

# English Language Performance of Radiologic Technology Graduates from Higher Education Institute (HEI): Its Implications to Philippine Radiologic Technologists Licensure Examination

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## ABSTRACT

This study examined the relationship between English language performance and the Philippine Radiologic Technologists Licensure Examination (RTLE) performance of Bachelor of Science in Radiologic Technology graduates from a Higher Education Institute from 2017 to 2019. A descriptive retrospective correlational ex post facto design was employed using secondary documentary records from the Professional Regulation Commission and the school registrar's office. The study included 53 first-time RTLE takers and analyzed their grades in three English subjects in relation to licensure status and board ratings. Descriptive statistics, chi-square-based trend analysis, Wilcoxon signed-rank test, Kruskal-Wallis test, Spearman rho, and regression analysis were used. Results showed that the institution produced 35 passers out of 53 first-

time examinees, yielding an overall passing rate of 66.04%. The highest yearly passing rate was recorded in 2018 at 84.62%, while the lowest was in 2019 at 55.00%. Examinees with higher English-grade categories obtained better board-examination outcomes: the very good category recorded 100% passing, the good category 82.61%, the fair category 54.55%, and the passing category 42.85%. The linear-by-linear association indicated a significant trend between English-grade category and board status,  $p = .015$ , while Wilcoxon results showed a significant difference between averaged English grades and board ratings,  $Z = -5.409$ ,  $p < .001$ . The findings suggest that English language performance was meaningfully associated with RTLE performance and may serve as a basis for English-enhancement initiatives in radiologic technology education.

**Keywords:** board examination rating, English language performance, higher education institute, radiologic technology, RTLE, licensure examination

## INTRODUCTION

English is widely used as a medium of instruction, professional communication, and assessment in higher education. In the Philippines, English is especially important in allied health programs because textbooks, classroom instruction, clinical documentation, and professional licensure examinations commonly use English. For non-native speakers, however, the language of examination may become an additional academic demand, particularly when test items require careful comprehension of technical vocabulary and complex sentence structures.

Radiologic Technology is a healthcare profession that requires strong technical knowledge, patient-care competence, and the accurate interpretation of professional concepts. The Philippine Radiologic Technologists Licensure Examination is administered by the Professional Regulation Commission through the Board of

Radiologic Technology to determine whether graduates meet the required competencies for professional practice. As in other board programs, licensure performance is often treated as an indicator of institutional effectiveness and graduate preparedness.

The performance of graduates in licensure examinations may be influenced by several factors, including academic preparation, curricular alignment, review readiness, and language competence. In programs where English is the medium of instruction and assessment, English language performance may affect students' ability to understand test questions, analyze professional concepts, and demonstrate knowledge in board examinations. Prior studies in nursing and other professional fields have associated academic performance and English proficiency with examination and workplace outcomes, but limited research has examined this issue specifically in Radiologic Technology.

This study addressed that gap by examining the English language performance of BSRT graduates from a Higher Education Institute and its implications for the RTLE from 2017 to 2019. It analyzed first-time examinees' grades in three English subjects, their licensure status, and their board ratings. Anchored on attribution theory, the study considered English performance as one possible factor associated with success or failure in professional licensure performance.

## Literature Review

### *Radiologic Technology Education and Licensure Examination Performance*

Radiologic Technology education prepares students for the technical application of ionizing and non-ionizing radiation in diagnostic and therapeutic settings. In the Philippine context, the BSRT program is guided by the Commission on Higher Education and includes classroom instruction, professional coursework, and clinical exposure. The curriculum is designed to develop knowledge, critical thinking, problem-solving ability, and professional responsibility.

Professional licensure examinations serve as mechanisms for protecting public welfare by ensuring that graduates possess the required professional competencies. The RTLE assesses graduates' readiness to practice in areas such as radiologic physics, image production, radiographic procedures, patient care, administration, ethics, anatomy, medical terminology, and related radiological sciences. Institutional passing rates are often used as measures of program quality and graduate preparation.

Studies of licensure performance in other disciplines suggest that academic preparation can influence board-examination outcomes. Besinque et al. (2000) identified grade point average as a predictor of success in a pharmacy licensure examination, while Ong et al. (2012) associated academic and pre-board indicators with nursing licensure performance. These findings justify examining English subject performance as a possible academic factor related to RTLE results.

### *English Language Proficiency in Allied Health Education*

English proficiency is important in many healthcare-related fields because it supports comprehension of professional texts, classroom instruction, clinical terminology, and written examinations. The British Council (2013) described English as central to global communication, while Cabigon (2015) discussed the role of English in the Philippine context. In allied health education, English is commonly used in professional references, academic research, and assessment.

For students who use English as a second language, the language of instruction and examination can affect learning. Phillips (2006) explained that complex English in examinations may contribute to poor performance, while Arcuino (2013) noted the difficulty of interpreting English questions for non-native speakers. Studies in nursing and healthcare education have similarly identified language barriers and English proficiency as factors affecting academic performance (Glew et al., 2015; Oducado & Penuela, 2014; Salamonson et al., 2008).

English language performance may therefore influence board-examination readiness in programs where professional knowledge is assessed through English. In Radiologic Technology, examinees must understand technical terms, interpret questions accurately, and apply concepts across multiple board-examination clusters.

Stronger English preparation may help graduates process licensure items more effectively and communicate professional knowledge with greater precision.

### ***Attribution Theory and Academic Outcomes***

The study was anchored on attribution theory, which explains how success or failure may be interpreted in relation to internal and external factors. Heider's attribution theory, later developed by Weiner, has been used in educational research to understand learners' perceptions of performance outcomes and academic motivation. In this study, English language performance was treated as one academic factor that may be associated with board-examination results.

Attribution theory is relevant because licensure performance cannot be attributed to a single cause. Outcomes may reflect study habits, institutional preparation, subject mastery, review practices, test-taking skills, and language ability. Nevertheless, when consistent patterns emerge between English-grade categories and board-examination outcomes, English performance becomes an important area for institutional attention.

The framework of this study therefore positioned English language performance as the independent variable and RTLE performance as the dependent variable. The analysis examined whether higher averaged grades in English subjects were associated with higher passing rates and board ratings among BSRT graduates.

## **METHODS**

### **Research Design**

The study used a descriptive retrospective correlational ex post facto research design. This design was appropriate because the study analyzed existing records without manipulating variables. It examined the relationship between English language performance and RTLE performance using documented English grades and official licensure-examination results.

### **Research Locale**

The study was conducted in a Higher Education Institute located in a highly urbanized city in Region 3, Philippines. Documentary data were accessed through the school's registrar's office and the official Professional Regulation Commission licensure-examination records.

### **Participants and Sampling Technique**

The subjects of the study were 53 Bachelor of Science in Radiologic Technology graduates who were first-time RTLE takers from 2017 to 2019. Cluster sampling was used, with each board-examination year treated as a cluster of graduates sharing the same program and examination context. The sample included 20 first-time examinees in 2017, 13 in 2018, and 20 in 2019.

### **Research Instrument**

The study used retrospective documentary review as the research instrument. Data on passing status and board ratings were obtained from official PRC records, while English subject grades and verbal descriptions were obtained from CHED-certified registrar records. The English performance variable was based on the averaged grades of three English subjects in the BSRT curriculum: Communication Skills 1 or Purposive Speaking, Communication Skills 2 or Creative Writing, and Philippine Literature in English.

### **Data Gathering Procedure**

Data were gathered from two secondary sources. First, official RTLE results were retrieved from the PRC website. Second, authorization was secured to access the graduates' English subject grades from the registrar's office of the Higher Education Institute. The data collection process covered approximately two months. The data were encoded, categorized according to English-grade verbal descriptions, and matched with board-examination status and ratings.

### Data Analysis

Frequency, percentage, mean, range, variance, standard deviation, skewness, kurtosis, and normality tests were used for descriptive analysis. Chi-square procedures and linear-by-linear association were used to examine association between English-grade categories and board status. The Wilcoxon signed-rank test was used to compare averaged English grades and board ratings. Kruskal-Wallis, Spearman rho, and regression analysis were also used in the source analysis to examine differences, associations, and relationships. Statistical analyses were conducted using Microsoft Excel ToolPak with QI Macros and IBM SPSS.

### Ethical Consideration

The study used secondary records and did not involve direct interaction with the graduates. Authorization was secured from the registrar's office before accessing academic records. Confidentiality was observed by presenting individual data in coded form and discussing findings in aggregate. The final manuscript should include the institutional approval or ethics-clearance reference number if required by the target journal.

## RESULTS AND DISCUSSION

### RTLE Passers and Passing Rates from 2017 to 2019

The HEI produced 53 first-time RTLE examinees from 2017 to 2019. Of these, 35 passed and 18 failed, yielding an overall passing rate of 66.04%. The highest yearly passing rate was recorded in 2018, with 11 passers out of 13 examinees or 84.62%. The lowest was recorded in 2019, with 11 passers out of 20 examinees or 55.00%. The results show fluctuating yearly licensure performance.

Table 1. *RTLE First-Time Examinees, Passers, and Passing Rates from 2017 to 2019*

Year	First-time examinees	Passers	Failed	Passing rate	Failing rate
2017	20	13	7	65.00%	35.00%
2018	13	11	2	84.62%	15.38%
2019	20	11	9	55.00%	45.00%
Total	53	35	18	66.04%	33.96%

The 2018 cohort had the smallest difference between graduates and passers and the highest pass-fail difference rate. The 2019 cohort had the greatest disparity between examinees and passers. This suggests that institutional board performance was not stable across the three examination years and may have been influenced by cohort-level academic characteristics, preparation, or other contextual factors.

### English Language Performance and Board Examination Status

The passers were distributed across English-grade categories. No examinee was recorded in the excellent category. The very good category had one examinee, who passed. The good category had the largest number of examinees and also had a high passing rate of 82.61%. The fair category had a passing rate of 54.55%, while the passing category had a lower passing rate of 42.85%. The pattern shows that higher English-grade categories tended to correspond with higher RTLE passing rates.

Table 2. *RTLE Performance by Averaged English-Grade Category*

English average range	Category	Passed	Failed	Total	Passing rate	Failing rate
98-100	Excellent	0	0	0	0.00%	0.00%
93-97	Very Good	1	0	1	100.00%	0.00%
84-92	Good	19	4	23	82.61%	17.39%
78-83	Fair	12	10	22	54.55%	45.45%
75-77	Passing	3	4	7	42.85%	57.15%
Total		35	18	53	66.04%	33.96%

The trend indicates that English language performance may be meaningfully related to board-examination status. Graduates categorized as good or very good in English had stronger passing outcomes than those categorized as fair or passing. This supports the claim that English comprehension and performance may help examinees process professional board questions written in English.

### Yearly English-Grade Means and Passing Rates

Across the three English subjects, the 2018 cohort obtained the highest mean English grade at 85.26, interpreted as Good, and also achieved the highest RTLE passing rate of 84.62%. The 2017 cohort had a mean English grade of 81.37, interpreted as Fair, and a passing rate of 65.00%. The 2019 cohort had a mean English grade of 82.83, interpreted as Fair, and the lowest passing rate of 55.00%. Across all years, the gross mean for the three English subjects was 83.15, interpreted as Fair, with an overall passing rate of 66.04%.

Table 3. *Average English Subject Grades and RTLE Passing Rates by Year*

Year	English 1 M	English 2 M	English 3 M	Mean of 3 subjects	Description	RTLE passing rate
2017	82.55	80.20	81.35	81.37	Fair	65.00%
2018	83.77	84.77	87.23	85.26	Good	84.62%
2019	83.05	81.40	84.05	82.83	Fair	55.00%
Gross	83.04	81.77	83.81	83.15	Fair	66.04%

### Descriptive Profile of English Grades and Board Ratings

The averaged English grades of the 53 examinees had a mean of 82.8742 and standard deviation of 4.68094, with a minimum of 75.67 and maximum of 95.67. Normality tests showed that this distribution did not violate normality assumptions. In contrast, board ratings had a mean of 75.8755 and standard deviation of 9.38036, with a minimum of 52.40 and maximum of 91.00. Normality tests indicated that board ratings were not normally distributed, supporting the use of non-parametric tests for inferential analysis.

Table 4. *Descriptive Statistics of Averaged English Grades and Board Ratings*

Variable	N	Mean	SD	Minimum	Maximum	Normality result
Averaged grade of three English subjects	53	82.8742	4.68094	75.67	95.67	Normal
Board rating	53	75.8755	9.38036	52.40	91.00	Not normal

### Association Between English Performance and Licensure Outcomes

The chi-square test of independence between averaged English-grade category and board status did not reach significance using Pearson chi-square,  $p = .098$ , likelihood ratio,  $p = .079$ , or Fisher's exact test,  $p = .065$ . However, the linear-by-linear association was significant,  $p = .015$ . Because the English categories were ordered from lower to higher performance, the linear trend test was informative and indicated that better English-grade categories were associated with greater likelihood of passing the RTLE.

Table 5. *Association Between Averaged English-Grade Category and Board Status*

Test	Value	df	p-value	Interpretation
Pearson chi-square	6.303	3	.098	Not significant
Likelihood ratio	6.792	3	.079	Not significant
Fisher's exact test	6.321		.065	Not significant
Linear-by-linear association	5.862	1	.015	Significant trend

The Wilcoxon signed-rank test showed a significant difference between averaged English grades and board ratings,  $Z = -5.409$ ,  $p < .001$ . Most ranks were negative, indicating that board ratings were generally lower than averaged English grades. However, the graphical comparison and descriptive patterns in the source manuscript suggested that the two variables followed a broadly similar trend across examinees.

Table 6. *Wilcoxon Test Between Averaged English Grades and Board Ratings*

Comparison	Negative ranks	Positive ranks	Ties	Z	p-value	Interpretation
Board rating minus English average	47	6	0	-5.409	< .001	Significant difference

### Implications for English Enhancement in Radiologic Technology

The findings suggest that English performance is relevant to RTLE preparation. Although English grades and board ratings are not identical measures, graduates with stronger English-grade categories tended to have higher passing outcomes. This finding supports the development of English-enhancement initiatives in the BSRT program, particularly those connected with technical reading comprehension, medical terminology, test-question analysis, and written professional communication.

The implication is not that English proficiency alone determines licensure success. Board performance is shaped by multiple factors, including mastery of radiologic technology content, clinical preparation, review practices, study habits, motivation, and institutional support. Nevertheless, when licensure questions are written in English and professional references use English, language competence becomes a practical support for demonstrating technical knowledge.

### CONCLUSION

The study found that English language performance was meaningfully associated with the RTLE performance of BSRT graduates from 2017 to 2019. The HEI produced 35 passers out of 53 first-time examinees, with an overall passing rate of 66.04%. Graduates with higher averaged English-grade categories generally demonstrated stronger board-examination outcomes. The very good and good categories obtained higher passing rates than the fair and passing categories. The linear-by-linear association showed a significant trend between English-grade category and board status, while the Wilcoxon test confirmed a significant difference between averaged English grades and board ratings. These findings indicate that English language performance should be considered an important academic support area in Radiologic Technology education. Strengthening English comprehension, technical vocabulary, and board-question interpretation may help students demonstrate professional knowledge more effectively in licensure examinations.

### Recommendation

Radiologic Technology programs should integrate English-enhancement activities into professional courses and board-review preparation. Instruction may include technical reading exercises, medical and radiologic terminology development, practice in analyzing English-based licensure questions, and communication tasks aligned with radiologic technology contexts. Faculty members may collaborate with English instructors to design discipline-specific language support for BSRT students. The institution should monitor English subject performance as one of several academic indicators for licensure readiness and provide early intervention for students in lower English-grade categories. Future studies should include larger samples, more institutions, additional cohorts, and other potential predictors such as GPA, pre-board scores, study habits, clinical performance, and socioeconomic variables. Researchers may also use predictive modeling to examine the combined influence of English performance and professional subject mastery on RTLE outcomes.

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