European Journal of Education Studies
ISSN: 2501 - 1111
ISSN-L: 2501 - 1111
Available on-line at: www.oapub.org/edu

doi: 10.5281/zenodo.3293680 Volume 6 | Issue 4 | 2019

REVISITING THE PHILIPPINE BS PHARMACY CURRICULUM AFTER 13 YEARS: A SURVEY ON PHARMACIST PRACTITIONERS FOR THE UPCOMING CURRICULUM REVISION

Romeo C. Ongpoy, Jr.[1i],
Penuel P. David[2],
Nora B. Capistrano[3],
Jennifer Obliosca-Ongpoy[4],
Frederick M. Francisco[1]
[1]School of Pharmacy,
Emilio Aguinaldo College Cavite,
Philippines
[2]Department of Pharmacy,
Centro Escolar University, Malolos,
Philippines
[3]Capistrano Drugstore,
Philippines
[4]Department of Education (Misamis Oriental),
Philippines

Abstract:
The objective of this study is to supposedly investigate the current 4-year BS Pharmacy curriculum in the Philippines in relation to the eventual shift to a 5-year BS Pharmacy curriculum by 2018 which did not materialize including modifications in the curricular topics and internship strategies. To do this, a cross-sectional study was done using purposive sampling answered by 119 practicing Filipino Pharmacists from the different areas of practice and regions in the Philippines. About this study, 72.88% prevalence rate of those who agree and strongly agree of the BS Pharmacy curriculum shift to a 5-year program was evident. There is also a strong percentage (highest subject is 98.6% and lowest subject is 59.3%) calling for improvement on all curricular topics. On the other hand, 63.3% of the respondents agree that increasing specialty rotations during internship would be more appropriate internship strategy but the new curriculum increases the internship hours instead that only gathers 4.6% support, the lowest among the options. It can be concluded, that it is only appropriate to shift to the 5-year BS Pharmacy program based on the perception of the respondents and improvement of all curricular topics must come with it.

[i] Correspondence: email rongpoy@gmail.com

Keywords: bachelor of pharmacy; curriculum; curriculum assessment; Philippines; curriculum research

1. Introduction

The Philippines just recently incorporated senior high school to its educational system last 2017 [1] and as a result, college basic education courses will be lowered to senior high school revising curriculums of tertiary programs including that of BS Pharmacy program [2]. There are several Pharmacy undergraduate courses in the Philippines, the most common is the BS Pharmacy program that is a 4-year course, there is also one school offering a 5-year BS Pharmacy program, there is an existing BS Clinical Pharmacy program in a number of schools and BS Industrial Pharmacy program which are both 5-year courses. On top of these, few schools are also offering a 2-year post-baccalaureate degree of PharmD. This paper focuses on the 4-year BS Pharmacy curriculum that was supposedly revised to a 5-year BS Pharmacy curriculum last 2018 but did not materialize. This is a necessary paper as it will aid in better concept mapping [3] while the BS Pharmacy program is in transition which would eventually improve the students' quality of life [4] and learning at the BS Pharmacy program which may be through refinement of strengths in the curriculum as in some universities in the US [5] and incorporating different perspectives in curriculum development [6].

In transitioning to a new curriculum, there are some questions that need to be addressed like which subjects are to be added? Deleted? Improved? etc. what are the necessary modifications in the internship? and should the BS Pharmacy program be turned to 5 years in the first place? These are just few of the many questions and the said questions will be addressed in this research. The evolving definition of Pharmacy [7] also means evolving of roles which would mean keen selection of timely curricular topics [8] and bridging of these different subject matters [9]. This is why research on the subject matters is being tackled in this paper. Internships should also focus on individual needs rather than the general needs of the profession [10] as what has recently been the trend this is why different methods of assessment are becoming popular like OSCE [11], there is therefore a need to make internships more relevant in the new curriculum. Lastly, if shift to a 5-year program should be revisited in the future, it also has to be coupled with new enhancements like addition of a senior research project [12], other activities which are more experiential and or action-oriented [13] or modification of internships or subjects. That would be of great utility to the learnings of the students. Moreover, the purpose of this paper is to eventually help in producing Filipino Pharmacists that does not only have a good portfolio [14] but can also be globally competitive [15 [16].

2. Methods

This research is cross-sectional utilizing 5-point Likert scale, ranking and simple checking in the questionnaire. The sampling technique used is purposive sampling due

to the fact that this is an independent research and does not enjoy any direct funding from any institution

2.1 The Questionnaire

There are 7 sections in the questionnaire, the first section is the demographics, the second is a 5-point Likert scale question on the BS Pharmacy program if it should be turned to a 5-year program, the third section is also a 5-point Likert scale on the subjects to be added in the curriculum, the fourth section is a simple checking type in which subjects to improve, remove and divide are provided, the fifth section are questions that are internship based utilizing a 5-point Likert scale as well and an additional simple checking question on which is the best internship modification where options are provided. The sixth section is on which subjects to revive utilizing the same Likert scale. Lastly, the seventh section is a simple checking followed by ranking on the checked subjects for subject utility. All Likert scales are graded as 1 for strongly disagree, 2 for disagree, 3 for neutral, 4 for agree and 5 for strongly agree. The usual validation and reliability techniques apply to the development of the questionnaire tool.

2.2 Administration of Questionnaires

The questionnaires were distributed mainly at the 2016 PPhA (Philippine Pharmacists Association) National Conference in Cebu City where Pharmacists from different parts of the country and practice areas came together to a single venue. The 1st 2016 PAMDRAP (Philippine Association of Medical Device Regulatory Affairs Professionals) GMM General Membership Meeting at Manila was also used to reach out to respondents and the Pharmacy Technician Train-the-Trainers Course at Davao City also in 2016. Distributions to selected areas were also made specifically in Dasmariñas and Bacoor, Cavite; Molino, Bulacan and Salay, Misamis Oriental.

2.3 Statistical Analysis

The data processing was done by a private statistician from Dasmariñas, Cavite. The statistician used percentage to analyze the demographics and the change in program years. Mean and standard deviation were also used for subject matters including utility and internship modifications. T-test and Chi-square were also use at some point to measure correlations but eventually excluded.

3. Results

The results will discuss the details of the professional pharmacy subjects as to those that need improvement, exclusion from the curriculum, breaking down to 2 or more subject matters, subjects to add and those that may be revived based on respondents perception. The utility of the subjects are also discussed here based on the checks from the questionnaires provided with the list of existing subjects then ranking of the checked subjects. Specific matters on internships are also presented like the addition of institutional pharmacy internship, increase in the number of internship hours, the

internship fee, addition of a skills laboratory like those of the nurses and the accreditation of the preceptor. Finally the consensus on the change of the course from 4 years to 5 years is presented with the corresponding prevalence rate. These results are also presented with demographics which are age, gender, year graduated, education, practice area experience and current field of practice to allow better critique on the research as the research method data collection is purposive sampling which may not be a representative data of the entire population.

3.1 Demographics

3.1.1 Age

One hundred twelve respondents answered out of 119. Valid percentage shows that 58.9% (n=66) is less than 25 years old; 10.7% (n=12) is from 26-30 years old; 5.4% (n=6) is from 31-35 years old; 3.6% (4) is from 36-40 years old; 8% (n=9) is from 41 to 45 years old and 7.1% (n=8) is over 50 years old. Mean age is 30.

3.1.2 Gender

One hundred eighteen respondents answered out of 119. Valid percentage shows that 77.1% (n=91) is female and only 22.9% (n=27) is male.

3.1.3 Year Graduated

One hundred eight respondents answered out of 119. Valid percentage shows that 63.9% (n=69) graduated from 2011-2016; 13.9% (n=15) graduated from 2001-2010; 11.1% (n=12) graduated in the 1990s; 9.3% (n=10) graduated in the 1980s and 1.9% (n=2) graduated in the 1970s.

3.1.4 Education

One hundred seventeen respondents answered out of 119. Valid percentage shows that 90.6% (n=106) holds a bachelor's degree; 8.5% (n=10) holds a master's degree and only 0.9% (n=1) holds a doctorate degree.

3.1.5 Practice Area Experience

Community Pharmacists make up the bulk of the respondents at 71.4% (n=85). Followed by Industrial Pharmacists at 68.1% (n=81). Then Hospital Pharmacists at 36.1% (n=43) and Pharmacists Academicians at 16.8% (n=20). Respondents though may answer 1 or more fields in this section depending on their experience so the frequency exceeded 119 which is the total number of respondents.

3.1.6 Current Field of Practice

One hundred seven respondents answered out of 119. Valid percentage shows that the respondents are mostly employed as Community Pharmacists at 48.6% (n=52), then Hospital Pharmacists at 21.5% (n=23) and Industrial Pharmacists and Pharmacists Academicians both at 15% (n=16).

3.2 Professional Subjects

3.2.1 Subjects to Improve

All the existing 29 subjects in the 2006 CHED (Commission on Higher Education) memorandum Order for BS Pharmacy Program were listed in one part of the questionnaire used in this research. The respondents were then made to check all the subjects that need to be improved. Results show that all the subjects need improvement with the least checked subject at 59.3%. Table 1 shows the top 10 subjects that need to be improved based on the perception of the respondents.

Table 1: Top 10 Subjects that Need Improvement

Subject	**%**
Quality Control 1 (Drug Testing and Assay)	98.6
Hospital Pharmacy	97.6
Clinical Toxicology	96.5
Pharmaceutical Jurisprudence and Ethics	96.1
Quality Control 2 (Drug Testing & Assay with Instrumentation)	96
Physical Pharmacy	94.7
Pharmacy Research & Thesis Writing	94.5
Dispensing and Medication Counseling	94.2
History & Orientation to Pharmacy	92.5
Pharmacy and Chemistry of Medicinals 1	92.1

3.2.2 Subjects to Remove

Table 2: Top 10 Subjects that May be Removed

Subject	**%**
Marketing and Entrepreneurship	27.6
Pharmaceutical Botany with Taxonomy	22.4
Pharmacy Informatics	17.5
Principles of Pharmacy Administration and Management	10.8
General Concepts of the Healthcare System	9.7
Human Anatomy and Physiology with Pathophysiology	8.6
Communications and Interpersonal Skills	7.8
Pharmaceutical Microbiology and Parasitology	5.9
Pharmaceutical Calculations	5.1
History and Orientation to Pharmacy	4.5

The same procedure as 3.2.1 was followed to identify the subjects that are perceived by the respondents that should be removed from the BS Pharmacy program. Percentage was low and less than 30%, the highest percentage is from the subject Marketing and Entrepreneurship at 27.6%. There are 7 subjects though that were never identified by even 1 respondent to be removed and therefore very essential to the respondents, these are: Dispensing and Medication Counseling, Hospital Pharmacy, Pharmacology 1, Pharmaceutical Chemistry II, Physical Pharmacy, Quality Control I and Quality Control II. Table 2 shows the top 10 subjects that may need to be removed as perceived by the respondents.

3.2.3 Subjects to Break into Different Subject Matters

Table 3: Top 10 Subjects that Needs to be Divided

Subject	%
Human Anatomy and Physiology with Pathophysiology	32.18
Biopharmaceutics and Pharmacokinetics	30
Pharmaceutical Microbiology and Parasitology	25.9
Pharmacology 1	10.8
Clinical Pharmacy	10.8
Pharmacognosy and Plant Chemistry	10.3
Pharmaceutical Biochemistry	10.1
Pharmacology II and Therapeutics	9.4
Marketing and Entrepreneurship	9.2
Drug Dosage Forms and Delivery System	8.1

The same procedure as 3.2.1 was also followed to identify the subjects that are perceived by the respondents that has to be broken down to 2 or more subject matters. Percentage were also low and less than 33%, above are the top 10 of these subjects shown in table 3. Since most of these subjects are at least 2 subject matters linked by "and", focus is given to those without "and" which are Pharmacology I, Clinical Pharmacy and Pharmaceutical Biochemistry.

3.2.4 Subjects to Add

Subjects that were reported to be added were listed in one part of the questionnaire provided to the respondents to be able to determine the respondent agreement to the addition of the subjects through a 5-point Likert scale. Results show that all of these subjects are important to the respondents and should be added into the BS Pharmacy program, Table 4 shows these results.

Table 4: Subjects to be Added to the BS Pharmacy Program

Subject	Mean	SD
Drug Discovery and Development	4.5	.86
Pharmacotherapy	4.5	.85
Regulatory Affairs	4.4	.90
Health Technology Assessment and Health Policy	4.2	.97
Integrative Medicine	4.2	.98
Pharmacoepidemiology	4.2	.91
Pharmacy Business Management and Accounting	4.0	1.03
Cosmetic Product Formulation	3.9	1.07
Pharmaceutical Statistics	3.7	1.04

3.2.5 Subjects to Revive

The same procedure as 3.2.4 was used to determine the subjects that the respondents want to revive. A list of subjects from the previous BS Pharmacy programs was identified and out of the subjects; Qualitative Chemistry, Quantitative Chemistry and

Physical Chemistry were identified as the subjects that should be revived from the list of 7 subjects. Table 5 shows the results.

Table 5: Subjects that should be Revived

Subject	Mean	SD
Qualitative Chemistry	3.9	.97
Quantitative Chemistry	3.9	.98
Physical Chemistry	3.7	1.05
Pharmacy Latin	3.0	1.25
Zoology	3.0	1.15
Accounting	2.9	1.2
Calculus	2.6	1.25

3.3 Subject Utility

3.3.1 Most Utilized Subjects Based on Check Marks in the Questionnaire

Table 6: Top 10 Subjects Most Utilized Across Practice
(Based on check marks in the questionnaire)

Subject	Mean	SD
Dispensing and Medication Counseling	96	80.7
Communication and Interpersonal Skills	95	79.8
Dosage Forms and Drug Delivery System	86	72.3
Pharmaceutical Calculations	86	72.3
Clinical Pharmacy	83	69.7
Pharmacology I	80	67.2
Pharmacology II and Therapeutics	76	63.9
Marketing and Entrepreneurship	63	52.9
Hospital Pharmacy	58	48.7
Biopharmaceutics and Pharmacokinetics	56	47.1

A list of all the subjects in the questionnaire in the current curriculum was presented to the Pharmacist respondents and they were asked to check all subjects that are useful to their practice. The top 10 subjects that are most utilized across practice settings as checked by the respondents are shown in Table 6.

3.3.2 Most Utilized Subjects Based on Ranking from the Check Marks

The checked subjects from 3.3.1 were then asked to be ranked by the Pharmacist respondents with 1 as the most utilized. Results in Table 7 below show that the same subjects appear but in different order but Dispensing and Medication Counseling and Communication and Interpersonal Skills still rank at the top 2 spots.

Table 7: Top 10 Subjects Most Utilized Across Practice
(Based on ranking of subjects with check marks in the questionnaire)

Subject	Mean	SD
Dispensing and Medication Counseling	62	3.9
Communication and Interpersonal Skills	64	5.1
Pharmacology I	46	5.5
Clinical Pharmacy	53	5.6
Dosage Forms and Drug Delivery System	49	6.0
Pharmaceutical Calculations	51	6.1
Pharmacology II and Therapeutics	43	6.1
Hospital Pharmacy	30	6.5
Marketing and Entrepreneurship	36	6.8
Biopharmaceutics and Pharmacokinetics	34	7.3

3.4 Internship

3.4.1 Additional Internships

Institutional Pharmacy Internship which involves 120 hours (2.4 units) of duty has been added to the new curriculum that will be implemented starting 2018, this covers internship in the pharmaceutical company setting mostly in the area of Regulatory Affairs among other things. When asked if the respondents understand what this means, 51% in fact understood as they perceive (4.2$\bar{x}$ and 0.88σ) and the respondents also agrees that it should be added on top of the existing internships (4$\bar{x}$ and 0.94σ). Social and Administrative Pharmacy Internship which mostly covers government health agencies was also added with 180 hours (3.6 units) but this research was already conducted after finalization of this additional internship therefore excluded in this research.

3.4.2 Increase in Internship Hours

Internship hours in the new program were also modified. Currently, 200 hours in each of the practice settings – community, hospital and manufacturing and 360 hours for the chosen major internship field from the 3 minor practice settings are followed. In the new curriculum however, 120 hours is allotted for institutional pharmacy internship, 180 hours for social and administrative pharmacy internship and 300 hours each was also given for community, hospital and manufacturing pharmacy internships. The Pharmacist respondents however agree (3.5$\bar{x}$ and 1.31σ) that the internship hours should be increased. When asked if the internship should be undertaken in the 5th year as in the new curriculum, there is a close spread in the answers (3.4$\bar{x}$ and 1.33σ); neutral is 19% (=22), those who agree is 23.3% (n=27) and those who strongly agree is 28.4% (n=33).

3.4.3 Internship Fee

When asked if a minimal fee for the internships should be mandatory, there is also a close spread in the answers (4.3$\bar{x}$ and 1.02σ) although generally, the respondents agree; neutral is 25.9% (n=30), those who agree is 28.4% (n=33) and those who strongly agree is

26.7% (n=31). Currently, internship fees are not mandatory and usually exist only in hospital affiliations. There are companies in fact that gives allowance to the interns instead of asking for fees in comparison to other professions which usually requires affiliation fees like in the Nursing program. Also, the Pharmacist respondents agree that PACOP (Philippine Association of Colleges of Pharmacy) or any other Pharmacy organization should control or centralize the internship program (4$\bar{x}$ and 1.06σ) like in the accreditation of internship sites and preceptors.

3.4.4 Skills Laboratory

There is no Skills laboratory or Pharmacy Practice laboratory in the current and new BS Pharmacy program where community and hospital-based skills are developed although some schools have a Dispensing laboratory and/or operational Drugstore but when asked if a Skills laboratory should be incorporated, the respondents agree (4.3$\bar{x}$ and 0.89σ) that it should be added in applicable subjects.

3.4.5 Preceptor Accreditation

In the Philippine setting, preceptors are the ones who supervise the interns in the practice site who is usually employed in the company while coordinators are the ones who manages the interns across sites who is usually a Professor/Instructor from the university. The respondents agree that Preceptors should undergo accreditation (4.3$\bar{x}$ and 1.02σ). Accreditation of hospitals, community pharmacies and other sites are excluded from this research though but are currently being tackled in relation to the new curriculum that is still waiting to be released by CHED.

3.4.6 Internship Strategy

Sixty three point three percent of the Pharmacist respondents (n=69) agreed that the best internship modification is to increase specialty exposure or implement rotations in Oncology, Pediatrics, pharmacotherapy and other clinical settings as well as in Production, Quality Control and other industrial practice settings more than increasing the internship hours (4.6%, n=5) and increasing contact with the patients with different conditions and medications (32.1%, n=35). Increase in internship hours though is the one implemented in the upcoming curriculum.

3.4.7 Program Years

Across the practice, the Pharmacists strongly agree that the BS Pharmacy program should be at least a 5-year course, 48.3% (n=57). Twenty four point six percent agrees (n=29), 13.6% is neutral, 7.6% disagrees (n=9) and 5.9% (n=7) strongly disagrees. This excludes the one respondent that did not answer this question. The prevalence rate therefore of the Pharmacists who strongly agree with the implementation of the 5-year course is 48.31%, a combination of those who agree and strongly agree would give a prevalence rate of 72.88%.

4. Discussions

Although increasing the program years from a 4-year to a 5-year course would demand extensive changes and preparation, this study shows that 72.88% agree or strongly agree in increasing the said years. This may show the support of the Pharmacists in the continuous improvement of the BS Pharmacy curriculum observed in other researches [16].

4.1 Subjects to Improve

Quality Control 1 which discusses mainly on drug testing and assay is identified as the subject that should be improved the most. This may be due to the limited references available in the Philippine setting and that references available which are titled Pharmaceutical Analysis may be perceived as another area. In the new BS Pharmacy program, the subject name is changed to Pharmaceutical Analysis which is more appropriate and added with Quality Assurance topics that seals the gap between laboratory quality control and the quality management system. This may enhance the content of the subject matter onwards supporting the development of chemical experts among health professionals in the future which is badly needed.

Hospital Pharmacy is also identified as a subject that needs most of the improvement next to Quality Control I. This may also be attributed to the very few references available for a subject that is one of the most utilized, the only local publication is the one from DOH back in 1994 [17]. There might be a need at the Professors end to be creative in their instructions as doing poster projects [15] as references are few and mostly old.

4.2 Subjects to Remove

It is important to note first that the percentage from the responses is very low in all subjects at less than 30%. The purpose therefore in presenting the data in the results section is to emphasize that this may be a case of very poor content in the current curriculum, so poor that base on the experience of the respondents, it might as well be removed. This may be evident in the result inconsistencies shown in this paper, Communication and Interpersonal Skills, Pharmacy Calculations and Marketing and Entrepreneurship are among the most utilized subjects but they seem to be included in this list for removal. In the upcoming curriculum, Communication and Interpersonal Skills now expanded to a more specific Patient Medication Counseling subject which may provide more research opportunities at the community level that is not much evident currently [12]. Pharmaceutical Calculations in the new curriculum will now include a laboratory in which some of the pharmacy schools has been implementing for a while to provide more time to practice and utilize learning aids such as work books in the laboratory. In the case of Marketing and Entrepreneurship, it will be reduced to 2 units from 3 units which is fair as there are also business and management subjects in the new curriculum that covers some of the subject matters included in the said subject. The new BS Pharmacy program therefore is compliant to the curriculum development

philosophy that says "*curriculum development should be evolutionary and not revolutionary*" which, means that newer learnings should be introduced along with the traditional and not replace them [5].

4.3 Subjects to Break into Different Subject Matters

Human Anatomy and Physiology with Pathophysiology is identified as the number one subject to be broken down which is not a surprise since there are 3 topics in this single subject which is very essential for advanced understanding of Pharmacy. It may seem obvious though that the choices that the respondents made are based on multiple subject matters joined by "and". Therefore this discussion would also like to emphasize more on the 3 subjects that are not multiple from the top 10. These 3 subjects are Pharmacology I, Clinical Pharmacy and Pharmaceutical Biochemistry which are all important foundations in the study of Pharmacy that has become loaded with topics overtime that really needs to be expanded. In the case of Clinical Pharmacy, this subject has been broken down to several topics mostly in Pharmacotherapy subjects in the new curriculum which is better. By doing so, more experiential lessons that should increase learning may be incorporated [13].

4.4 Subjects to Add

Drug Discovery and Development ranked as the top subject that needs to be added in the new curriculum which is very timely as there are already plenty of references on the subject matter. Pharmacotherapy is the next subject and the new curriculum responded to this call by adding 3 subjects of it with 3 units each. Regulatory Affairs is the third in the rank as it is about time to add this since Company Pharmacists in the Philippines tend to learn the practice on their own without going through a subject about it in College and often added by Professors as an extra topic in the Legal Pharmacy when needed.

Trainings for these new subjects should also be made as the Professors that will be handling the subjects may not have enough expertise yet, as shown beneficial in Complementary and Alternative Medicine training for Pharmacy Preceptors [9]. A Biopharmaceuticals subject though is added in the new curriculum which is not part of this research as it was added in the later part of the curriculum development when the data from this research has already been analyzed.

4.5 Subjects to Revive

Qualitative Chemistry is appropriately identified in the new curriculum in the subject Pharmaceutical Inorganic Chemistry (with Qualitative Analysis) as there is a call to revive it. Quantitative Chemistry which is also one subject that seems to be important for revival has always been in the new and current curriculum under different heading but mow clearly emphasized in the subject title of the new curriculum in the Pharmaceutical Analysis I subject. These Analytical Chemistry subjects are generalist subjects when it comes to drug properties for a Pharmacy course and should always be presented in the curriculum [8].

4.6 Subject Utility

Dispensing and Medication Counseling being the most utilized subject across the Pharmacy practice is only appropriate as it is aligned with the role of the Pharmacists. It can also be noted that this is also in the list of the top subjects that needs improvement so the new curriculum added a laboratory in the subject on top of the lecture. This is actually a good move as in viewing the curriculum; intended, enacted and attained aspects must be answered [3] and by adding a laboratory element to the most utilized subject in the Pharmacy practice, it will ensure enactment of learning and easy attainment of outcomes.

4.7 Internship

While doing the internship in the 5th year would mean less stress to the students [4], increasing the internship hours is not really the preferred internship modification among Pharmacist practitioners. In fact, it is the least preferred choice. What the respondents actually want is to increase specialty exposure or implement rotations like in other health courses but the new curriculum does not seem to address this outcry. Practical matters like scheduling and other administrative matters, affiliation sites and lack of qualified Preceptors may play a role in preferring to increase internship hours over specialty exposures but the gap between those who prefer specialty rotations over increasing internship hours is too wide. On top of this, rotations would also identify the strengths of the students and would provide opportunity for matching of strengths against the specialty area as practiced in advanced educational methods for Pharmacy [5].

An academic dialogue to stakeholders would have been called as many times as needed during the development of the new curriculum as this is important for inclusion of essential educational components that should be universal [10]. There are other things that are still overlooked in the new curriculum like an addition of a Skills laboratory, Preceptor and Affiliation accreditations which could be a subject for future curriculum development. On the other hand, it is also important to recognize that the new Commission on Higher Education Memorandum Order (CHED CMO) contains a sample syllabus which will help in facilitating good learning outcomes [14] and an improved list of laboratory equipment, facilities and supplies which will aid in learning and assessment like OSPE and OSCE [11]. Increasing the program years to 5-year BS Pharmacy program is indeed a move supported by majority of Pharmacy practitioners as it enhances the quality of students brought about by better curriculum which may produce competitive graduates at par with other countries unfortunately the 4-year curriculum will most likely be retained based on present discussions.

Acknowledgement

The author acknowledges the Maria Donabelle U. Dean of Centro Escolar University – Makati Campus and Marie Esthel Familar for their help in respondent administration.

Competing Interest
The author declares no competing interest.

Support
This research was conducted as a result of a graduate school collaboration of Mr. Ongpoy at CEU Graduate School for the PhD Pharmacy degree through the scholarship granted to him by the Philippine Council of Health Research & Development (PCHRD), Department of Science and Technology (DOST). The authors would also like to thank the Commission on Higher Education (CHED) for bringing this topic to one of the discussions last August 27, 2017 at Pinoy Scientist on Radyo Agila, a Philippine Radio Show.

About the Corresponding Author
Romeo C. Ongpoy, Jr. is the Dean of the School of Pharmacy at Emilio Aguinaldo College in Cavite. He is currently pursuing a PhD Pharmacy degree at Centro Escolar University, Mendiola in the Philippines.

References

[1] Commission on Higher Education, CHED 2016-03: Guidelines on Graduate Education Scholarships for Faculty and Staff in the K to 12 Transition Period. 2016
[2] Commission on Higher Education, CHED 2017-54: Policies, Standards and Guidelines for the Bachelor of Science in Pharmacy Program. 2017.
[3] Noble, Christy, O'Brien, Mia, Coombes, Ian, Shaw, Nicholas and Nissen, Lisa. Concept Mapping to Evaluate an Undergraduate Pharmacy Curriculum. American Journal of Pharmaceutical Education, 2011; 75 (3) 55.
[4] Hirsch, Jan, Do, Ai Hang, Hollenbach, Kathryn, Monoguerra, Anthony and Adler, David. Student's Health-Related Quality of Life Across the Preclinical Pharmacy Curriculum. American Journal of Pharmaceutical Education, 2009; 73 (8) 147.
[5] Janke, Kristin, Traynor, Andrew and Sorensen, Todd. Refinement of Strengths Instruction in a Pharmacy Curriculum Over Eight Years. American Journal of Pharmaceutical Education, 2011; 75 (30) 45.
[6] El-Awady, El-Sayed, Moss, Stephen, Mottram, David and O, Donnell, James. Student Perspectives on Pharmacy Curriculum and Instruction in Egyptian Schools. American Journal of Pharmaceutical Education, 2006; 70 (1) 09.
[7] Faruk Khan, Mo, Deimling, Michael and Philip, Ashok. Medicinal Chemistry and the Pharmacy Curriculum. American Journal of Pharmaceutical Education, 2011; 75 (8) 161.
[8] Graber, David, Bellack, Janis, Lancaster, Carol and Musham, Catherine. Curriculum Topics in Pharmacy Education: Current and Ideal Emphasis. American Journal of Pharmaceutical Education, 1999; 63: 145-151.

[9] Tiralongo, Evelin and Wallis, Marianne. Integrating Complementary and Alternative Medicine Education Into the Pharmacy Curriculum. American Journal of Pharmaceutical Education, 2008; 72 (4) 74.

[10] Britton, Mark, Letassy, Nancy, Medina, Melissa and Er, Nelson. Evaluation, Assessment and Outcomes in Pharmacy Education: The 2007 AACP Institute. American Journal of Pharmaceutical Education, 2008; 72 (5) 99.

[11] Awaisu, Ahmed, Mohamed, Mohamad Haniki Nik, Al-Efan, Qais Ahmad Mohammad. Perception of Pharmacy Students in Malaysia on the use of Objective Structured Clinical Examinations to Evaluate Competence. American Journal of Pharmaceutical Education, 2007; 71 (6) 118.

[12] Kao, Doris, Hudmon, Karen Suchanek and Corelli, Robin. Evaluation of a Required Senior Research Project in a Doctor of Pharmacy Curriculum. American Journal of Pharmaceutical Education, 2011; 75 (1) 5.

[13] Hubball, Harry and Burt, Helen. Learning Outcomes and Program-Level Evaluation in a Four-Year Undergraduate Pharmacy Curriculum. American Journal of Pharmaceutical Education, 2007; 71 (5) 90.

[14] Draugalis, JoLaine Reierson, Slack, Marion, Sauer, Karen Ann, Haber, Stacy and Vaillancourt, Richard. Creation and Implementation of a Learning Outcomes Document for a Doctor of Pharmacy Curriculum. American Journal of Pharmaceutical Education, 2002; 66: 253-260.

[15] Kelsch, Michael and Werremeyer, Amy. Poster Project to Emphasize Public Health in the Pharmacy Curriculum. American Journal of Pharmaceutical Education, 2011; 75 (1) 2.

[16] Tofade, Toyin, Khandoobhai, Anand and Leadon, Kim. Use of SMART Learning Objectives to Introduce Continuing Professional Development into the Pharmacy Curriculum. American Journal of Pharmaceutical Education, 2012: 76 (4) 68.

[17] Department of Health. Hospital Pharmacy Management Manual, 2nd edition (DOH, Philippines: 1994).