



The Marketability of Offering Doctor of Medicine in University of the City of Muntinlupa, Philippines

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Abstract

In the Philippines, the Kindergarten to Grade 12 (K-12) system has already been formed, with a curriculum focusing on advanced science courses such as Chemistry and Biology. Senate Bill No. 1520, the Doktor Para sa Bayan Act, provides prospective Filipino doctors with a full scholarship. The University is a local university in the Philippines offering thirteen (13) Bachelor's and four (4) Graduate programs, accredited with the ASSOCIATION OF LOCAL COLLEGES AND UNIVERSITIES - COMMISSION ON ACCREDITATION (ALCU-COA) and ISO-2008 Certified with DOH classified Level 3 partnered hospital. Based on the theory of Ansoff about market development strategy - expansion of the market through customer segmentation and product positioning. The study aims to know the marketability of offering doctors of medicine. It sought to determine the following: (1) respondents' demographic profile; (2) urgency to enroll and willingness to pay for tuition fees and other miscellaneous expenses; (3) level of interest and reasons to enroll and (4) level of importance of the factors affecting one's interest. The study utilized quota sampling using descriptive statistics to interpret and analyze results. 628 people responded, the majority of them were enrolled in the science, technology, engineering, and mathematics (STEM) strand and graduated with a bachelor's degree in psychology. 224 are interested, 107 will enroll next year, willing to spend P60,000-70,000 pesos per semester and 602 will recommend the program. Career advancement, physical and laboratory exercises, clinical skills, teaching and learning activities, and community-based medicine as very important factors affecting their decision to enroll. Results revealed that there is a market demand that could be transformed into effective demand by offering Doctor of Medicine at the University. The researchers recommend seeking grants scholarships and subsidies as financial support. The study's possible impact is to overcome market rivalry and to respond to the country's ongoing shortage of doctors due to the high expense of medical education.

Keywords: education, marketability, medicine

1. Introduction

The Philippines has already introduced the Kinder to 12 (K-12) systems, which allow pupils to choose their academic pathway in their two-year Senior High school. A curriculum that focuses on advanced science courses like Chemistry and Biology, it will provide students with the intellectual foundation they need to be admitted into one of the Philippines' medical schools. Students may obtain their ideal Doctor of Medicine degree after graduating from high school by allowing them to complete the degree in a shorter period of time.

There are currently programs that make this possible, such as the University of the Philippines' INTARMED (Integrated Liberal Arts and Medicine), a seven-year program of the University of the Philippines College of Medicine that cuts the entire medical education by two years and selects aspiring doctors from the top 10% of UPCAT passers to complete a seven-year medical program straight from high school.

The Bachelor of Science in Human Biology at De La Salle University allows qualified candidates to achieve Doctor of Medicine in just six years, while the University of Santo Tomas is now providing a six-year medicine program starting in the 2019-2020 school year according to Suarez (2108). The program's first



90 students will be chosen through a rigorous selection procedure. After only two years of general courses – and without obtaining a bachelor's degree – the lucky few who make it to the program's initial implementation can begin practicing medicine.

The preceding data can be used to support the idea that in the marketplace, delivering a Doctor of Medicine degree in a shorter period of time is becoming more common.

Senate Bill No. 1520, Doktor para sa Bayan Act, awarding a complete scholarship to aspiring Filipino doctors, was approved/passed in order to strengthen the approval of offering Doctor of Medicine. This is also cited by CHED, 2016

The law aims to establish a medical scholarship and return service program for deserving Filipino students enrolled in state universities and colleges, as well as partner private higher education institutions (PHEIs) in areas where there are no SUCs that offer medicine.

Since the University of the City of Muntinlupa is a CHED recognized local College availing UNIFAST Scholarship, this is an external opportunity that could significantly benefit the offering of the program.

The University of the City of Muntinlupa is a municipal university in the Philippines that was founded on May 29, 1991 and is administered by the Muntinlupa Local Government. The Institution is affiliated with Commission on Accreditation of the Association of Local Colleges and Universities is a member. The University now provides courses in the Colleges of Arts and Sciences, Business Administration, Teacher Education, Information and Technology Studies, and Criminal Justice. Master's degrees in the subjects of business, education, and correctional administration are also available.

The University offers free tuition and exemption from other fees, through the UNIFIED STUDENT FINANCIAL ASSISTANCE SYSTEM FOR TERTIARY EDUCATION (UNIFAST) Law.

The number of candidates for admission to Philippine medical schools could serve as a starting point for future medical students. The National Medical Admission Test (NMAT) is a standardized national exam administered twice a year in the Philippines and overseas. Its purpose is to assess students' mental preparation for the academic demands of medical school.

The number of first-year applications to the University of Santo Tomas medical school has increased throughout the years, ranging from 1,700 to 1,900 per year.

Citing data from the Center for Educational Measurement, CHED, there were about 9,000 registered NMAT Applicants for 2020.

The number of applicants appearing for NMAT increases every year by an approximately 7% mark according to Anisha Mukhija, of CATKing, a Focused Ed-Tech Company

The above data is part of predictive analysis or estimations about future demands. This implies probable demand for the program in the future. The works of literature and reports stated influenced or led the researchers to conduct the study.

2. Objectives

The study's aims are as follows: To determine the demographic profile of the respondents (in terms of age, gender, educational attainment, and household income per month); (1) to know the interest of the respondent's urgency to enroll; (2) to assess the willingness of the respondents to pay for tuitions fees and other miscellaneous expenses; (3) to determine the reasons of the respondents in enrolling Doctor of Medicine; (4) to identify the level of importance of the factors such as (a) teaching and learning activities, (b) physical and laboratory exercises/examination, (c) clinical skills/clerkship and community-based medicine to enroll in Doctor of Medicine); and to evaluate the level of interest of the respondents to enroll Doctor of Medicine.



3. Materials and Methods

The study used a descriptive research methodology because its goal was to gather and present information about students' demographics as well as their perceptions of the Doctor of Medicine program at the University of the City of Muntinlupa.

Its primary respondents are 628 senior high school students from Muntinlupa City's 11 private senior high schools and four public senior high schools, as well as graduates of related medical courses, with 400-600 respondents selected via quota sampling. The number of respondents is in conformity with CHED instructions relative to the offering of a new program.

The survey questionnaire as an instrument to gather data for this study is consisting of sections about the demographic profile, level of interest, level of importance, reasons for enrolling in the program, and their views on recommending the said program.

To facilitate the distribution of the questionnaire the researchers personally request the assistance of the City Schools Division of Muntinlupa through their respective Principals to upload and floated the online questionnaire in their jurisdiction which can be accessed and be duly filled in. The respondents were supposed to answer the questionnaire honestly and truthfully despite their busy schedules, ensuring the study's validity and dependability. The researchers closely monitored the progress of respondents.

4. Results and Discussion

Table 1 Senior High-School Respondents' Profile in terms of Age

Age	Frequency	Percentage	Rank
Ages 16 to 20	557	88.69%	1
Ages 21 to 25	56	08.92%	2
Ages 26 to 30	8	1.27%	3
Ages 31 and above	7	1.12%	4
TOTAL	628	100%	

Table 1 shows the age distribution of the respondents in terms of frequency and percentage. 557 (88.69%) of the 628 respondents are between the ages of 16 and 20, 56 (8.52%) are between the ages of 21 and 25, 8 (1.27%) are between the ages of 26 and 30, and 7 (1.12%) are between the ages of 31 and above.

Based on the table above, the majority of the respondents are 16-20 years old while the 31 years old and above bracket has the least number of respondents.

Table 2 Sex Profiles of the Respondents

Sex	Frequency	Percentage	Rank
Male	253	40.29%	2
Female	375	59.71%	1
TOTAL	628	100%	

Table 2 illustrates the sex profile of the responders. There are 375 female respondents (59.71%) and 253 male respondents (40.29%) among the 628 total respondents.

These results imply that majority of respondents are female.

**Table 3** Educational Attainment Profile of the Respondents

Educational Attainment	Frequency	Percentage	Rank
Grade 11 Senior High School	260	41.40%	2
Grade 12 Senior High School	275	43.79%	1
College Level	79	12.58%	3
College Graduate	14	02.23%	4
TOTAL	628	100%	

The frequency and percentage distribution of respondents' educational attainment is shown in Table 3. 275 or 43.79 percent of the 628 respondents are in Grade 12, 260 or 41.40 percent are in Grade 11, 79 or 12.58 percent are in college, and 14 or 2.23 percent are college graduates.

According to the table above, the bulk of respondents are Grade 12 Senior High School students, with the least number of respondents being college graduates.

Table 4 Academic Track Profiles of Junior and Senior High School Respondents

Academic Track	Frequency	Percentage	Rank
General Academic Strand (GAS)	33	06.17%	3
Humanities and Social Science Strand (HUMSS)	10	01.87%	4
Science, Technology, Engineering, and Mathematics Strand (STEM)	368	68.78%	1
Accountancy, Business and Management Strand (ABM)	124	23.18%	2
TOTAL	535	100%	

Table 4 illustrates the academic track profile of the respondents. 368 (68.78%) of the 535 responders are enrolled in the science, technology, engineering, and mathematics strand, 124 (23.18%) in the accountancy, business, and management strand, 33 (6.17%) in the general academic strand, and 10 (1.87%) in the humanities and social science strand.

These findings suggest that the majority of Senior High School students are enrolled in the science, technology, engineering, and mathematics (STEM) strand, whereas the humanities and social science strand has the smallest number of responders.

Table 5 College Level / College Graduate Respondents' Profile in terms of Program

Program	Frequency	Percentage	Rank
BS Nursing	3	03.22%	2
BS Pharmacy	0	00.00%	9
BS Medical Technology	0	00.00%	9
BS Physical Therapy	1	01.08%	5
BS Respiratory Therapy	0	00.00%	9
BS Psychology	85	91.39%	1
BS Biochemistry	0	00.00%	9
BS Biology	2	02.15%	3
BS Midwifery	0	00.00%	9
Other Medical Allied Courses (Please Specify)	1	01.08%	5
Note: No Program Indicated	1	01.08%	5
TOTAL	93	100%	



The frequency and percentage distribution of respondents according to their Program are shown in Table 5 Among 93 College Level/Graduates as respondents, 85 or 91.39% are in BS Psychology Program, 3 or 3.22% in BS Nursing, 2 or 2.15% in BS Biology, 1 or 1.08% in BS Physical Therapy, and another 1 or 1.08% with no program specified.

Based on the table above, the majority of the respondents from College Level/Graduates are in BS Psychology Program and the least number of respondents is in BS Physical Therapy.

Table 6 Respondents' Profile in terms of Household Income per Month

Monthly Income	Frequency	Percentage	Rank
In Philippine Peso -Below 9,520	118	18.79%	4
Low Income in Philippine Peso (P9,520 -P19,040)	159	25.32%	1
Lower Middle Income in Philippine Peso (P19,041 -P38,080)	153	24.36%	2
Middle Income in Philippine Peso (P38,081 -P66,640)	139	22.13%	3
Upper Middle Income in Philippine Peso (P66,641 -P114,240)	39	06.21%	5
In Philippine Peso - Above P114,240	20	03.19%	6
TOTAL	628	100%	

Table 6 shows the respondents' profile in terms of Household Income per Month. Among 628 respondents, 159 or 25.32% belonged to P9,520.00 -P19,040.00, 153 or 24.36% belonged to P19,041.00 - P38, 080.00, 139 or 22.13% belonged to P38,080.000 -P66,640.00, 118 or 18.79% range below P9,520.00, 39 or 6.21% belonged to P66,641.00 -P114,240.00 and 20 or 3.19% range above P114,240.00.

These results imply that majority of the respondent's household income per month belonged to low income, followed by lower middle income and the least number of respondents belonged to above upper middle income.

Based on the above tables, the researchers concluded that the majority of the respondents includethose ages 16 -20, dominantly female, grade 12 senior high school, belong to science, technology, engineering, mathematics strands, and BS Psychology graduates with a low income.

Table 7 Interest of Respondents to Enroll if Doctor of Medicine Becomes Available at the University of the City of Muntinlupa

Indicator/s	Frequency	Percentage	Rank
I will be interested to enroll in the program next year	107	17.04%	3
I will be interested to enroll in the program within the next 2 years	56	08.92%	5
I will be interested to enroll in the program within the next 4 years	31	04.94%	6
I will be interested to enroll in the program once I have completed my Baccalaureate Course	61	09.71%	4
I will be interested to enroll in the program but without any specific timeline	199	31.69%	1
I will not enroll in the program.	174	27.70%	2
TOTAL	628	100%	



Table 7 shows the frequency and percentage distribution of respondents' interest in enrolling if a Doctor of Medicine program at the University of the City of Muntinlupa becomes accessible. Among 628 respondents, 199 or 31.69% state that they are interested to enroll in the program but without any specific timeline, 174 or 27.70 state that they will not enroll in the program, 107 or 17.04% state that they are interested to enroll in the program next year, 61 or 9.71% states that they are interested to enroll in the program once they have completed their Baccalaureate Courses, 56 or 8.92% states that they are interested to enroll in the program within the next 2 years and 31 or 4.94% states that they are interested to enroll in the program within the next 4 years.

With the objective to determine the interest of respondents to enroll if Doctor of Medicine becomes available at the University of the City of Muntinlupa the table above, as these results imply, the majority of the respondents are interested to enroll in the program but without any specific timeline, while 107 are interested to enroll in the program next year, 56 respondents are interested to enroll within the next 2 years while 174 will not enroll in the program with no specified answers.

Table 8 Willingness of Respondents to Pay for Tuition Fees and Other Miscellaneous Expenses per Semester.

Amount	Frequency	Percentage	Rank
In Philippine Peso - Below P60,000	535	85.19%	1
In Philippine Peso P60,000 - P70,000	66	10.51%	2
In Philippine Peso P70,001 - P80,000	18	02.87%	3
In Philippine Peso P80,001 - P90,000	4	00.63%	4
In Philippine Peso - Above P90,000	5	00.80%	5
TOTAL	628	100%	

Table 8 shows the respondents' willingness to pay for tuition fees and other miscellaneous expenses per semester. Among 628 respondents, 535 or 85.19% are willing to pay for below P60,000.00, 66 or 10.51% are willing to pay for P60,000 to P70,000, 18 or 2.87% are willing to pay above P70,000 to P80,000, 5 or 0.8% are willing to pay above P90,000.00 and 4 or 0.6% are willing to pay for above P80,000 to P90,000.00.

With regards to the objective to know the willingness of respondents to pay for tuition fees and other miscellaneous expenses per semester, the majority of respondents are willing to pay for tuition fees and other incidental charges under P60,000.00, followed by those willing to pay for P60,000 to P70,000.00, and the fewest respondents are willing to pay for more than P90,000.00.

Table 9 Reasons why Respondents are interested to take a Doctor of Medicine.

Reasons	Frequency	Percentage	Rank
For professional improvement	156	24.84%	2
For career advancement	169	26.91%	1
To contribute to scientific development	160	25.48%	3
No answer	143	22.77%	4
TOTAL	628	100%	

Table 9 shows the frequency and percentage distribution of respondents when asked why they decided to pursue Doctor of Medicine degree. 169 or 26.91% states that for career advancement, 160 or 25.48% states as a contribution to scientific development, and 156 or 24.84% states for professional improvement.



To find out the reasons of respondents to enroll in Doctor of Medicine, finding show that the majority of the respondents' reason to take Doctor of Medicine is for career advancement, to contribute to scientific development while the least number of respondents had no answer.

Table 10 Importance of Teaching and Learning Activities to the Respondents' Decision to Enroll in the Program.

Level of Importance	Frequency	Percentage	Rank
Very Important	464	73.89%	1
Important	125	19.90%	2
Somewhat Important	23	03.66%	3
Not Important	16	02.55%	4
TOTAL	628	100%	

Table 11 Importance of Physical and Laboratory Exercises/Examination to the Respondents' The decision to Enroll in the Program

Level of Importance	Frequency	Percentage	Rank
Very Important	502	79.94%	1
Important	101	16.08%	2
Somewhat Important	14	02.23%	3
Not Important	11	01.75%	4
TOTAL	628	100%	

Table 12 Importance of Clinical Skills /Clerkship to the Respondents' Decision to Enroll in the Program

Level of Importance	Frequency	Percentage	Rank
Very Important	488	77.71%	1
Important	109	17.36%	2
Somewhat Important	19	03.03%	3
Not Important	12	01.91%	4
TOTAL	628	100%	

Table 13 Importance of Community-Based Medicine to the Respondents' Decision to Enroll in the Program

Level of Importance	Frequency	Percentage	Rank
Very Important	446	71.02%	1
Important	138	21.97%	2
Somewhat Important	31	04.94%	3
Not Important	13	02.07%	4
TOTAL	628	100%	

Table 14 Summary Table on the Level of Importance of Factors Affecting Respondents' Decision to Enroll in the Program

Indicators	Very Important	Important	Somewhat Important	Not Important
Teaching and Learning Activities	464	125	23	16
Physical and Laboratory Exercises/Examination	502	101	14	11
Clinical Skills / Clerkship	488	109	19	12
Community-based Medicine	446	138	31	13



As shown in tables 10-14, results show that on the level of importance of factors affecting respondents' decision to enroll in the program, the majority answer that all factors are very important with the following number of respondents, out of 628 respondents, 502 for physical and laboratory exercises/examination, 488 for clinical skills/clerkship, 464 for teaching-learning activities and 446 for community-based medicine.

The researchers determined that the level of importance of factors affecting respondents' decision to enroll in the program, the above data states that physical and laboratory exercises/examination, clinical skills/clerkship, teaching and learning activities, and community-based medicine are very important factors affecting respondents' decision to enroll the program.

Table 15 Statement that Describes the Interest of the Respondents in the Program

Indicators	Frequency	Percentage	Rank
I am interested	224	35.67%	2
I am very much interested	114	18.15%	3
I am not interested but it might come	290	46.18%	1
TOTAL	628	100%	

Table 15 shows the frequency and percentage distribution of respondents for each statement describing the program's interest. 290 people, or 46.18 percent, say they are not interested but maybe in the future, 224 people, or 35.67 percent, are interested, and 114 people, or 18.15 percent, are very interested.

Based on the table above, the majority of the respondents are not interested in the program, but it might come, followed by those who are interested, and the least number of the respondents are very much interested.

Table 16 The View of Respondents if they would recommend the University of the City of Muntinlupa College of Medicine to Families and Friends.

Indicators	Frequency	Percentage	Rank
Yes	602	95.86%	1
No	26	04.14%	2
TOTAL	628	100%	

Table 16 shows the views of respondents if they would recommend the University of the City of Muntinlupa College of Medicine to Families and Friends. Among 628 respondents, 602 or 95.86% states that they will recommend the said program while 26 or 4.14% states that they will not recommend it.

These results imply that majority of the respondents will recommend the Pamantasan ng Lungsod ng Muntinlupa College of Medicine to Families and Friends.

5. Conclusion

A total of 628 people took part in the survey conducted by the study's researchers. After obtaining and documenting all of the data, it was discovered that the majority of the respondents are enrolled in the Science, Technology, Engineering, and Mathematics (STEM) strand and have a BS Psychology degree. 224 of the respondents are interested in the program, 107 of the respondents are interested to enroll in the program next year, willing to spend P60,000-70,000 pesos per semester and 602 of the respondents will recommend the Pamantasan ng Lungsod ng Muntinlupa Doctor of Medicine to their Families and Friends.

Among the factors affecting respondents' decision to enroll in the program, career advancement has the highest percentage preferred by the respondents. Also, the respondents consider the physical and



laboratory exercises/examination, clinical skills/clerkship, teaching and learning activities, and community-based medicine as very important factors affecting their decision to enroll in the program.

Results revealed that there is a market demand that could be transformed into effective demand by offering Doctor of Medicine in Pamantasan ng Lungsod ng Muntinlupa.

To compete in the market, the University of the City of Muntinlupa Doctor of Medicine will offer a reasonable number of tuition fees and other expenses in response to the country's continued shortage of doctors due to the high cost of medical school. The said shortage of medical doctors was cited in the article of Lucero, Hanna Grace (2019). The University will seek grants scholarships and subsidies as financial support.

6. Acknowledgements

The researchers wish to acknowledge utmost gratitude and appreciation to the following individuals: Dr. Dominico Idanan, the Division Superintendent of the Division of the City of Muntinlupa, Department of Education, Philippines for helping the researchers in floating the research instrument; Dr. Edwin Dimatatac, Medical Director in Muntinlupa City Hospital for giving the researchers different pieces of information with regards to medical operations; and the Pamantasan ng Lungsod ng Muntinlupa Officials for the support in making this research possible.

7. References

- 10 Best Medical Schools in the Philippines: Retrieved from Google Chrome
<https://studyabroadaide.com/best-medical-schools-in-philippines/>
- CHED: Free tuition for medical students in state universities and colleges starting 2017: Retrieved from Google Chrome <https://cnnphilippines.com/news/2017/06/16/CHED-free-tuition-medical-students.html>
- Lucero, H. G. (2019). How to Become a Doctor in the Philippines. Retrieved April, 2019 from Google Chrome <https://filipiknow.net/how-to-become-a-doctor-in-the-philippines/>
- Population of Muntinlupa in 2020-2021 – statistics: Retrieved from Google Chrome <https://all-populatio.com/en/ph/population-of-muntinlupa.html>
- RESULTS: MARCH 2021 Physician board exam PLE performance of schools: Retrieved from Google Chrome <https://www.thesummitexpress.com/2021/03/results-march-2021-physician-board-exam>
- Suarez, A. (2018) UST to offer 6-year medicine program. *The Varsitarian*, p.9. Google Chrome unifast.gov.ph
- What is UNIFAST, and Why was it Established? – CHED: Retrieved from Google Chrome ched.gov.ph
www.congress.gov >bill >senate-bill