Background: The establishment of a University of Maryland School of Pharmacy (UMSOP) satellite campus, in conjunction with curricular changes, produced a challenge of ensuring that both campuses received equal access to electives.

Aims: The aim is to characterise UMSOP third year doctor of pharmacy (P3) students' attitudes, perceptions, and behaviours toward their Autumn 2011 and Spring 2012 elective decisions at UMSOP. The primary outcome focused on determining if elective decisions were driven by internal or external factors. Secondarily the drop/audit process and student's feedback on elective improvement were assessed.

Method: An IRB approved prospective survey evaluated UMSOP P3 students' responses.

Results: A response rate of 58% was achieved with a higher frequency of internal factors affecting elective decisions.

Conclusion: Internal factors drove elective decisions compared to external factors in UMSOP P3 students.

Keywords: *Electives, Internal Factors, External Factors, Doctor of Pharmacy Students*

Introduction

Student selection of relevant electives in the Doctor of Pharmacy (Pharm.D) program is necessary to their development into well-rounded pharmacy practitioners. Pharmacy schools, therefore, have typically met both students' and accreditation demands with electives based on faculty expertise and resource allocations (Accreditation Standards and Guidelines, 2011). In 2012 the Accreditation Council for Pharmacy Education (ACPE) reported 31 pharmacy schools, within the United States, with distance campuses (Vlasses, 2012). The University of Maryland School of Pharmacy (UMSOP) established a distance campus in 2007 at Universities of Shady Grove (USG); in addition to its founding program at the University of Maryland Baltimore campus (UMB) (Congdon *et al.*, 2009; Knapp *et al.*, 2009' Vlasses, 2012). This new pharmacy education model has introduced technology and resource allocation challenges; therefore understanding students' perspectives in regards to elective selection is essential for future curricular planning.

Data on both academic performance and student satisfaction was crucial with the new distance campus venture. Congdon *et al.* (2009) studied students' academic performance during 2007-2008 and found no significant differences between UMSOP campuses both didactically and experientially. In contrast at the School of Pharmacy and Health Professions at Creighton University, Lenz *et al.* (2006) found through case based performance assessment a significant differences existed between the home and distance campuses. Both studies highlighted the differences in academic performance outcomes with distance campus education. Student satisfaction at UMSOP was evaluated on the 2011 American Association of Colleges of Pharmacy (AACP) Graduating Student Survey in which 71% of USG and 77% of UMB Pharm.D students responded. Among those responses, 100% of USG and 92% of UMB students agreed or strongly agreed that pharmacy-related elective courses met their needs (AACP Graduating Student survey, 2011).

The purpose of this research is to determine third year (P3) UMSOP students' attitudes, perceptions, and behaviours towards their Autumn 2011 and Spring 2012 elective decisions. Specifically, our research investigated whether elective selections were driven by internal or external factors. External factors were defined as home

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campus versus elective location, delivery method (synchronous versus asynchronous), introductory pharmacy practice experiences (IPPEs), and faculty teaching style. Internal factors included peer opinion, understanding the course was an "easy A", student's stress level, work experience, faculty advisor's advice and interest in career specialisation. Investigators hypothesise that UMSOP P3 students' elective decisions would be influenced by external factors especially location, delivery methods and faculty teaching style.

Methods

This prospective survey study utilised Qualtrics® online survey tool. It included all 160 UMSOP P3 students at both campuses in January 2012. Students in other professional pharmacy years at UMSOP were excluded since a majority of the required eleven electives credits are taken within the P3 year. Although excluded from the final survey results, selected fourth year (P4) students were included in a focus group to review the survey for clarity. Prior to survey distribution, the purpose and intent of the study was emailed, then presented in an attendance-mandatory synchronous class. A reminder was provided after seven days and the survey was open for 21 days total. Participation by the P3 students for the actual survey and P4 students for the pilot survey was anonymous, voluntary, and had no impact on their grades. Students provided consent by accessing the survey through a secure link. This study protocol was approved by University of Maryland Baltimore Institutional Review Board (IRB).

The primary objective was to evaluate if UMSOP P3 students' elective decisions were influenced by external or internal factors. Participants were blinded to the external and internal factor's labels of internal or external to eliminate bias. To eliminate partiality for individual electives, analysis was performed by grouping similar elective topic categories, which included geriatric/ palliative care pathway, advance pharmacy practice, public health/leadership, pharmacology/research, graduate courses of other disciplines, and courses at other schools. Analysis of internal and external factors was also evaluated by UMB versus USG campus responses, peer versus faculty advisor opinion, and "easy A" responses versus the amount of time spent on school activities. This research also aimed to secondarily describe the drop/ audit process and to collect student's opinions on electives selection process.

An algorithm was created to analyse the frequency of responses. For example, if a student chose two or three internal factors for elective A, it was counted once as internal since it was the prevailing answer. In contrast, if a student only keyed two responses of an internal and external factor, both were counted since neither factor dominated. SAS statistical software was used along with Fisher's exact test and Chi squared equations for statistical analysis, with a p value of <0.05 deemed as significant.

Evaluation & Results

Of the 160 students, 93 students (58%) consented and participated in the survey. Of these, 92 provided demographic data (Table I). There were no significant differences in baseline characteristics and choices of elective categories between respondents from the UMB and USG campuses. (Table II). Lastly, of the consented participants, 90 provided responses of factors influencing their elective decisions. Internal factors had a higher impact than external factors for both Autumn 2011 and Spring 2012 (Figure I). Specifically, the top three reasons for elective enrolment were internal factors of career interest and peer opinion, followed by the external factor of faculty teaching style. Students who enrolled in electives relied either on faculty or peer opinion but not both (Table III). Overall, students relied more on peer opinion than faculty opinion; however, it was only statistically significant in geriatric/palliative care pathway. Although not statistically significant, the impact of faculty opinion exceeded that of peer opinion in electives offered outside of the pharmacy curriculum. Furthermore within Table IV, there was no significant relationship between taking an internal factor label "easy A" course compared to time spent on other activities.

Table I: Demographic Characteristics of Participating Students (N=92)

Variables	UMB¶ (N= 71)	USG¶¶ (N= 21)	P
Age (years)			0.055
19-25	40 (56.3)	8 (38.1)	
26-30	24 (33.8)	6 (28.6)	
31-35	5 (7.0)	4 (19.1)	
36+	2 (2.8)	3 (14.3)	
Gender			0.387
Male	24 (33.8)	5 (23.8)	
Female	47 (66.2)	16 (76.2)	
Hours spent on attending faculty-led class activities			0.169
0-5	8 (11.3)	3 (14.3)	
6-10	23 (32.4)	11 (52.4)	
11+	40 (56.3)	7 (33.3)	
Hours spent on studying/group projects/ other student-driven course-related work*			0.564
0-5	27 (38.0)	6 (28.6)	
6-10	21 (29.6)	5 (23.8)	
11+	21 (29.6)	9 (42.9)	
Hours spent on watching lecture videos (utilising mediasite)**			0.609
0-5	47 (66.2)	12 (57.1)	
6-10	18 (25.4)	6 (28.6)	
11+	5 (7.0)	3 (14.3)	
Hours spent on school sponsored activities (ex. student organisations and social events)			0.291
0-5	44 (62.0)	16 (76.2)	
6-10	21 (29.6)	5 (23.8)	
11+	6 (8.5)	0 (0.0)	
Hours spent at work (excluding experiential rotations)			0.869
0-5	29 (40.9)	9 (42.9)	
6-10	21 (29.6)	5 (23.8)	
11+	21 (29.6)	7 (33.3)	
Electives taken during 2011-12 year			0.142
0	0 (0.0)	2 (9.5)	
1-3	10 (14.1)	2 (9.5)	
4-6	48 (67.6)	13 (61.9)	
7+	13 (18.3)	4 (19.1)	

*percentages do not add up to 100 due to 3 missing values
**percentages do not add up to 100 due to 1 missing value
¶University of Maryland School of Pharmacy, Baltimore Campus
¶¶University of Maryland School of Pharmacy, Shady Grove Campus

Table II: Patterns of Elective Enrolment (N=90)

Variables	UMB (N=71)	USG (N=19)	P
Geriatric/Palliative Pain Pathway Enrolment	42 (59.2)	9 (47.4)	0.437
Advance Pharmacy Practice Enrolment	67 (94.4)	17 (89.4)	0.603
Public Health/Pharmacy Leadership Enrolment	42 (59.2)	9 (47.4)	0.437
Pharmacology/Research Enrolment	34 (47.8)	7 (36.8)	0.445
Graduate Course Enrolment	3 (4.2)	1 (5.3)	1.00
Other School Course Enrolment	4 (5.6)	3 (15.8)	0.160
Frequency of "Easy A" response			0.250
Zero Electives	39 (54.9)	8 (42.1)	
One Elective	19 (26.8)	9 (47.4)	
Two or More Electives	13 (18.3)	2 (10.5)	

Table III: Faculty vs. Peer opinion Influence on Elective Decisions (N=90)

A= students that didn't take the class

B= students that did take the class

Name of Cluster	Enrolment Status	Peer and/or Faculty Opinion NOT a Factor (%)	Faculty Opinion used More (%)	Peer and Faculty Opinion used equally (%)	Peer opinion used more (%)	P Value
Geriatric/ Pain Pathway	A	30.77	30.77	2.56	35.9	0.0392
	B	9.80	33.33	13.73	43.14	
Advance Pharmacy Practice	A	50.0	0	16.67	33.33	0.0764
	B	16.67	34.52	8.33	40.48	
Public Health/ Leadership	A	7.69	33.33	10.26	48.72	0.1028
	B	27.45	31.37	7.84	33.33	
Pharmacology/ Research	A	24.49	32.65	8.16	34.69	0.4715
	B	12.20	31.71	9.76	46.34	
Graduate Courses	A	18.60	32.56	9.30	39.53	1.00
	B	25.0	25.0	0	50.0	
Other School Electives	A	19.28	31.33	8.43	40.96	0.7807
	B	14.29	42.86	14.29	28.57	

Figure 1: Elective Categories for Internal/External Factors - Autumn 2011 and Spring 2012 Semester

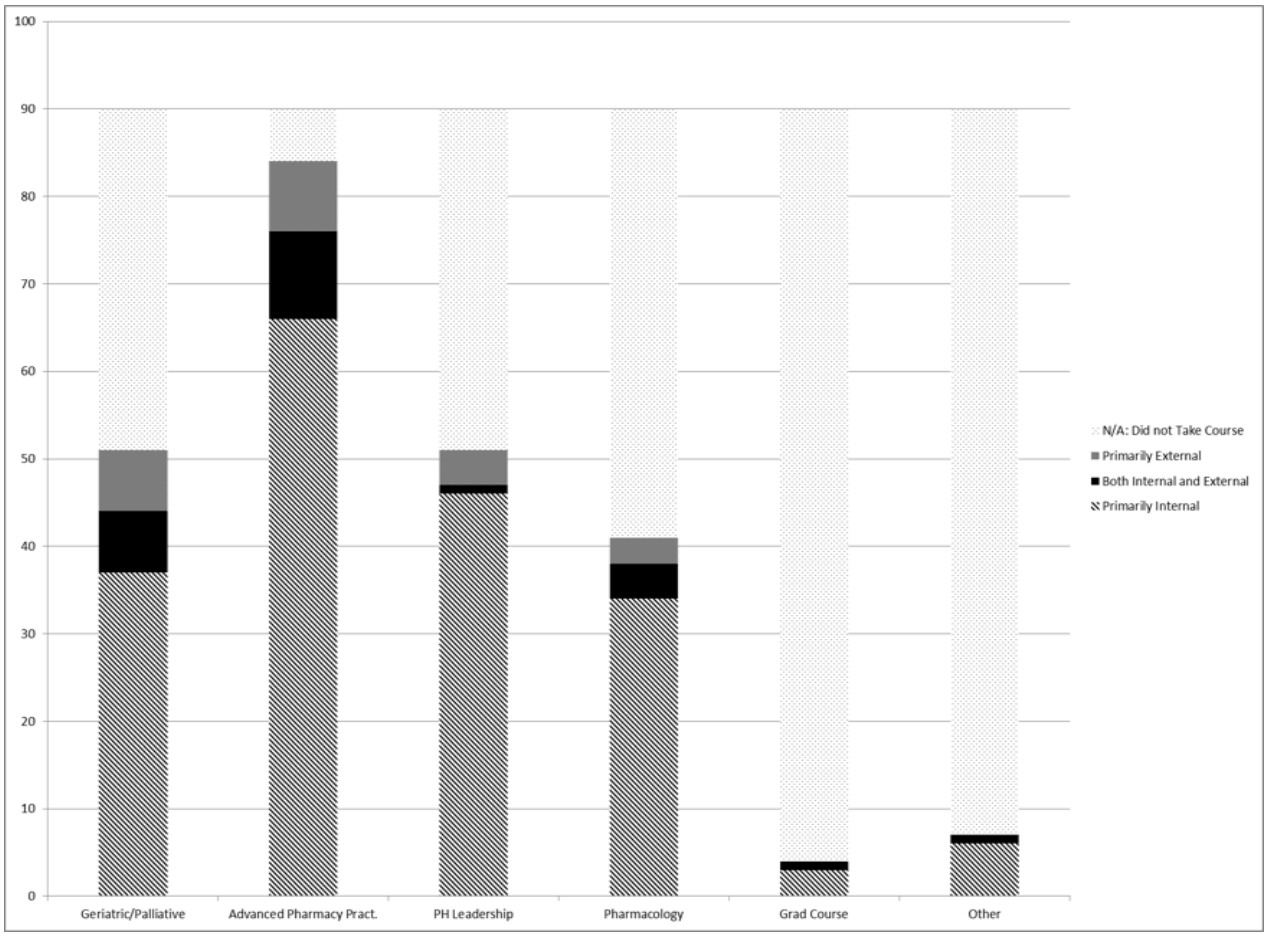

Table IV: Easy A Responses vs. The Amount of Time Spent on School Activities (N=90)
A= Easy A not a factor
B= Easy A was a factor at least once

Time spent on the following Activities	"Easy A" Influence	0-5 hours/ week (total # of students)	6-10 hours/ week (total # of students)	11 + hours/ week (total # of students)	P Value
Attending faculty-led class activities	A	4	14	29	0.1218
	B	6	20	17	
Watching lecture videos (using Mediasite)*	A	31	12	4	0.9187
	B	26	12	4	
Studying/ Group Project/ other student driven course-related work§	A	18	12	17	0.2645
	B	14	14	12	
School sponsored activities	A	34	11	2	0.2750
	B	24	15	4	
Work (not including experiential learning)	A	18	13	16	0.6684
	B	20	12	11	

*N=89 for this specific analysis
§N= 87 for this specific analysis

The investigators wanted to determine the reasons students chose to first add then drop/audit an elective course. Based on the results of this survey, students drop/ audit because they initially chose too many electives in their schedule to ensure they received their top choices. To improve elective choices in the future, students' suggested to increase elective enrolment capacity, increase student awareness of elective offerings, and offer electives in both the Autumn and Spring semesters instead of one specific semesters. The students did not make suggestions regarding the best method to improve their knowledge and awareness of electives.

Summary- Future plans/work/implementation

Our study found a higher frequency of internal factors compared to external factors for both Autumn 2011 and Spring 2012 electives selection at both the UMB and USG campuses of UMSOP. Due to these findings, we reject our proposed hypothesis that external factors were more influential on elective decisions. Further analysis revealed significant peer opinion impact compared to faculty opinion on enrolment into the Geriatric/Palliative care pathway. Further analysis is needed as to why this specific elective category was significant compared to other elective categories.

No significant relationship was found between an "easy A" course with time spent on school-related activities. This is notable since other international academic research, by Badad cites "easy assignments" as a factor for course selection at the Hebrew University of Jerusalem (Badad, 2001). In the present study, however, the majority of "easy A" responses were noted by students who also selected the minimal time spent on school-related activities option of zero-five hours/week. This finding is unforeseen since correlation of "easy A" was expected to be coupled with the maximum time spent on school activities option of 11+ hours/week.

Although our research was able to provide insight into different behavioural patterns when choosing electives, some limitations exist. First, we did not capture students' elective behaviours in regard to a small number of winter minimester and summer electives. These were removed from the survey due to the lower enrolment numbers and concern that addition of this information would increase survey length and further decrease the response rate. Secondarily, we did not capture the reasons for students not enrolling in certain electives. Lastly, we only have information from one institution about students' perceptions regarding elective decisions.

The present study, despite its limitations, was however able to provide valuable and innovative insight on factors driving students' elective decisions at UMSOP. This introductory research found that internal factors mainly influenced third year Pharm.D students' electives decisions. It also provided insight for the UMSOP curriculum committee to review the drop/audit process and consider student comments on increasing elective enrolment and offerings within both semesters. Further research is warranted in this area to evaluate if similar results are replicated among future UMSOP Pharm.D classes and other pharmacy schools with distance campuses.

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