

ACADEMIC TRAINING AND INSTITUTIONAL INTERVENTIONS ON GRADUATES' PERFORMANCE IN THE LICENSURE EXAMINATIONS

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ABSTRACT: *Graduates' performance on licensure examinations is a critical component of leveling state universities and colleges (SUCs). It is a metric used to assess the quality of education provided by SUCs, community colleges, and private higher education institutions (PHEIs). An ex post facto study was conducted to ascertain the relationship between graduates' licensure examination performance and students' academic training, as well as institutional intervention. It was conducted at Central Mindanao University utilizing secondary data of its 3223 graduates in 2017, 2018, and 2019. The results indicated that CMU graduates passed at a higher rate than the national passing rate (NPP) in the following degree programs: Bachelor of Science in Agriculture, Bachelor of Science in Nutrition and Dietetics, Bachelor of Science in Psychology, Bachelor of Secondary Education, and Doctor of Veterinary Medicine. However, the Bachelor of Science in Chemistry had a lower pass rate than the NPP. Additionally, the Bachelor of Science in Forestry had a lower passing rate in 2017 than the NPP. Academic achievement varies significantly between degree programs, ranging from below average to exceptional. Students performed admirably in the institutional interventions that were provided or required of them. Correlation analysis revealed statistically significant and positive relationships between graduates' licensure examination performance and their academic achievement and involvement in institutional interventions. The findings indicate that program owners need to provide academic enhancement programs to students who are underperforming academically, as this correlates with their licensure examination performance.*

Keywords: Academic performance, achievement, institutional interventions, academic training, licensure examination

1. INTRODUCTION

Education is viewed as the primary catalyst for the advancement of society and the country as a whole. Given education's critical function in our society, it's reasonable to assert that it should be reinforced throughout life, as the nation's competitive workforce and cohesive populace depend on it [1].

The government of the Philippines makes significant educational investments. Education has historically received the most outstanding share of the national budget. The government supports a variety of educational reforms and processes aimed at ensuring the quality of education provided to Filipino students, both in basic and tertiary education. Education is the process of acquiring knowledge and applying it to real-world, meaningful social situations. Additionally, it is the act or process of imparting or receiving information, as well as the development of logical thinking and creative skills necessary for success in an ever-changing society. Education's goal is to generate functional members of society who will contribute significantly to all facets of human development [2].

According to Ismailova et al. [3], education serves both internal and exterior purposes. The external purpose of education is to develop productive citizens based on historical circumstances, such as government agencies, a shared culture that strengthens citizens' legal relationships, and ensuring the community's welfare based on the ethical and legal principles shared by community members. On the other side, education's internal purpose is defined by possibilities, development, and the capacity to use information, skills, and abilities in practice. It requires a purposeful force from the social environment, and these forces should be employed to produce material possibilities, establish objective and social circumstances, and create new

opportunities for the individual's spiritual and moral development.

It is believed that as a result of the industrial revolution 4.0, education must adapt to these changes [4]. Graduates may be defined by their digital competencies. Professionals are expected to possess a greater range of literacy skills in order to achieve global scientific insights.

In order to regulate the professionals in the country, the Philippine Regulatory Commission was established in 1973. In 2000, Republic Act No. 8981 otherwise known as the PRC Modernization Act of 2000 was signed into law by President Joseph Ejercito Estrada. The PRC fulfills two critical functions in accordance with its legal mandate: 1) conducting and administering licensure examinations for aspiring professionals, and 2) regulating and supervising the practice of professions. The PRBs regulate the practice and ethical standards of their respective professions and accredit the professional organization that represents the professionals.

The conduct of the licensure examination for all professionals as one of the major functions of PRC has been looked forward to every year by all private higher education institutions (PHEIs), local universities and colleges (LUCs), and state universities and colleges (SUCs). The result of this prestigious examination is one of the yardsticks to measure institutions' quality of training. More so, licensure examination result is considered as one of the sub-criteria for key result area one, quality and relevance of instruction, in SUC leveling [5]. The result of the licensure examination is also one of the criteria in institutional and program accreditation (AACUP), as well as in any certification. In order to understand better the trend on the licensure examination results of the University, there is a need to conduct an investigation on the relationship of this exam to the academic training, and institutional intervention. However, due to the advent of COVID-19, only secondary

data were utilized for this study to come up with comprehensive results.

This section presents a review of related literature and studies. It contains topics on licensure examination, academic training or achievement, and institutional intervention. The Philippine Regulation Commission and related Republic Acts.

The Professional Regulation Commission was established as a national government agency by Presidential Decree (PD) No. 223 dated June 22, 1973, signed by then-President Ferdinand E. Marcos, and charged with the responsibility of enforcing the laws regulating various professions. It was previously known as the Office of the Board of Examiners, which was established on June 17, 1950, by Republic Act No. 546 under the auspices of the Civil Service Commission. On January 4, 1974, the PRC began operations. For general direction and coordination, the office was attached to the President's Office. The PD 223 Implementing Rules and Regulations were promulgated on December 9, 1974, paving the way for the standardization of rules and procedures for the thirty-three (33) professions covered by the CSC at the time. The Commission now performs three functions as a result of the passage of RA 8981: 1) quasi-judicial functions; 2) quasi-legislative functions; and 3) executive functions. It also established new thrusts and priorities, including customer-centric service, modernization through complete computerization and restructuring, examination integrity, good governance, protection and promotion of Filipino professionals, and support for national development priorities. The PRC fulfills two critical functions in accordance with its legal mandate: 1) conducting and administering licensure examinations for aspiring professionals, and 2) regulating and supervising the practice of professions. The PRBs regulate the practice and ethical standards of their respective professions and accredit the professional organization that represents the professionals.

PRC as a DOLE-attached agency, the PRC adheres closely to the DOLE's mandate. The PRC serves over 4.3 million professionals in 43 different regulated professions, as well as thousands of aspiring professionals who take the annual licensure examinations. Thus, stakeholders in the PRC include professionals, would-be professionals, accredited professional organizations, foreign professionals seeking a temporary permit to practice in the country, schools and academe, and other government agencies. On April 20, 2013, the PRC received approval from the Department of Budget and Management (DBM) to reorganize its organizational structure in order to better carry out its mandate and to implement the PRC Modernization Act.

The Philippine Psychology Act of 2009 (Republic Act, 10029) was enacted to regulate the practice of psychology and psychometrics in the Philippines in order to protect the public from inexperienced and untrained individuals offering psychological services and to ensure that psychologists are competent, excellent, and globally competitive [6].

The licensure examination for agriculturists (LEA) was a significant component of Republic Act 8435 (RA 8435), or the Agriculture and Fisheries Modernization Act (AFMA) of 1997. The act required the establishment of an Agriculture and Fisheries Board under the Professional Regulation

Commission (PRC) to upgrade the agriculture and fisheries professions under Title 2 (Human Resources Development), Section 75. The initial board examination was required to take place within one year of AFMA's approval.

The Commission on Higher Education (CHED) issued CHED Memorandum Order (CMO) No. 30 series of 2004 titled Revised Policies and Standards for Undergraduate Teacher Education Curriculum to ensure the quality of pre-service preparation of teachers in basic education. The CMO 30, s. 2004 specifies the program specification, competency standards, curriculum, and course specifications, among other things. The new teacher education program began in the first semester of the 2005-2006 school year, and the first graduating class took the licensure examination in October 2009. As stipulated in the Teachers' Professionalization Act of 1994, otherwise known as Republic Act No. 7836, passing the licensure examination is a mandated requirement for graduates of teacher education who wish to become teachers on the basis of education in both private and public schools. Those who have passed the LET are presumed to have a minimum level of competence and skill necessary to teach in elementary education. Thus, LET passers are regarded as high-quality educators. It was discovered that LET performance is positively and significantly associated with teaching performance [7].

Studies on Academic Training, Interventions, and Other Factors Associated with Licensure Examination

The study of graduates' performance on board examinations is a frequent subject of research in colleges and universities. These studies sought to ascertain the variables that may have influenced their graduates' performance on the aforementioned exams. Additionally, the results aided them in developing intervention strategies aimed at improving their institutions' performance on board examinations. It was reported that from 2014 to 2017, Bulacan Agricultural State College (BASC) graduates obtained a passing percentage of sixty percent (April 2017), 51.72 percent (Nov. 2017), 52.38 percent (2016), 18.18 percent (2015), and 52.17 percent (2014), for an average of 46.89 percent. The results for overall takers (including retakers) were 46.67 percent in April 2017, 52.11 percent in November 2017, 54.17 percent in 2016, 13.33 percent in 2015, and 51.85 percent in 2014, for a total of 43.63 percent [8]. BASC was able to pass the Level 3 Phase 2 accreditation for the BS Agriculture program as a result of these results. It has been established that LET performance is positively and significantly associated with teaching performance.

Numerous studies have discovered that a student's academic performance has an effect on their performance on the licensure examination [9, 10, 11, 12, 13, 14]. Additionally, Dagdag et al. [7] discovered that examinees' academic performance in General education, Professional education, and Major had a significant effect on their LET performance, confirming that examinees with a higher general weighted average (GWA) scored higher on the LET. However, Pachejo and Allaga [15] discovered a moderate correlation between academic predictors of licensure examination performance and teacher performance in general education. However, when LET performance was compared to professional education and specialization, a weak correlation was

discovered. This demonstrates that professional education and specialization are ineffective predictors of LET examination performance. Additionally, according to Manalo and Obligar [16], passing a licensure examination requires patience, determination, support, encouragement, and prayer. Also, Rosales et al. [17] examined the relationship between examinee variables, institutional variables, program and other variables, and nursing school performance on the Nursing Licensure Examination (NLE). They concluded that among examinee variables, being a first-time or repeat taker, as well as the number of times the examinee has taken the examination, are predictors of the examinee's average rating on the NLE. Another study on predictors of performance in professional nursing courses discovered a significant to very strong correlation between academic factors such as high school general point average (GPA), national achievement test (NAT), and grades in specific subjects and nursing course performance [18]. Additionally, Perez [19] discovered that first-timers passed the Philippine certified public accountant (CPA) licensure examination at a higher rate than repeaters from their university and that it took a candidate a maximum of five attempts to become a licensed CPA. Additionally, the author was able to determine which subjects were the most challenging for their graduates.

Correspondingly, Ferrer et al. [20] reported that gender, average high school grade, college entrance score, review class attendance, and academic performance all significantly predict teachers' board exam performance. Likewise, they concluded that universities' admissions and retention policies should be strengthened and that administrators should provide review classes to graduates. Additionally, they advised faculty members to format examinations in the manner of board examinations. Visco [21] discovered that graduates' performance on the licensure examination for teachers (LET) was significantly influenced by their Teaching Aptitude Test (TAT) scores and attendance at LET review, as well as by faculty members' educational attainment, training/seminars attended, academic rank, and workload.

On the other hand, Pacheco and Allaga [22] discovered that when board performance is correlated with the three components of academic subjects, a moderate correlation exists with general education, while a slight correlation exists with professional education and specialization. Additionally, the results indicated that there is a very weak correlation between students' performance on the said exam (LET) and their academic grades. Terano [23] reported that academic performance and pre-board examination performance were strong predictors of graduates' performance on the licensure examination in electronics engineering.

Mohammed and Mohammed [24] examined the performance of engineering graduates from a university and developed a proposed action plan based on their findings. There were no significant differences in the four-year performance of civil and mechanical engineering graduates from 2008 to 2011, but there were significant differences in electrical and electronics engineering graduates' performance. Their proposed action plan included a curriculum review, a review of the college retention policy, a practice board examination for students, coaching, and benchmarking with high-performing schools.

According to West et al. [25], there is a positive correlation between study strategies and performance on the medical licensing examination. According to them, teaching students how to practice and apply concentration skills while preparing for and taking exams may help students improve their licensing exam scores. Apart from these established studies, there is a growing body of research on the use of models to forecast performance on licensure examinations. The LET performance was predicted using WEKA's PART and JRip algorithms. The study concluded that a reviewer is predicted to fail the LET if the mock board rating obtained is less than 34% of the total points [26].

Dagdag [27] used a correlational approach to examine the factors that influenced the performance of Isabela State University – San Mariano Campus Bachelor of Agricultural Technology graduates in LEA. His findings indicated that graduates' performance on the College Admission Test (CAT), academics, and course audit were strong predictors of LEA achievement.

Licensure Examination for Professionals

The Professional Licensure Examination was designed to ensure the continued quality of professionals after they had completed their training and education at their institution. The licensure examination is one of the tools used to evaluate and ensure the nature of graduates joining the workforce of various companies on a local and global scale. It has evolved into a necessary step in ensuring that an individual possesses the necessary qualifications to practice in a particular field of specialization [6].

The licensing examination is one of the final hurdles in the licensing process. The PRC is ultimately responsible for ensuring that the examination complies with technical, professional, and legal standards and safeguards the public's health, safety, and welfare by evaluating candidates' ability to practice competently. Once a candidate has passed the licensing examination, the board must feel confident in granting the license, assuring the public that the licensee is at the very least qualified to practice at the time of initial licensure.

The Commission on Higher Education (CHED) recognized the critical role review centers play in the performance of graduates of higher education institutions in particular, in the outcomes of licensure examinations and, ultimately, in the competencies and provision of quality service by graduates entering professions. CHED then issued CMO No. 30, s. 2007 containing the revised implementing rules and regulations governing the establishment and operation of review centers and similar entities in the Philippines in accordance with Executive Order No. 566.

Passing the Professional Regulation Commission's (PRC) licensure examination is regarded as one of the greatest accomplishments a student can make in his or her life. According to Mohammed and Mohammed [24], this examination is designed to assess students' knowledge, competency, skills, and attitude in the practice of their respective professions. Academic institutions that offer degree programs that include board examinations are responsible and accountable for their graduates' success. This can be accomplished through the provision of high-quality instruction and experiences in the academic system as

prerequisites for licensure. The success of an institution can be determined by how well its graduates perform on the licensure examination. According to Manalo and Obligar [28], the graduates' performance on the licensure examination demonstrates the school's efficacy and intellectual capability. Numerous investigations have been implemented to find out factors associated with students' achievement such as teachers' skills and competencies [29, 30, 31, 32], teachers' awareness, perceptions, and challenges [33, 34, 35, 36, 37], contemporary pedagogies [38, 39, 40, 41, 42, 43] and others [44, 45, 46, 47, 48, 49, 50], however, little has been done on exploring the relationship of graduate performance and their licensure examination results. Hence, this study. The purpose of this study was to determine whether academic training and institutional intervention have a correlation with graduates' licensure examination performance. It was intended to accomplish the following:

- 1) describe how CMU graduates performed on the following licensure examinations: Agriculturists; Nutritionists and Dieticians; Chemists; Foresters; Psychometricians; Teachers; and Veterinarians;
- 2) determine the students' academic preparation level;
- 3) identify the respondents' performance in the university-provided institutional intervention; and
- 4) establish a correlation between graduates' licensure examination performance and: a. their academic training; and b. institutional intervention.

2. MATERIALS AND METHODS

This study used a descriptive correlational ex post facto research design. It employed a quantitative research design, utilizing existing data from the university on graduates' licensure examination performance and academic achievement (training), as well as institutional intervention, from FY 2017 to SY 2019. The study examined CMU graduates' performance on licensure examinations. Academic training or achievement and institutional intervention data were derived from their grades in academic subjects and on-the-job training (OJT) and/or thesis, respectively. The study surveyed graduates from the school years 2016-2017 to 2018-2019 who took the licensure examination in 2017, 2018, and 2019.

Only 3,223 graduates from the following degree programs were included, as this is the most recent data available: 1) Bachelor of Science in Agriculture (n=1,041); 2) Bachelor of Science in Chemistry (n=111); 4) Bachelor of Science in Forestry (n=55); 5) Bachelor of Science in Psychology (n=80); 6) Bachelor of Secondary Education (n=1,689); and 7) Doctor of Veterinary Medicine (n=191).

Secondary data were gathered, coded, and then analyzed with the approval of the Director of Instruction (DOI) and the Vice President for Academic Affairs (VPAA). The respondents' licensure examination performance, academic training, and institutional intervention were described using descriptive statistics such as mean, standard deviation, frequency, and percentages. The correlation between the independent and dependent variables was determined using Pearson's product-moment correlation.

3. RESULTS AND DISCUSSIONS

This section presents the interpretation and analysis of the secondary data collected from the concerned office in the University upon approval of the authorities. The presentation of the results and discussions follows the order of the objectives of this study. The holistic results are hereby presented.

Licensure Examination Performance of CMU graduates in 2017, 2018 and 2019

The figures that follow show the performance of CMU graduates on the Licensure Examination for Agriculturist (Agri), Nutritionist and Dietician (ND), Chemist (Chem), Forester (Fors), Psychometrician (Psych), Teacher (Teach), and Veterinarian (Vet) in 2017, 2018 and 2019. As against the national standard level, all the subject areas are below the standard level of acceptable MPS of 75%.

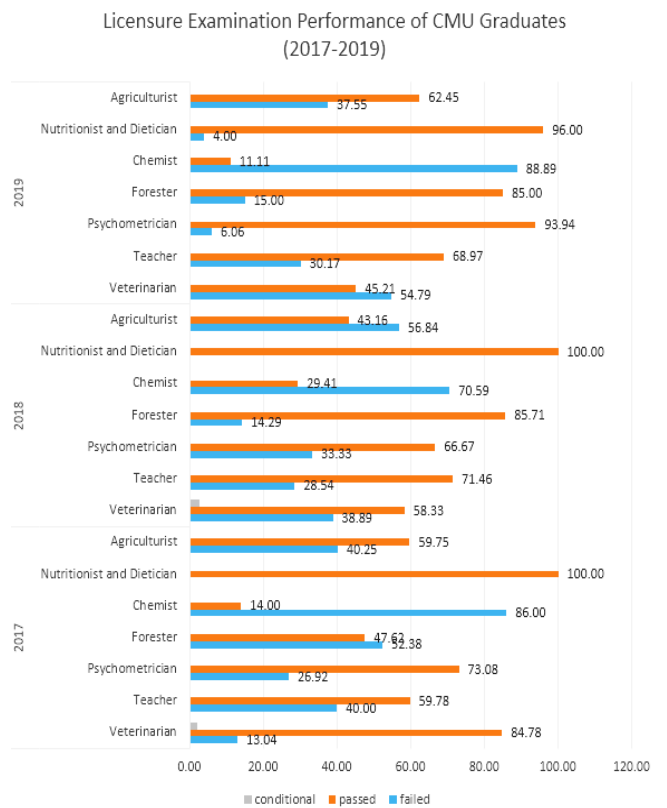


Figure 1. Licensure Examination Performance in 2017, 2018 and 2019

The graph shows that graduates from different degree programs have varied performances in their respective licensure examinations. In the indicated years, Agri has 57.77%, 44.53%, and 61.63% passing percentage versus 38.25%, 38.14%, and 41.05% national passing percentage (NPP), respectively. For ND, it has a 100%, 100%, and 96% passing rates versus 71.62%, 63.12%, and 63.81%, NPP, respectively. The Chem has 27.87%, 34.78%, and 30.00% passing percentage versus 44.02%, 45.05% and 42.12% NPP, respectively. For Fors, it has 35.71%, 82.61%, and 76.92% versus 48.65%, 59.01% and 55.95% NPP, respectively. For Teach, it has an average passing percentage of 43.24%,

49.51% and 72.54% versus the average NPP of 27.18%, 30.46%, and 31.07%, respectively. For Vet, it has 39/46, 42/72, and 33/73 with 1 conditional in 2017 and 2 conditionals in 2018 in terms of passing rate.

Based on the above data, CMU graduates had a higher rate of percentage passing in the ND while least in Chem. As presented, Chem performance is always below the NPP. Also, the performance of the graduates varies from degree program [51-56]. Program owners can sustain the above NPP performance of their graduates by enhancing their instructional services [52]. On the other hand, the BS Chem may review its existing curricular programs and check if it fits the competencies in the licensure examination. Moreover, since the performance of graduates is one of the key result areas in the SUC leveling, faculty members must see to it that all competencies in their respective programs must be covered in their lessons and these must be developed by the students to perform well in the licensure examinations [52, 53].

The licensure examination performance of first-time takers in 2017, 2018, and 2019 is presented in Table 1.

Table 1. Licensure Examination Performance of First-Time Takers

Licensure Examination for:	2017		2018		2019	
	Mean	SD	Mean	SD	Mean	SD
Agriculturist	74.18	7.012	74.54	6.293	74.67	7.101
Nutritionist and Dietician	84.49	1.334	81.23	2.724	82.65	3.283
Chemist	67.48	11.86	74.16	6.286	67.57	12.068
Forester	71.65	7.629	80.25	0.000	82.60	3.705
Psychometrician	77.53	4.150	75.42	3.384	79.91	4.725
Teacher	79.60	4.472	80.81	4.354	75.40	9.502
Veterinarian	77.17	4.176	74.43	4.335	75.64	5.537

As shown, the mean performance of CMU graduates in the Agri is increasing from 74.14, 74.54, and 74.67 in 2017, 2018, and 2019, respectively. Also, for has an increasing mean performance of 71.65, 80.25, and 82.60. These averages indicate that the performance of the CMU graduates of BS Agriculture and BS Forestry programs is getting better each year. The increase in the performance of the graduates may be attributed to the newly revised curricular offering compliant with each respective CMO [57, 58, 59, 60].

On the other hand, some other programs have fluctuating mean performance in the Licensure Examination in the past three years, namely, ND with mean 84.49, 81.23, and 82.65; Chem with a mean 67.48, 74.16, and 67.57; and Psych with mean 77.53, 75.42, and 79.9; Teach with mean 79.60, 80.81 and 75.40; and Vet with mean 77.17, 74.43 and 75.64. The indicated mean performances of graduates imply that the products of these degree programs have varied levels and are fluctuating and unstable. Predictors of licensure examinations differ by degree program, for teachers, the type of students, and the qualification of faculty matters [61-63]

With these findings, it is recommended that program owners monitor the performance of graduates in the licensure examination as they ensure that all competencies and expected program outcomes will be met [72].

Academic Training or Achievement of Students in 2017, 2018 and 2019

Academic Training in this study is operationally defined as students' academic achievement in their academic courses.

While OJT and thesis performance or grades of students are considered as the institutional intervention. There should have been a separate measure of this variable, however, due to the pandemic, it is very difficult to reach out to all 1000-plus respondents of this investigation. Moreover, secondary data on their grades are also very important information that the researchers can process and analyze to determine if these correlates with their performance in the licensure examination.

For this part of the presentation, data of those who were first-timers in the licensure examinations were only included. Table 2 presents the average GWA of the graduates who took the specific licensure examination from 2017 to 2019.

Table 2. Academic Training or Achievement of CMU Graduates

Licensure Examination for:	2017		2018		2019	
	Mean	SD	Mean	SD	Mean	SD
Agriculturist	2.42	0.692	2.93	0.620	2.26	0.438
Nutritionist and Dietician	1.81	0.145	1.86	0.240	1.88	0.201
Chemist	2.24	0.671	1.81	0.239	1.92	0.279
Forester	4.22	2.078	3.42	0.000	2.57	0.305
Psychometrician	2.05	0.336	1.88	0.259	1.84	0.205
Teacher	1.98	0.324	1.98	0.258	1.93	0.222
Veterinarian	3.09	0.438	2.535	0.521	1.36	0.299

Performance of CMU students in Institutional Interventions in 2017, 2018 and 2019

In this parameter, students' performance in institutional interventions is measured by their grades in their thesis and or on-the-job training (OJT). Usually, students who were to be deployed to their OJTs were given enhancement training, programs, and seminars to better prepare for the world of work outside their classroom. The performance of the students in their thesis and OJTs is presented in Table 3 below.

Table 3. Performance of Students in Institutional Interventions

Licensure Examination for:	2017		2018		2019	
	Mean	SD	Mean	SD	Mean	SD
Agriculturist	1.39	0.256	1.59	0.257	1.36	0.257
Nutritionist and Dietician	1.38	0.130	1.24	0.061	1.21	0.094
Chemist	1.38	0.198	1.38	0.235	1.50	0.395
Forester	1.54	0.254	1.50	0.000	1.40	0.175
Psychometrician	1.71	0.356	1.54	0.196	1.42	0.249
Teacher	1.23	0.205	1.13	0.157	1.14	0.163
Veterinarian	1.32	0.203	1.32	0.241	1.36	0.299

In Table 3, the mean students' grade in thesis and OJTs ranges from 1.13 to 1.71, indicating high performance for all degree programs. These findings show that CMU graduates have a high-performance level in the institutional interventions provided. The performance of students can be influenced by their familiarity with the assessment techniques utilized by the examiners. Since this is an institutional intervention, the high performance may be attributed to this familiarity effect [64-67].

Correlation Between Licensure Examination Performance and Academic Achievement

This section presents the association between students' academic achievement and their performance in the licensure examination as shown in Table 4.

Table 4. Correlation between Licensure Examination Performance and Academic Training/Achievement

Licensure Examination for:	r	p-value	Remarks
Agriculturist	0.354**	0.000	Significant
Nutritionist and Dietician	0.450**	0.001	Significant
Chemist	0.524**	0.000	Significant
Forester	0.470**	0.000	Significant
Psychometrician	0.324**	0.003	Significant
Teacher	0.033	0.234	Not Significant
Veterinarian	0.074	0.310	Not Significant
Over-all	0.039*	0.027	Significant

*significant at 0.05 level

**significant at 0.01 level

Results showed that there is a significant positive relationship between the licensure performance of graduates in Agri ($r=0.354$, $p\text{-value}=0.000$), ND ($r=0.450$, $p\text{-value}=0.001$), Chemist ($r=0.524$, $p\text{-value}=0.000$), and Pscy ($r=0.324$, $p\text{-value}=0.003$). This relationship means that the higher is the GWA of the students, the higher is their performance in the licensure examination and vice versa. However, no statistically significant association exists between the GWA of Teach ($r=0.033$, $p\text{-value}=0.234$) and Vet ($r=0.074$, $p\text{-value}=0.310$). This non-association reveals that, for BSEd and DVM, GWA can not tell us how they will perform in the licensure examinations. In totality, GWA has a statistically positive and significant correlation with the licensure examination of CMU graduates. This result will give ample information to program owners that those students who are low performing in their academics have a higher chance to fail the licensure examination. They need to design additional enhancement programs for these students to increase the percentage passing of the degree program.

The same findings were found by the studies of Dagdag [27] and Junio-Pacheco and Allaga [22] that board performance correlates with academic subjects with a slight correlation. Also, it confirms the findings of Terano [23] when he reported that academic performances were good predictors of electrical engineering graduates' licensure examinations. Moreover, several studies found that academic performance influences licensure examination performance [9, 10, 11, 12, 13, 14].

Correlation Between Licensure Examination Performance and Institutional Interventions

Table 5 presents the association between students' performance in the institutional intervention as measured by their thesis and/or OJT grade and their performance in the licensure examination. Analysis shows that four (4) degree programs indicate a statistically significant positive relationship between their performance in the institutional intervention and their licensure examination. These are the BS Agriculture ($r=0.261$, $p\text{-value}=0.000$), BS Chemistry ($r=0.414$, $p\text{-value}=0.000$), BS Forestry ($r=0.449$, $p\text{-value}=0.001$) and BS Psychology ($r=0.467$, $p\text{-value}=0.000$). The r -values suggest that the higher the students' grades on their thesis and/or OJTs, the higher their performance in the licensure examination and vice versa.

Table 5. Correlation Between Performance of CMU Graduates' Licensure Examination and Institutional Intervention

Licensure Examination for:	r	p-value	Remarks
Agriculturist	0.261**	0.000	Significant
Nutritionist and Dietician	0.004	0.978	Not Significant
Chemist	0.414**	0.000	Significant
Forester	0.449**	0.001	Significant
Psychometrician	0.467**	0.000	Significant
Teacher	0.040	0.154	Not Significant
Veterinarian	0.087	0.232	Not Significant
Over-all	0.043*	0.014	Significant

*significant at 0.05 level

**significant at 0.01 level

These findings elucidate the possibility of knowing how graduates will perform in their licensure examination by simply looking at their GWA or grade in their thesis and/or OJT.

Studies by Allaga [15] and Dagdag et al. [7] supported the findings of this investigation when they found out that one of the academic predictors of licensure examinations was study strategies. Other academic factors like high school grade point average, national achievement tests, and grades in specific subjects have a substantial to very high correlation to performance in the licensure examination [17].

4. CONCLUSION AND RECOMMENDATIONS:

Except for Chemistry, CMU graduates consistently outperform the national passing rate on the Licensure Examination in 2017, 2018, and 2019. CMU graduates perform better in ND but worse in Chem. Academically, graduates of CMU range from very poor to excellent academic performance, as measured by their GWA. As a result, CMU graduates are typically below-average academic performers. Academic training or achievement is generally associated with graduates' performance on licensure examinations. While some programs do not have a significant correlation with these variables, the aggregate data indicates a positive relationship. In aggregate, institutional intervention has a significant positive relationship with graduates' performance on the licensure examination.

On the basis of the foregoing conclusions, the following recommendations are made:

The program administrators are urged to maintain the ND's outstanding performance on the Licensure Examination. The Chemistry Department's existing curricula must be reviewed to ensure they align with the competencies assessed on the licensure examination. If not, they are energized to implement interventions to supplement the competencies lacking in their current curriculum. Additionally, because graduate performance is one of the key outcome areas for SUC leveling, faculty members must ensure that all competencies in their respective programs are covered in their lessons and that students develop these competencies in order to perform well on licensure examinations.

Given the significant positive correlation between academic performance and institutional interventions and graduates' licensure examination results, the university may strengthen

its program admission and retention policies to ensure a greater likelihood of passing the licensure examination.

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