Print ISSN 2094-1064
Online ISSN 2244-0437

Liceo Journal of Higher Education Research
doi: http://dx.doi.org/10.7828/ljher.v16i2.1379

Determinants of Performance in the Licensure Examination for Fisheries Technologists of Western Philippines University Bachelor of Science in Fisheries Graduates

MARIA MOJENA G. PLASUS
ORCID NO. 0000-0003-4556-4056
mojenagonzales@yahoomail.com

JENNIFER T. DIAMANTE
ORCID NO. 0000-0002-7100-9251
jennifier.diamante@wpu.edu.ph

Western Philippines University
Puerto Princesa City, Palawan, Philippines

ABSTRACT

The students' performance in licensure examinations is considered one of the reliable gauges of an institution's efficiency and its students' intellectual capacity. This study explored the factors that affected the performance in the 2019 Licensure Examination for Fisheries Technologists (LEFT) of the Western Philippines University (WPU) Bachelor of Science in Fisheries (BSF) graduates, using Stufflebeam's (2014) CIPP evaluation model. The study analyzed the data from the 24 BSF graduates who joined the institutional review class for LEFT 2019. Findings revealed that the graduates' LEFT performance was significantly influenced by their scores in the pre- and post-mock board examinations, employment, the length of time between graduation and examination, number of attempts in taking the board examination, and the number of the subject areas passed in the licensure exam. The review class offered by the College of Fisheries and Aquatic Sciences (CFAS) of WPU significantly improved the scores of students in the LEFT 2019. Further, several other variables that might be affecting the performance of students in the LEFT 2019 were also identified in this study. Recommendations and implications for improving the WPU-BSF and the CFAS review programs are presented in conclusion.

Keywords: Review class, board examination, PRC, program effectiveness

INTRODUCTION

Quality education has long been the priority of the Philippine government, as stated in the 1987 Constitution, which guarantees the right of every Filipino to quality education at all levels. This right to a high standard quality of education, particularly at the tertiary level, has recently been enshrined in the Republic Act 10931 or the Universal Access to Quality Tertiary Education Act. The law mandates free tuition and exemption from other fees in the state universities and colleges (SUCs), including the local universities and colleges (LUCs) in the country.

However, despite the statutes mandating the higher educational institutions (HEIs) to produce quality graduates who are armed with the needed industry competencies, several studies have shown that Filipino college graduates are not as equipped with skills that many industries expect (Tullao, 1999; World Bank & Asian Development Bank, 1998). To counter these issues, the government passed laws, ensuring that every college graduate possesses the desired competencies often measured through government examinations.

Cognizant of the salient role of professionals in nation-building, former President Joseph Ejercito Estrada signed the Professional Regulation Commission Modernization Act of 2000 (RA8981) into law on December 5, 2000. Among others, the law seeks to promote the sustained development of professionals whose credibility and competence are on par with international standards as determined by the credible licensure examinations provided by the government. Among these reservoirs of professionals are the licensed fisheries technologists. Thus, in 2003, the Licensure Examination for Fisheries Technologists (LEFT) was first administered by the Board of Fisheries of the Professional Regulation Commission (PRC) as mandated in the Republic Act No. 8550, otherwise known as The Philippine Fisheries Code of 1998. This law stipulates that the Commission on Higher Education, and other concerned agencies, formulate standards for fisheries programs in all academic institutions and "close down those who do not meet the minimum standard" (RA 8550, c. 7 § 116).

To further advance and recognize the significance of the fisheries practitioners in the country, the government passed the "Philippine Fisheries Profession Act" or Republic Act 11398 in 2019. Under such law, the government must "provide

a program to set up an appropriate and healthy environment for the practice of the fisheries profession" and "establish quality standards for fisheries professionals that will guide fisheries schools/colleges" (RA 11398, c. 1 § 1.2). The law also stipulates a monetary penalty ranging from PHP50,000 to PHP500,000 and/or imprisonment of six months for the unauthorized practice of the fisheries profession and the hiring of unlicensed fisheries professionals (Parrocha, 2019; RA 11398, c. 5 § 39).

Accordingly, licensure examinations such as the LEFT have become an important consideration in curriculum planning and instructional implementation since students' performance in board examinations has been equated to the institutions' efficiency as well as their students' intellectual capacity (Manalo & Obligar, 2013). The Accrediting Agency of the Chartered Colleges and Universities in the Philippines (AACCUP) has even included licensure examination performance as an indicator in its quality assurance evaluation instrument. This, perhaps, explains the efforts of HEIs to implement policies and standards that would ensure not only the graduates' competence in their respective fields of discipline but also the success in the board examinations (Antiojo, 2017; Antonio, Malvar, & Ferrer, 2016; Nool & Ladia, 2017).

Hence, as part of its pursuit of quality education and in response to RA 11398, the Western Philippines University (WPU), one of the HEIs that offer Bachelor of Science in Fisheries (BSF) under the College of Fisheries and Aquatic Sciences (CFAS), intensifies its efforts in producing graduates that are competent, credible, and certified professionals. As part of its endeavors, CFAS established an institutional review program for its graduates, aiming to increase the probability of passing the licensure examination in the target profession.

However, studies show contradicting findings on the impact of institutional review programs on the board performance of graduates. For instance, Riney, Thomas, Williams, and Kelly (2006) found that the in-house review program in their study had decreased the level of motivation of student teachers in improving their academic performance and ratings in board examinations. This claim runs in contrast to the findings of other studies (Duckor Castellano, Téllez, Wihardini, & Wilson, 2014; Pecheone & Chung, 2006; Youngs Odden & Porter, 2003), proving that the implemented policies of in-house reviews of universities and review centers were among the factors that largely influenced the board examinations performance of their respondents.

The surveyed literature shows a significant number of studies exploring the

different factors affecting the performance of graduates in licensure examinations. Most of these studies focused on the Licensure Examinations for Teachers (LET). Although there was no particular study directed to the LEFT performance of BSF graduates, the studies presented in this section are deemed relevant since the nature and challenges in taking a licensure examination may also be true to all board exam takers.

Nool and Ladia (2017) looked into the trend of LET performance of 110 teacher education institutions (TEIs) in Central Luzon for the period 2009 to 2016. The study was based on the data released by PRC. Their findings showed that, overall, the identified TEIs performed higher than the national passing rate with 33 percent and 29 percent, respectively. It was, however, found that the majority of these institutions performed poorly in the LET for the past seven years.

Antiojo (2017) examined the LET performance of Cavite State University Naic from 2013 to 2015, employing documentary analysis and descriptive correlation research design. Although the researcher found that the institutional performance of the university in terms of the number of passers was above the LET National Passing Percentage, she recommended coming up with intervention measures to enhance further the licensure examination performance of the graduates. She also suggested conducting exploratory studies on the predictors of students' LET performance.

Currently, research lenses have shifted focus on the predictors of LET performance. Quiambao Buenviaje, Nuqui, and Cruz's (2015) study, for instance, investigated the factors affecting the licensure examination performance of education graduates at Don Honorio Ventura Technological State University in Bacolor, Pampanga, using survey methods and historical data. The authors claimed that teachers' educational attainment, length of service, library and laboratory facilities, intelligence quotient, and general weighted average are the factors that influenced the performance in the LET. Hence, they recommended that these factors be considered in crafting policies to improve the graduates' board examination performance.

Similarly, Antonio, Malvar, and Ferrer (2016) conducted a study on LET predictors. They correlated the students' academic performance with the LET results and concluded that the two variables have a moderate linear relationship. This finding supports Quiambao et al. (2015) claim that academic performance, particularly in college, is a likely predictor of the performance in the LET.

Another study relating to the LET performance was done by Visco (2015),

but this time, he focused on student-related and faculty-related factors. He found out that the Teaching Aptitude Test result, attendance in LET review, educational attainment, attendance of faculty members to training/seminars, academic rank, and workloads had significantly influenced the board performance of the graduates.

The reviewed literature indicates the interplay of various factors (e.g., teachers' educational attainment, students' academic performance, laboratory facilities, in-house review program) that influenced the performance in LET. It also shows the myriad of studies examining the performance of graduates in other licensure examinations such as LET, but none focused on LEFT. Hence, this study explored the factors affecting the performance of WPU-BSF graduates in the 2019 licensure examination for fisheries technologists. There are approximately 60 higher education institutions (HEIs) in the country that offer BSF. However, only one university consistently belong to the list of the top-performing school in Fisheries. Thus, there is a need to explore the effectiveness of institutional review classes such as the one being offered by WPU-CFAS for planning, (re)designing, and implementation of the program, which will also provide baseline data for other HEIs. Some of the variables were further explored in the current study in the context of the WPU-BSF graduates' performance in the 2019 Licensure Examination for Fisheries Technologists.

FRAMEWORK

Figure 1 displays the conceptual framework of the study, using Stufflebeam's (2014) Context, Input, Process, Product (CIPP) evaluation model. The four dimensions of the CIPP model can be applied together or be used individually during an evaluation effort aimed at improving and achieving accountability of educational programs. In this model, Context evaluation focuses on the problem and need assessment and as opportunities of a given educational setting. In this phase, the study centered on determining the WPU-BSF graduates' LEFT performance from 2015-2019 vis-à-vis the national performance and the PRC standards for top-performing colleges and universities.

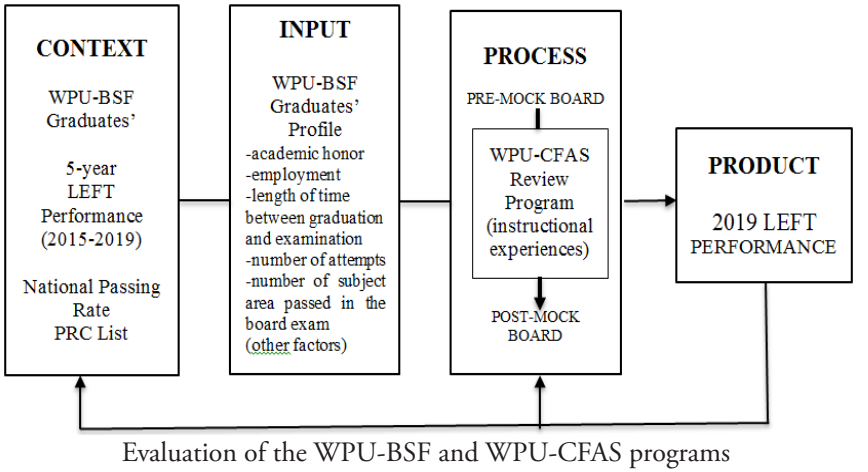

Figure 1. The conceptual paradigm of the study using Stufflebeam's (2014) CIPP model.

Input evaluation is used to evaluate the steps and resources needed to meet program goals and objectives. In this study, Input evaluation focused on the reviewee variables that might have significantly affected the 2019 LEFT performance, such as academic honor, employment, length of time between graduation and examination, number of attempts, and number of the subject areas passed in the board exam. In the Process evaluation phase, the pre-mock board examination and the mock board examination results were used to determine the effectiveness of the CFAS review program. These results were also analyzed to establish if they were reliable indicators of predicting the reviewees' chance at passing the 2019 LEFT. The Product evaluation phase examined the WPU-BSF graduates' performance in the 2019 LEFT and its possible determinants (i.e., pre-mock board examination and mock board examination results, academic honor, employment, length of time between graduation and examination, number of attempts, and number of the subject area passed in the board exam). Other variables were also elicited through a short interview before and after the 2019 LEFT. The obtained data were provided to the decision-makers for planning, (re) designing, and implementation of the WPU-BSF and CFAS review programs.

OBJECTIVES OF THE STUDY

This study explored the performance indicators in the 2019 licensure examination for fisheries technologists of WPU-BSF graduates. This study also identified the (a) Profile of the reviewee, (b) Degree of the effectiveness of the review class offered by CFAS in improving the scores of BSF graduates in the 2019 LEFT, and (c) other variables possibly affecting the performance of students in 2019 LEFT.

METHODS

Research Design

This study used the descriptive-evaluative research design in determining the effectiveness of the CFAS Review program and the determinants of WPU-BSF graduates' success in the 2019 LEFT, using Stufflebeam's (2014) CIPP Model. All four phases of the CIPP model were employed, albeit with certain limitations in scope. The CIPP model was used since it is considered one of the best decision-making models by educational scholars (Anh, 2018).

Data collection

A total of 33 graduates of WPU-CFAS took the 2019 board examinations for fisheries technologists. Of the number, 30 were first-time takers, and three (3) were repeaters. Twenty-four among the 33 examinees took the review class offered by the college prior to taking the 2019 LEFT. Thus, the data analyzed in this study were from the 24 students who joined the review class for the 2019 LEFT. The LEFT enhancement review program of CFAS consisted of lectures and activities. It ran for 8 hours every Saturday and Sunday for two months. Each lecture delivered by the college faculty members had a pre-post examination to measure students' retention of information provided by the review class.

A survey questionnaire was also used to establish the demographics and the variables that affected their performance in the 2019 licensure examination. Informed consent was secured from the respondents prior to the distribution of the survey questionnaires.

Respondents who took the review class were given a pre-mock board examination prior to the LEFT review to assess their knowledge in the four areas of fisheries (aquaculture, capture fisheries, aquatic resources, and post-harvest fisheries). Each subject area was composed of 100 questions. The post-mock-

board exam was also given to the students after the two-month review class. The mean scores of each student in the pre- and post-mock-board were analyzed to determine if students' knowledge of fisheries subjects had increased significantly or not.

Based on the PRC's regulation, the student should get 75% or above in every subject area to pass the board exam. If one or two test subjects are below 75%, the student will be in conditional status and need to re-take the subjects with the deficit scores. With this protocol of PRC, this study also analyzed the scores of the students in each test subject area if it affects the overall performance in the board exam. The student shared voluntarily their scores in the four areas of the board exam with the proponents, who treated their scores with confidentiality.

A short interview with the respondents was performed before and after taking the board examination. This was carried out to gather the necessary information about their insights on the factors affecting their performance in the 2019 LEFT. Although this study only focuses on the 2019 LEFT performance of the graduates, the data on the number of takers and the passing rate of the WPU-BSF graduates from 2015 to 2019 was also consolidated from the PRC's website for reference.

The collected data from the survey questionnaires were checked and screened before they were inputted in to the computer system. The processed data were subjected to the appropriate statistical techniques.

Statistical analysis

The multinomial logistic regression at $p < 0.05$ was used to predict which variables (pre-mock, mock board, length of time between graduation and examination, employment, academic honor, and a number of attempts) determined the performance of BSF graduates in the 2019 LEFT.

Other statistical tools such as the omnibus test for model coefficients (Chi-square test, degrees of freedom, and significance) and R squares (Chi-square (x2)) were used to ascertain whether the collected data is distributed in such a way that it matches the established probability distribution. Hosmer-Lemeshow test was also performed to verify if the data fits the model.

Descriptive statistics such as frequency count and percentage technique were likewise computed to describe the demographics.

RESULTS AND DISCUSSION

To have a glimpse of the five-year LEFT performance of WPU-BSF graduates, the university ratings were accessed from the website of PRC. Figure 1 presents the board ratings of the WPU LEFT takers from 2015 to 2019.

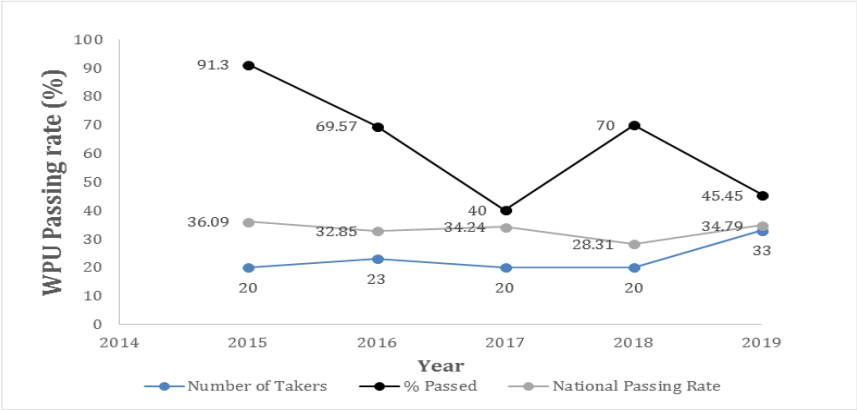

Figure 2. The numbers of WPU board exam takers, the WPU passing Rates and the national passing rates from 2015-2019 (Professional Regulation Commission, 2019).

The five-year LEFT performance of WPU graduates registered an erratic pattern, with the first three years (2015-2017) showing a declining trend. It started with a very high performance in 2015 at a 91.3% passing rate, propelling the university into the PRC's list of the best performing schools in the country. However, the figure slid down to 40% in 2017, the lowest within five years. The university's LEFT performance recuperated in 2018 with a 70% passing rate that dropped again in 2019 to 45.45%, the second-lowest figure. Notably, 2019 recorded the highest number of LEFT examinees from WPU within the five years. It must also be noted that while WPU's performance in the LEFT consistently remained higher rather the national passing rate, its 2017 and 2019 LEFT performance indicates the need to improve both the BSF program and CFAS review program.

For a university to be included in the top-performing school list of PRC for fisheries, the university should at least have 50 examinees with a 90% passing rate or higher. Since WPU is the center of excellence for fisheries schools in

Region IV-B, the university should aim for consistency as a first-rate school for fisheries. Thus, there is a need to increase the number of enrollees for the BSF program of WPU in the upcoming years. The college should seek the continuous development of its curriculum and instruction for the program.

To establish the validity of the findings of the study, the researchers tested the normality of the variables using the goodness-of-fit test, as shown in Table 1.

Table 1

Goodness of Fit Statistics (Variable Status)

Statistic	Independent	Full
Observations	24	24
Sum of weights	24.000	24.000
DF	23	16
-2 Log(Likelihood)	33.104	0.000
R^2(McFadden)	0.000	1.000
R^2(Cox and Snell)	0.000	0.748
R^2(Nagelkerke)	0.000	1.000
AIC	35.104	16.000
SBC	36.282	25.424
Iterations	0	50

Table 2

Test of the Null Hypothesis H0: Y=0.458 (Variable Status)

Statistic	*df*	Chi-square	Pr > Chi^2
-2 Log(Likelihood)	7	33.104	< 0.0001
Score	7	15.303	0.032
Wald	7	0.000	1.000

Table 2 reflects that the variables tested in this study significantly affected the WPU graduates' performance in the 2019 licensure examination for fisheries technologists ($\chi 2 = 33.104$, df = 7, $p < 0.001$). This result was strengthened by the results of the multiple logistic regression analysis on the six variables, showing that all of them except academic honor significantly affected the performance results ($\chi 2 = 0.000$, df = 1, $p < 1.000$).

Table 3

Type II Analysis (Variable Status)

Source	*df*	Chi-square (Wald)	Pr > Wald	Chi-square (LR)	Pr > LR
Result of Pre- mock board	1	0.000	0.991	10.444	0.001
Result of Post- mock board	1	0.000	0.991	19.647	< 0.0001
Academic honor	1	0.000	0.993	0.000	1.000
Employment	1	0.000	0.991	10.662	0.001
Length of time between graduation and examination	1	0.000	0.992	9.089	0.003
Number of attempts	1	0.000	0.991	11.644	0.001
Number of subject area passed in the board exam	1	0.000	0.991	9.251	0.002

Table 4

Hosmer-Lemeshow Test (Variable Status)

Statistic	Chi-square	*df*	Pr > Chi²
Hosmer-Lemeshow Statistic	0.000	5	1.000

Based on the data, the scores on the pre and post-mock board exams, employment, length of time between graduation and examination, number of attempts in taking the board exam, and the number of subject areas passed in the board exam significantly affected the performance of the respondents in the licensure examination. Further, Table 4 indicates that the model used in this study fits the data well.

Table 5

Distribution of Respondents' Profile

Variable	Respondents (n)	Performance in the board exam	
		Passed	Failed
Gender			
Male	11	6 (54.50%)	5(45.50%)
Female	13	5 (38.50%)	8 (61.50%)

Table 5 continued.

Variable	Respondents (n)	Performance in the board exam	
		Passed	Failed
Result of Pre mock board exam during the review class			
Passed	0	0	0
Conditional	4	4(100%)	0
Fail	20	7(35%)	13(65%)
Result of Post mock board exam during the review class			
Passed	4	4(100%)	0
Conditional	9	5(55.56%)	4(44.44%)
Fail	11	2(18.55%)	9(81.81%)
Academic Honor			
Magna Cum Laude	1	1	0
None	23	10	13
Employment			
Employed	14	6 (42.80%)	8(57%)
Unemployed	10	7 (70%)	3 (30%)
Length of time between graduation and examination schedule			
1-11 months	7	5(71.43%)	2(28.57%)
1 year	6	2(33.33%)	4(66.67%)
2 years	2	0	2(100%)
3 years	2	2(100%)	0
4 years	-	-	-
5 years	5	2(40%)	3(60%)
More than 10 years	2	0	2(100%)
Number of attempts			
First timer	19	9 (47.4%)	10 (52.6%)
Second takers	5	3(60%)	2(40%)
Number of subject area failed in the board exam			
1	9	0	9
2	4	0	4
Board exam result	24	11(45.8%)	13(54.2%

Table 5 indicates that most of the respondents were employed during the time they took the board exam. Based on the result of statistics, employment significantly affected the performance of the students in the 2019 LEFT ($p < .001$). In an informal interview, it was revealed that unemployed students had

more time to read and concentrate on their review materials and activities than the employed ones (Table 5). The respondents also shared that they reread certain books and review materials given to them twice or even thrice because they had more time reviewing. On average, unemployed BSF graduates are allotted around 5-6 hours during weekdays and 8-10 hours on weekends for their review (8 hours under the review class of CFAS and two more hours at home, particularly before sleeping). Rereading lectures or books repeatedly and immediately after a short period increased information retention and the ability of students to answer questions in an examination (Verkoeijen, Rikers, & Özsoy, 2008). Hence in this present study, unemployed BS Fisheries graduates who spent more time reviewing significantly increased their knowledge in the field, which consequently determined their scores in the 2019 LEFT. One of the 24 respondents graduated with Latin honors; however, it did not significantly affect the performance of the graduates in the 2019 LEFT ($\chi 2 = 0.000$, df = 1, $p < 1.000$) (Table 3).

Likewise, the length of time it takes after graduation to take the board exam significantly affected the performance of BS fisheries graduates in the 2019 LEFT (Table 3, $p < 0.003$). Students who took the board exam right after their graduation had a higher chance of passing the LEFT than those who took the licensure examination three or more years after their graduation (Table 5). Based on the interview with the respondents who graduated five years prior to taking the exam, they had a hard time following the lectures in the review class because of their unfamiliarity with some terms, short attention span, inability to recall certain information, and family distraction. Hence, they possibly attributed to these factors their poor performance in the 2019 LEFT.

Table 5 further shows that most examinees (19) were first-time takers of LEFT, while a few (5) were repeaters or those who took the examination two or more times. According to Nool and Ladia (2017), there is a positive relationship between the number of first-time takers and the licensure examination performance. The result of Nool and Ladia's study indicates that the number of first-time takers in the LET tends to correlate with board passers. This was not observed in this study, however. In the present study, although the number of first-time takers was higher than the repeaters in terms of percentile data, the second-time takers recorded a higher passing rate. Doubling the effort in the review, concentrating on subject areas that need improvement, familiarization with the test and its process, managing test anxiety were factors that the second-time takers reported to have contributed to the better performance in 2019 LEFT. Wolkowitz (2011) and Dunham and MacInnes (2018) also found in their studies that the scores of

students in the admission exam increased with each additional attempt, which explains the finding of the current study.

The number of the subject areas that the students failed in the board exam significantly predicted the chance of the BS Fisheries students to pass the board exam (Table 3, $p < 0.002$). The consolidated scores of the BS Fisheries graduates who took the board exam revealed that most of them passed only one to two subject areas, which affected their overall ratings in the licensure examination (Tables 3 and 5). Aquaculture, aquatic ecology, capture fisheries, and post-harvest fisheries were the four subject components of the board exam. Aquatic ecology and post-harvest fisheries were the subject areas where most graduates failed to pass in the 2019 LEFT. In the curriculum of the BS Fisheries in WPU, aquatic ecology and post-harvest fisheries were part of the program. However, the respondents reported that they were not familiar with some of the questions related to the said subject areas as these were not discussed during the review class nor in their regular class course discussions. They furthered that they encountered novel information and practical questions unfamiliar to them. They suggested that the review class increase the number of topics in aquatic ecology and post-harvest fisheries, two subject areas that they considered the hardest in the 2019 LEFT.

During the testimonial program held for the 2019 LEFT passers, the respondents offered their feedback on the review class conducted by CFAS. Although this feedback is beyond the scope of this study, it is worth considering to improve the WPU-BS Fisheries program. The following activities were identified as beneficial to the actual taking of the licensure examination: (1) the healthy foods provided during the review class helped them stay focused; (2) they learned more from the lecturers who employed interactive review strategies than those who were purely book-based; (3) the discussions among the reviewers greatly helped them in remembering terms for 2019 LEFT; (4) the techniques and tips in taking the exam shared by the college lecturers such as identifying keywords, and eliminating choices not related to the questions were utilized during the actual examination, and (5) taking naps from time to time rejuvenated their bodies and mind.

The students also identified other possible factors affecting negatively the performance in the LEFT 2019 negatively. These include stressors brought about by the application process for the examination, financial concerns, traveling to Manila to take the exam, noise stress in the boarding house where they stayed throughout the examination period, and the expectations of other people from them.

CONCLUSIONS

Using Stufflebeam's (2014) CIPP evaluation model, this study successfully analyzed the determinants of performance in the Licensure Examination for Fisheries Technologists of Western Philippines University Bachelor of Science in Fisheries Graduates. The review class conducted by CFAS significantly improved the performance of the WPU Fisheries graduates. The performance of BS Fisheries graduates of WPU in 2019 LEFT was significantly affected by their scores in the pre- and post-mock board exams, employment, length of time between graduation and examination, number of attempts in taking the board exam, and the number of subjects area passed in the board exam. This study also established that academic honors did not affect LEFT performance. However, work experience, in-depth review, amount of time spent in re-reading and reviewing, and familiarity taking the exam contributed to the results. The review class offered by the CFAS was an effective way to enhance the students' performance in the 2019 LEFT. To address the other variables that are possibly affecting students' performance in LEFT, careful planning, and significant improvements not only in the review class but also in the BS Fisheries program offered by CFAS are needed.

RECOMMENDATIONS

1. It is recommended that the BS Fisheries graduates of WPU take the review class for LEFT. If necessary, students are advised to take LEFT first before seeking employment to concentrate on the review class and the board examination. Students who graduated five or more years should enroll in a refresher course and a review class before taking the LEFT.

2. To make the BSF and the CFAS programs responsive to the needs of the graduates, faculty members must constantly update themselves on the latest developments in the field so that the students will also learn from them and be better prepared for the LEFT. More topics under Aquatic ecology and Post-harvest fishery topics should be added to the LEFT review class. Interactive review strategies and healthy food must be provided to the reviewers.

3. In future studies, the relation of faculty profile, educational attainment, and teaching techniques should be included as variables. Other variables mentioned by the students should also be given attention by the College to improve students' performance in the upcoming LEFT. For more robust

statistical results, more respondents should be involved. A combination of both qualitative and quantitative research methodologies may be explored in gathering a more comprehensive set of baseline data for program planning, (re)designing, implementation, and evaluation.

LITERATURE CITED

Anh, V. (2018). Evaluation models in educational program: Strengths and weaknesses. *VNU Journal of Foreign Studies, 34*(2), 2525-2445. https://doi.org/10.25073/2525-2445/vnufs.4252

Antiojo, L. P. (2017). Performance of education graduates in the licensure examination for teachers. People: I*nternatinal Journal of Social Sciences, 3*(2), 1363-1384.

Antonio, J. F., Malvar, R. J., & Ferrer, M. B. (2016). Licensure examination for teachers results from 2010 to 2013 of PUP San Pedro's Bachelor of Secondary Major in Mathematics and English graduates and its relationship on their academic performance. *Asia Pacific of Multidisciplinary Research , 4*(4), 17-22.

Duckor, B., Castellano, K., Téllez, K., Wihardini, D. and Wilson, M. (2014). Examining the internal structure evidence for the performance assessment for California teachers: A validation study of the elementary literacy teaching event for Tier I Teacher Licensure. *Journal of Teacher Education*. doi: 10.1177/0022487114542517

Dunham, M., & Maclnnes, J. (2018). Relationship of multiple attempts on an admissions examination to early program performance. *Journal of NursingEducation,57*(10):578-583.https://doi.org/10.3928/01484834-20180921-02

Manalo, M. C., & Obligar, M. (2013). Correlation of the LPU-Batangas Mock Board Examination and Customs Broker Licensure Examination for Academic Year 2008- 2010. Proceeding of the Global Summit on Education. Available from https://goo.gl/n7NtOD

Nool, N. R., & Ladia, M. P. (2017). Trend performance in the licensure examination of Teacher Education Instituions in Central Luzon. *International Journal of Applied Engineering and Research, 12*(24), 15734-15745.

Parrocha, A. (2019). Gov.ph. Retrieved from Philippine News Agency: pna.gov.ph/articles/1078977

Pecheone, R., & Chung, R. (2006). Evidence in teacher education: The Performance Assessment for California Teachers (PACT). *Journal of Teacher Education.* doi: 10.1177/0022487105284045

Quiambao, D. T., Baking, E. G., Buenviaje, L. B., Nuqui, A. V., & Cruz, R. C. (2015). Predictors of board exam performance of the DHVTSU College of Education graduates. *Journal of Business & Management Studies, 1*(1), 1-4.

Republic Act No. 8550. An Act Providing for the Development, Management and Conservation of Fisheries and Aquatic Resources, Integrating all Laws Pertinent Thereto, and for Other Purposes. Republic of the Philippines, Congress of the Philippines. Approved: Feb 25, 1998.

Republic Act No. 8981. PRC Modernization Act. An act modernizing the professional regulation commission, repealing for the purpose presidential decree numbered two hundred and twenty-three, entitled "creating the professional regulation commission and prescribing its powers and functions," and for other purposes. Approved: Dec 05, 2000.

Republic Act No. 11398. Philippine Fisheries Profession Act. An act regulating the practice of the Fisheries profession in the Philippines, creating for the purpose a Professional Regulatory Board of Fisheries, and Appropriating funds therefor. Republic of the Philippines, Congress of the Philippines. Approved: Aug 22, 2019.

Republic Act No. 10931. Universal Access to Quality Tertiary Education Act. An act promoting universal access to quality tertiary education by providing for free tuition and other school fees in state universities and colleges, local universities and colleges and state-run technical -vocational institutions, establishing the tertiary education subsidy and student loan program, strengthening the unified student financial assistance system for tertiary education, and appropriating funds therefor. Approved: May 29, 2017.

Riney, M. R., Thomas, C., Williams, G. & Kelley, B. (2006).National implications: Teacher education students' perceptions of state licensure requirements and pedagogical training. 2006. *National Forum of Teacher Education Journal, 16*(3).

Stufflebeam, D. L. (2014). Daniel Stufflebeam's CIPP model for evaluation: An improvement and acountability-oriented aproach. In D. L. Stufflebeam, Coryn, & L. S. Chris (Eds.), Research methods for social sciences: Evaluation theory, models and applications (pp. 310–339). Someset: Jossay-Bass.

Tullao, T. S. (1999). An evaluation on the readiness of Filipino professionals to meet international competition. Monograph. Manila: De La Salle University.

Verkoeijen, P. P. J. L., Rikers, R. M. J. P., & Özsoy, B. (2008). Distributed rereading can hurt the spacing effect in text memory. *Applied Cognitive Psychology, 22*, 685–695.

Visco, D. A. (2015). Determinants of performance in the Licensure Examination for Teachers (LET) of Abra State Institute of Science and Technology. *International Journal of Research in Management & Business Studies, 2*(1).

Wolkowitz, A.A. (2011). Multiple attempts on a nursing admissions examination: Effects on the total score. *Journal of Nursing Education, 50*, 493–501. doi:10.3928/01484834-20110517-07

World Bank and Asian Development Bank. (1998). Philippine education for the 21 Century. The 1998 Philippines Education Sector Study.1998.

Youngs, P., Odden, A. and Porter, A, (2003). State policy related to teacher licensure. Educational Policy. doi:10.1177/0895904803017002002

ACKNOWLEDGEMENTS

The researchers wish to acknowledge our University President, Dr. Timothea Hope Evina, Vice President for Research Development and Extension, Dr. Benjamin Gonzales, Dean Herminnie Palla, and Asso. Professor Rosario Bundal for supporting the conduct and publication of this study. They are also thankful for the constructive and helpful comments of referees and evaluators of this manuscript.