

# Employability of BS Radiologic Technology Graduates from 2013 to 2015 as Input to Student Development Program

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**Abstract** - *This study aimed to determine the employability of Radiologic Technology graduates from 2013 to 2015. Descriptive type of research was utilized in the study. Results showed that there are 93.8 percent of the BSRT graduates are gainfully employed locally with regular or permanent status. Majority of them landed a job one (1) to 2 years. Career challenge and relevance of course completed to job assignment are the reasons of the graduates for accepting and staying on the job. Communication and critical thinking skills are considered very useful in most BSRT graduates in meeting the demands of their present job. The value of hard work contributed very much to the job placement of most Radiologic Technology graduate-respondents followed by leadership, perseverance, honesty and love for truth and courage (3.64). Courses in Natural science are considered the number one (1) useful aspect for their employment in terms of General Education while Human Anatomy & Physiology and Radiographic Anatomy & Physiology are considered two of the most relevant professional courses to their present employment.*

**Keywords:** *employability, radiologic technology, job placement, student development*

## INTRODUCTION

Graduates' employability is one of the measures of Higher Education Institution of its performance and output of educational services. The quality of the graduates still remains the responsibility of academic institutions to hone the knowledge, skills and values of the students to become significant part of the society in economic development [1]-[12]. Providing relevant health education based on the needs and demands of the community and industries is one way of transforming the mind-set of the present generation

health workers to offer long-term or short term solutions to the challenges being faced by the country and society.

Career is a continually changing activity influenced by different factors. Concern about graduate unemployment is growing daily and at an accelerated rate in the Philippines, yet the strength of student enrolment and graduate outputs of the higher education institutions are growing rapidly [13].

Radiologic Technology is a health care profession whose practitioner works directly with the patient and the physician in performing a wide variety of diagnostic and interventional therapy procedures. Radiologic Technologists use their expertise and knowledge of patient handling, physics, anatomy physiology, pathology and radiology to assess patients, develop optimal radiologic techniques and evaluate resulting radiographic images. Careers in hospitals, education, free standing clinics, health research and medical sales and consulting. Radiologic Technology profession is part of a large workforce providing health care services to the community. Graduates of health programs have the capability to communicate positively to the patients gained through proper training and education.

Radiologic technology programs provide students with the necessary knowledge and skills to become a radiologic technologist. Similar to other professional programs in higher education, educating students in radiologic technology is more than just imparting knowledge and skills of a particular profession. Students must also be afforded the skills to adapt to different patient conditions in a variety of healthcare settings. Radiologic technologists are healthcare professionals who perform diagnostic imaging examinations. Through clinical, didactic, and laboratory courses, students are educated in anatomy, radiation protection, patient positioning, imaging

techniques, equipment operation, and 4 patient care [14]. All radiologic technology programs have these basic components, but they can vary in their content beyond this. For example, some programs may have components for students to have learning experiences in other imaging modalities such as ultrasound or nuclear medicine, or other programs may have content involving advanced management skills [15].

One study in the US noted that one of the greatest dilemmas facing medical imaging departments today is the worsening personnel crisis in the radiologic technologist (RT) workforce. As the volume and complexity of medical imaging studies continues to increase, an unprecedented imbalance exists between RT supply and demand [16].

Radiologic technologists perform medical imaging exams and administer radiation therapy treatments. With the help of various imaging technologies, these professionals take pictures of a patient's body for radiologists, who will then interpret the images. Radiologic technologists often specialize in a particular examination technique, such as mammography or bone densitometry. These professionals can also assist oncology teams in delivering radiation therapy to cancer patients. Most radiologic technologists are employed at state, local and private hospitals, physicians' offices and in medical and diagnostic laboratories [17].

All the Radiologic Technology graduate-respondents of LPU-Batangas from 1997 to 2007 are employed and were able to land in jobs related to their completed degree program. The Radiologic Technology program is a viable course such that graduates find employment within a short span of time right after passing the Radiologic Technology licensure examinations given by the Professional Regulation Commission. Radiologic technologists who are currently employed in hospital-based and free-standing x-ray laboratories work on a full-time basis. The skill and competencies and work-related values that the graduates have learned and acquired while at school and the performance in the examination and interviews conducted by the employers are considered to be the most important contributing factors in seeking employment after graduation [13].

Graduates of the Radiologic technology program are expected to attain the following program educational objectives: have passed the licensure examination; demonstrate competence in the performance of medical imaging, treatment,

monitoring and management of diseases; exhibit attitude of professionalism and leadership collaboration with other disciplines and membership with professional organization; adapt current trends in the profession through continuing education; and participate in research and community services to develop knowledge of health, disease, healthcare management and education [18].

The relevance of the curriculum to the job functions of radiologic technology adheres to the implementation of the outcomes-based education. Competencies of the students are measured against the student outcomes that they should possess right after graduation [19]-[28]. The quality of delivery of instruction is maintained through providing adequate school plant and facilities with laboratories for hands-on experience. The teaching and learning process creates a classroom environment that enhances the capability of the students to think analytically and logically. Determining the factors that contribute to the job placement of the RT graduates is important input to the academic institutions that will serve as the basis for discussion in curriculum review and improvement of syllabi. The information provided in the employability surveys is being used for continuous improvement of educational services of concerned work units. The curriculum is also supported by the academic activities that provide the students better opportunity to actively participate in building the confidence and social relationship.

#### **OBJECTIVES OF THE STUDY**

This study aimed to determine the employability of Radiologic Technology graduates for three school years from 2012-2013, 2013-2014 and 2014-2015. It specifically aims to determine the present employment, employment status, nature of employment, skills learned in college and work – related values of the respondents; and to propose an action plan to improve the student development program of the College of Business Administration.

#### **METHOD**

##### **Research Design**

This employability study used the descriptive research design wherein according to Shuttleworth (2008), it is a scientific method which involves observing and describing the behavior of a subject without influencing it in any way. This research method is appropriate for this study to illustrate the status of employment of the RT graduates through survey questionnaire.

### Participants

Total population of 95 BS Radiologic Technology graduates from three academic years 2012-2013 (26 graduates), 2013-2014 (32 graduates) and 2014-2015 (37 graduates), graduates of 2016 were excluded in the study since there are only few months after their graduation and it would not provide precise data of employment.

**Table 1. Frequency Distribution of Radiologic Technology Graduate Respondents**

	Population	Actual Respondents	%
2013	26	20	76.9
2014	32	28	87.5
2015	37	33	89.2
Total	95	81	85.3

Out of 95 total populations of BSRT graduates for the last three years, 81 or 85.3 percent responded in the online survey which comprised of 20 or 76.9 percent from batch 2013 with 26 total graduates; 28 or 87.5 percent from 2014 with 32 graduates and 33 or 89.2 percent from batch 2015 with 37 total graduates.

### Instrument

Survey questionnaire is the main instrument used in this study. The instrument was crafted from the prescribed instrument for tracer study of the University wherein some variables were omitted just for the purpose of determining some basic data and information from the graduates which include: the present employment, employment status, nature of employment, competencies learned in college and work – related values of the respondents and the curriculum.

### Procedure

The respondents were informed on the purpose of the study and were invited to participate in the survey with the assurance that the data will be provided in the survey will be treated with utmost confidentiality and will solely be used for the purpose of this research. The researchers administered the questionnaires through online survey. The study achieved 85.3 percent retrieval rating.

### Data Analysis

The following statistical tools are employed in interpreting the data obtained from the survey:

Percentage and Rank was used to analyze the profile of the respondents with respect to the selected variables. Weighted Mean was used to determine the degree of perception of the graduate respondents in the school factors related to their job placement.

The respondents were given four options to identify the factors that contributed to the placement of the graduates in their present employment and to determine the skills developed by Lyceum of the Philippines University and work related values of the respondents. To arrive at a verbal description of each item, the arbitrary numerical guide was followed: Very Much (VM): 3.5 – 4.00: Much (M): 2.5 – 3.49: Little (L); 1.5 – 2.49: Very Little (VL): 1.0 – 1.49.

### RESULTS AND DISCUSSION

Table 2 presents the frequency distribution of the BSRT Graduates in terms of present employment data. Out of 81 surveyed BSRT graduates, there are 76 or 93.8 percent are presently employed during the data gathering while 5 or 6.20percent are unemployed. Graduates of batch 2013 has the highest percentage with all graduates are presently employed while 25 out of 28 or 89.30 are employed in Batch 2014 and 31 out of 33 or 93.9percent are employed in Batch 2015. Study of Valdez [13] on the job placement profile of Radiologic Technology graduates from 1997-2007 in terms of their present employment showed that an overwhelming 100% (97/97) of the graduate-respondents are presently employed during the data gathering.

**Table 2. Frequency Distribution of the BSRT Graduates In terms of Present Employment Data**

Present Employment	2013		2014		2015		Total	
	F	%	F	%	F	%	F	%
Presently Employed	20	100	25	89.3	31	93.9	76	93.8
Unemployed	-	-	3	10.7	2	6.1	5	6.2

This means that most of the graduate-respondents have jobs indicating that the demand for radiologic technologists whether in hospital-based x-ray laboratories or free-standing ones is high. These results affirm the report from the Commission on Higher Education that opportunities for the practice of the Radiologic Technology profession have also tremendously increased when there were more schools accredited to offer the four-year degree program.

Table 3 presents the distribution of BSRT graduates in terms of present employment status and nature of employment.

**Table 3. Distribution of BSRT Graduates In Terms of Present Employment Status and Nature of Employment**

Status	2013 (20)	2014 (25)	2015 (31)	Total	%
Regular or Permanent	13	18	23	54	71.05
Contractual/ Casual	4	3	5	12	15.79
Temporary	3	4	3	10	13.16
Nature of Employment					
Gainfully employed	20	21	30	71	93.42
Self-employed	-	1	-	1	1.32
Underemployed	-	3	1	4	5.26
Place of Work					
Local	19	23	30	72	94.74
Abroad	1	2	1	4	5.26

Majority of the BSRT graduates out of 76, there are 54 or 71.05 percent of them are already enjoying regular or permanent status while 12 of them or 15.79 percent have casual job status and the least group of 10 or 13.16 percent are having temporary jobs at present. Seventy-one (71) or 93.42 percent of the RT graduates are gainfully employed while 4 of them or 5.26 percent are underemployed and 1 or 1.32 percent is self-employed abroad. They considered themselves as gainfully employed because they are presently connected in institutions or hospitals who are receiving salaries consistently as employees. There are 72 or 94.74 percent of the surveyed graduates are locally employed while 4 or 5.26 percent are working in the USA and Saudi Arabia. Majority of them are handling positions as Radiologic Technologist, CT Scan Technologist, Jr. CT-MRI Technologist, X-Ray Technologist, Ultrasound Technician, Nuclear Medicine Technologist, ESWL Technician and Clinical Instructor.

Table 4 shows the reasons for staying and accepting the job and period spent to find the present job. Out of 73 BSRT graduates, 70 of them or 92.10 percent stayed on the job due to the degree program of their study is related to their job assignment followed by career challenge (67.1%) and salaries and benefits (63.2%).

**Table 4. Reasons for staying and accepting the job and Period Spent to Find the present Job**

Reasons for staying on the job	F	%	Rank
Salaries and benefits	48	63.2	3
Career challenge	51	67.1	2
Related to special skill	34	44.7	4
Related to course or program of study	70	92.1	1
Proximity to residence	28	36.8	5
Peer influence	8	10.5	7
Family influence	16	21.1	6
Period Spent to Find the First Job			
Less than a month	11	14.5	4
1 to 6 months	15	19.7	3
7 to 11 months	20	26.3	2
1 year to less than 2 years	23	30.3	1
2 years to less than 3 years	7	9.2	5
Reasons for accepting the job			
Salaries & benefits	44	57.89	3
Career challenge	60	78.95	1
Related to course completed/Skill	50	65.79	2
Proximity to residence	28	36.84	4

However, proximity to residence (28 or 36.8%), family influence (16 or 21.1) and peer-influence (8 or 10.5%) are considered the least reasons of the BSRT graduates for staying in the job.

Graduates accept jobs mostly because of the career challenge (60 or 78.95%) and due to their job is related to their course completed (50 or 65.79%) as well as due to salaries and benefits (44 or 57.89%). However, the least reason considered is the proximity to residence (28 or 36.84%).

Graduates aim to find work because they want to have a decent life and acquire their basic needs from their salaries and benefits. Most employees within one to five years after graduation gradually change their attitude on how they perceive work as a source of living. Because of certain level of maturity based on experience, they see work as a source of happiness and fulfilment not as a material symbol but something developmental where they to nourish and grow.

They start to see work as a challenge that keeps them on discovering more information and skills on their assignments. They begin to realize where they are good at and continue to make remarkable outputs and achievement of the vision and mission of the institution.

There are 23 or 30.3 percent of the graduates obtained their jobs in 1 year to less than 2 years while 20 or 26.3 percent in 7 to 11 months and 15 of them or 19.57 percent within 1 to 6 months. The present study

confirmed the result of the findings of Valdez [13] wherein 65 per cent of the BSRT graduates from 1997-2007 were able to find jobs in more than one year because they still have to take the Radiologic Technology licensure examinations before they can be accepted to work professionally.

Graduates would be able to land jobs in a short period of time within 6 months to one year in average. It gives them ample time to seek for better opportunities and weigh the consequences of working near their residence or try their luck in Manila. This is the period when they have options what company or position to apply but mostly hiring period depends on the urgency and need of fill the vacant position. It can be inferred from the results that work for Radiologic Technology graduates is available immediately three to six months after graduation and the longest waiting time is more than a year. This also suggests that given vacancies, the Radiologic Technology graduates may find employment [13].

**Table 5. Frequency Distribution of BSRT Graduates In Terms of Skills Learned in College They Find Very Useful in Their Present Job**

Skills Learned in College	Total	%	Rank
Communication skills	63	82.89	1
Human Relations skills	52	68.42	3
Information Technology skills	39	51.32	5
Problem-solving skills	48	63.16	4
Critical Thinking skills	61	80.26	2

*\*Multiple Responses*

Table 5 presents the frequency distribution of BSRT Graduates in terms of skills learned in college that they find very useful in their present job. Graduates considered communication skill (82.89%) as the number 1 very useful in their job placement followed by critical thinking skills (80.26%), human relations (68.42%) and problem solving skill (63.16%). However, Information Technology skill (51.32%) is considered the least skill they find useful in their job placement.

Communication skill is every job's requirement to sustain the business operations of every organization. Oral communication is one of the most useful skills of graduates during job interviews using English as a medium of communication to convey answers and express ideas on how knowledgeable and suitable the applicants for the position in any health care institution. Communication is not all about the language but it is also about the attitude on the way

graduates deliver the message in the most appropriate manner that demonstrate humility and sincerity with utmost ethical consideration. Careful manner of conveying of information regarding the health condition of the patient is very important to possess by the health care workers.

**Table 6. Work – Related Values Contributed in Meeting the Demands of the Present Employment of the Respondents**

Work-Related Values	Total	VI	Rank
Love for God	3.61	VM	6
Honesty and love for truth	3.73	VM	4
Punctuality	3.52	VM	7
Obedience to superior	3.36	M	10
Hard work	3.97	VM	1
Creativity and innovativeness	3.37	M	9
Courage	3.64	VM	5
Professional Integrity	3.51	VM	8
Love for co-workers and others	3.28	M	11
Unity	3.15	M	12
Fairness and Justice	3.04	M	13
Leadership	3.81	VM	2
Tolerance	2.36	L	17
Efficiency	2.91	M	14
Supportiveness	2.49	L	15
Perseverance	3.77	VM	3
Nationalism	2.42	L	16
<b>Composite Mean</b>	<b>3.29</b>		

Table 6 presents the work – related values contributed in meeting the demands of the present employment of the respondents. The value of hard work (3.97) contributed very much to the job placement of most Radiologic Technology graduate-respondents followed by leadership (3.81), perseverance (3.77), honesty and love for truth (3.73) and courage (3.64). Likewise, love for God (3.61), punctuality (3.52), and professional integrity (3.51) also contributed very much to their job placement.

Meanwhile, creativity and innovativeness (3.37), obedience to superior (3.26) and love for co-workers and others (3.28) are also considered useful work values that helped them achieved their present jobs. However, unity (3.15), fairness and justice (3.04), efficiency (2.91), supportiveness (2.49), nationalism (2.42) and tolerance obtained the least weighted mean scores which implies that these work-related values were perceived also to be useful but it seems they do not see the direct and immediate impact to their job hiring process.

One of the distinct characteristics of Filipinos is being hard working [6], [8], [10]. Graduates are every

willing as part of their goals after college to provide their families some sort of comfort and things that they never had during the period when most of the salaries of their parents are being spent in tuition fees and other school requirements. Graduates need to show their parents their full support to the needs of families as a sign of gratitude. Those are some of the personal reasons behind the hard work and perseverance of the graduates to find for a good job. The love of God is always been part of Filipino culture that strengthens their faith and hope to see bright future after trials and difficulties they encountered during college.

**Table 7. Relevance of the Curriculum to the Job Placement of the Radiologic Technology Graduates**

<b>General Education</b>	<b>WM</b>	<b>VI</b>	<b>Rank</b>
English and Literature subjects	3.26	R	2
Mathematics subjects (Algebra, Trigonometry)	2.52	R	4
Social Sciences (Psychology, History)	2.72	R	3
Natural Sciences (Biology, Physics, Chemistry)	3.27	R	1
<b>Composite Mean</b>	<b>2.94</b>	<b>R</b>	
<b>Professional Courses</b>			
Introduction to Rad. Tech w/ STS	3.53	VR	14
Medical Terminology	3.69	VR	6
Human Anatomy & Physiology	3.77	VR	1.5
Radiographic Technique & Film Processing Analysis	3.72	VR	5
Radiologic Physics, Equipment Maintenance	3.62	VR	10
Radiographic Anatomy & Physiology	3.77	VR	1.5
Patient Care Management	3.76	VR	3
Radiologic Contrast Examination	3.66	VR	7
Radiographic Positioning & Radiologic Procedures	3.74	VR	4
Radiobiology & Radiation Protection	3.63	VR	8
Department Administration & Jurisprudence	3.43	R	15
Ultrasonography	3.58	VR	13
Venipuncture	2.96	R	20
Quality Assurance & Quality Control	3.62	VR	10
Radiologic Pathology	3.60	VR	12
Radiotherapy	3.11	R	19
Nuclear Medicine	3.16	R	17
Computerized Tomography	3.62	VR	10
Magnetic resonance Imaging	3.25	R	16
Interventional Radiology	3.14	R	18
<b>Composite Mean</b>	<b>3.52</b>	<b>VR</b>	

Table 7 presents the relevance of the curriculum to the job placement of the radiologic technology graduate-respondents. The respondents believed that their knowledge gained from natural sciences (3.27) is the number one (1) useful aspect for their employment in terms of General Education followed by English and Literature subjects (3.26) where their communication skills were enhanced and social sciences (2.72). However, Mathematics subjects are also considered relevant but they could not see the direct application to their job placement.

Human Anatomy & Physiology (3.77) and Radiographic Anatomy & Physiology (3.77) are considered two of the most relevant courses to their present employment followed by Patient Care Management (3.76), Radiographic Positioning & Radiologic Procedures (3.74), Radiographic Technique & Film Processing Analysis (3.72), Medical Terminology (3.69) and Radiologic Contrast Examination (3.66).

Likewise, Radiobiology & Radiation Protection (3.63), Radiologic Physics, Equipment Maintenance (3.62), Quality Assurance & Quality Control (3.62), Computerized Tomography (3.62), Radiologic Pathology (3.60), Ultrasonography (3.58) and Introduction to Rad. Tech w/ STS (3.53) are also considered very relevant to their job placement.

However, the knowledge gained by the graduate-respondents to the following courses Department Administration & Jurisprudence (3.43); Magnetic resonance Imaging (3.25) and Nuclear Medicine (3.16) are deemed relevant to their present job assignment. However, Interventional Radiology (3.14), Radiotherapy (3.11) and Venipuncture (2.96) obtained the least weighted mean scores in terms of relevance.

The computed composite mean score of 3.52 implies that in general, the professional courses of Radiologic Technology were very relevant to their present employment. Graduate-respondents are currently employed most relevant to Radiologic Technology program where they can utilize the knowledge and skills learned from the academic institution and industry-partners.

### **Input to Student Development Program**

Findings of this study serve as input to provide strategies on how RT students could probably enhance its employability and develop the skills and work – related values that are significant in job placement.

**Table 8. Student Development Program**

Key Result Area	Strategies	Responsible
Graduates' Employability	<ul style="list-style-type: none"> <li>Strengthen the connection of the University particularly the College of Allied Medical Professions to the hospitals and health care institutions through establishing more functional MOAs and MOUs where BSRT students could work as interns and be able to provide relevant research outputs for utilization of the partner-industry.</li> <li>Communicate with the employed alumni in various institutions especially those assigned in the Human Resource Department of the hospitals to provide the University with the list of their job openings.</li> </ul>	Alumni Office, Dean and Department Chair, LAIA
Skills Development	<ul style="list-style-type: none"> <li>Ensure that there are assessments of student outcomes of BSRT to address the identified gaps based on the results of the assessment</li> <li>Encourage graduating students to pursue Master's Degree in Health Care Education or Master in Hospital Administration as part of lifelong learning activity and continuous professional growth that would be beneficial for career advancement</li> </ul>	Dean, Department Chair, Faculty Members
Work Related Values	<ul style="list-style-type: none"> <li>Integrate the work related values in the syllabi of RT that highlighted the value of perseverance, Love for God, courage and hard work</li> <li>Relate all applications of lessons to actual work environment and how values should manifest in performing certain duties and responsibilities following ethical standards professional integrity.</li> </ul>	Faculty Members, Dean and Department Chair

### CONCLUSION AND RECOMMENDATION

There are 93.8percent of the BSRT graduates are gainfully employed locally with regular or permanent status. Majority of them landed a job one (1) to 2 years. Career challenge and relevance of course completed to job assignment are the reasons of the graduates for accepting and staying on the job. Communication and critical thinking skills are considered very useful in most BSRT graduates in meeting the demands of their present job. The value of hard work contributed very much to the job placement of most Radiologic Technology graduate-respondents followed by leadership, perseverance, honesty and love for truth and courage. Courses in Natural science are considered the number one (1) useful aspect for their employment in terms of General Education while Human Anatomy & Physiology and Radiographic Anatomy & Physiology are considered two of the most relevant professional courses to their present employment. The action plan to strengthen the graduates' employability, skills development and work – related values is proposed. This study is limited to the BSRT graduates from 2013 to 2015 wherein the results might not be true to the graduates of other degree programs therefore, it cannot be generalized.

It is recommended that the College of Allied Medical Professions may provide curricular activities with direct objectives of developing the employability

skills of the students through conducting seminars and intensifying the pre-employment activities and job fair to give more job opportunities to the graduating students. Thesis of the RT students may focus on the concerns of health care institutions to offer solutions to the actual problems of the management and its people which will also serve as marketing campaign for the employers to recognize the capability of RT students that would be beneficial for their operations. The present research is limited only to the BSRT graduates of one university with specific period from 2013 to 2015 where findings might only be true to the specific population under which cannot be generalized. Results can be utilized for specific purpose in program accreditation and input to the institutional development specifically for the College of Allied Medical Professions. A follow-up research may explore on the level of productivity of the BSRT graduates to determine how they grow personally and professional on their chosen career. The student development program for the College of Allied Medical Professions focusing on the needs of BSRT students may be implemented and evaluated for its effectiveness.

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