

## **Assessing Registered Nurse – Baccalaureate Degree Overall Program Outcomes (RNP Program)**

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### **Abstract**

*Program evaluation is an essential component of the academic process and necessary to ensure the integrity of academic programs. Overall program outcomes evaluation of RNP programs is particularly challenging. Employment data and/or pass rates of national licensure exams which are usually employed as benchmarks of overall program outcome evaluation in baccalaureate degree programs cannot be utilized because RNP programs typically require students to have a minimum of 1 year experience as a practicing RN prior to entrance into the program. A basic tenet of the State University of New York School Nursing at Stony Brook (SBU/SON) is upon graduation the graduate will be able to synthesize and translate theoretical and empirical knowledge gained from the various disciplines of study into clinical practice. Hence, the graduates will demonstrate critical thinking (Bloom, 1956; Facione, 1990). Therefore, critical thinking was selected as a benchmark to determine overall outcome evaluation for the SBU/SON RNP program.*

**Key Words:** RNP Program, critical thinking, overall program outcome evaluation

### ***1. Nursing Education in the 21<sup>st</sup> Century***

Nursing practice in the 21<sup>st</sup> century faces a number of challenges including a growing population of hospitalized patients who are older and more acutely ill, increasing healthcare costs and the need to stay current with rapid advances in medical knowledge and technology. To address these challenges employers are seeking nurses who have the knowledge, skills and attitudes that are aligned with the requirements of today's complex practice environment(s), can work effectively in inter-professional teams across a variety of settings and can provide traditional nursing care as well as other needed services such as leadership, case management, health promotion and disease prevention (National Advisory Council on Nurse Education and Practice [NACNEP], 2010). The increased complexity of the scope of practice for today's RNs requires nursing has the capacity to adapt to rapid change(s), possess critical thinking and problem solving skills; as well as possessing a solid foundation in a broad range of the basic clinical sciences; as well as behavioral science, social and management sciences and be able to analyze and communicate large amounts of data (Akiens; et al., 2003; American Association of College of Nursing [AACN], 2012; Institute of Medicine [IOM], 2010; NACNEP, 2010).

In order to address the complex health care needs of the current patient population as well as the clinical practice environment a baccalaureate degree in Nursing (BSN) is essential to provide the best foundation for entrance into the profession of nursing and clinical practice (AACN, 2012; Akiens; et al., 2003; IOM, 2010; NACNEP, 2010).

### ***2. Nursing Education***

Currently, the completion of either a Diploma of Nursing, an Associate Degree in Nursing (ADN) or a BSN fulfills the eligibility requirements needed to sit for the RN national licensure examination thereby permitting entrance into the profession of nursing and clinical practice.

The minimal qualifications and minimal level of education required for entrance into the nursing profession and clinical practice have been widely debated by nurses, nursing organizations and academicians for over 40 years. In 2003 Akien, et al. examined nursing educational composition and patient outcomes and found lower mortality and failure to rescue rates in surgical patients in hospitals with a higher proportion of nurses with a baccalaureate degree education or higher.

A baccalaureate degree has a broader and stronger scientific based curriculum than either an ADN or a Diploma of Nursing (AACN, 2012; Akien; et al., 2003; IOM, 2010; NACNEP, 2010). While a BSN is not a panacea to improving the quality of patient care it does prepare students with a wider range of beginning competencies in health policy and health care financing, community and public health, leadership, quality improvement, and systems thinking. Thus, preparing graduates with the skills and competencies needed to function in today's complex health care environment (Aiken, et al., 2003; IOM, 2010; NACNEP, 2010). Currently only 50% of RNs in the United States (US) are BSN prepared the remaining have graduated from ADN programs (45.4%) or Diploma Schools of Nursing' (4.6%) (AACN, 2011; United States Department of Health and Human Resources, 2010).

### **3. Articulation Programs**

The purpose of an articulation program is to enable practicing RN's who have completed an ADN or Diploma of Nursing to obtain a BSN. Articulation programs are important mechanisms that enhance access to baccalaureate degree nursing education programs. Articulation programs augment educational mobility and have been designed to facilitate seamless transfer of academic credit between ADN and Diploma Schools of Nursing to BSN (AACN, 2005; IOM, 2010). To date there are over 650 RN-to-BSN programs (AACN, 2012).

### **4. Creating Evidenced Based Curriculum (EBC)**

Program evaluation is a systematic method for collecting, analyzing and using information to answer basic questions about an educational program (Bronte-Tinkew, Allan & Joyner, 2007; US Department of Health and Human Services, 2003). Data obtained from educational program evaluation is used to assess the strengths and weakness of educational programs and provide evidenced based data for academic planning and EBC revision.

Educational program evaluation is typically divided into two major categories: process evaluation and overall outcome evaluation.

- Process evaluations assess whether an intervention or program model was implemented as planned, whether the intended target population was reached and the major challenges and successful strategies associated with the program have been implemented.
- Overall outcome evaluation is used to determine whether and to what extent, the expected change in the student outcome occurred and whether these changes can be attributed to the program or the program's activities.

### **5. Assessing RNBP Program Outcomes**

Assessing RNBP program outcomes evaluation is particularly challenging because many of the usual benchmarks employed to assess overall program outcome evaluation cannot be utilized in RNBP programs. Employment data and/or pass rates of national licensure exams which are typically employed as benchmarks of overall program outcome evaluation in BSN programs cannot be utilized in RNBP programs. Typically RNBP programs require students to have a minimum of 1 year experience as a practicing RN prior to entrance into the program. Hence, this student cohort is already employed and has already passed the national licensure exam otherwise they could not have secured employment. Therefore, other means of overall outcome evaluation needs to be employed.

### **6. Selecting an Evaluative Tool**

The basic tenet of the RNBP program at the State University of New York at Stony Brook (SBU/SON) is upon graduation of the RNBP program the graduate will be able to synthesize and translate theoretical and empirical knowledge gained from the disciplines of nursing, the humanities, sciences, and the arts to deliver safe effective patient care (SBU/SON, 2012).

Thus, the graduate will be able to relate knowledge from several areas to create new or original work. Hence, graduates of the SBU/SON RNBP program will demonstrate critical thinking (Bloom, 1956; Facione, 1990).

Therefore, critical thinking was selected as a benchmark to determine overall outcome evaluation for the SBU/SON RNBP program.

Bloom (1956) defined critical thinking as knowledge, comprehension, application, analysis, synthesis and evaluation. There is no universally accepted definition of critical thinking however Bloom's (1956) definition of critical thinking was most consistent and supportive of the basic tenets of the SBU/SON RNBP program. Furthermore, Bloom's taxonomy is utilized for curriculum development and revision in the SBU/SON.

### **7. Assessing the RNBP: Health Science Reasoning Test (HSRT) and Bloom's Critical Thinking**

The HSRT is designed to assess critical thinking in practicing health care professionals of various disciplines within the health sciences including nursing. The HSRT utilizes mini-case studies and vignettes from the work place context. The HSRT consists of 33 multiple choice test items that range in difficult and complexity. The HSRT is administered via computer and takes approximately 50 minutes to complete. The internal consistency (reliability) is the KR-20 coefficient (for instruments with dichotomously scored items). Reliability coefficients range between .77-.83 (California Academic Press, 2011).

The HSRT provides 6 individual measures of critical thinking skills: the total score is an overall measure of critical thinking and five scale scores. The HSRT provides an overall measure of critical thinking skills. Results can be utilized to compare student scores to national norms as well as comparable group norms. The results of the HSRT can be used to guide curriculum development and revision (California Academic Press, 2011). The definitions of the five HSRT scales are congruent with Bloom's (1956) taxonomy. See Table 1.

Five HSRT Scales	HSRT (California Academic Press, 2011).	Bloom's Taxonomy (1956)
Analysis and interpretation	Involves properly categorizing information and determining the precise meaning of sentence, text, assertion, idea or signal to determine meaning of a given context.	Involves separating the main ideas or components of a larger whole—that is, dividing a whole into its smaller parts. Students can then organize these smaller bits of data into "information clusters, "related pieces that fit together to form the whole.
Inference	The ability to draw conclusions based on reasons and evidence.	Making predictions or generalizations through deductive or inductive reasoning.
Evaluation and explanation	Involves providing reasons, methods, assumptions and rationale for reaching a conclusion. Students bring together their analysis, interpretation and justification for their conclusion.	Reaching a conclusion supported by evidence. Students bring together their analyses, comparisons, and inferences to synthesize a conclusion.
Deductive reasoning	Involves the student moving from the assumed truth(s) to a set of beliefs or premises to a conclusion. In a valid deductive argument the conclusion cannot be false if premises are all true.	Using deductive reasoning, students start with a general statement or principle and then explain how specific details relate to it. Deductive logic interprets supporting details through the main ideas.
Inductive reasoning	Involves the drawing probabilistic inferences regarding what is most likely true or not true given the information and context presented. The relationship among the variables in the context presented.	Using inductive reasoning, students investigate specific details in search of an underlying, unifying general principle. Common ideas or characteristics in the details allow students to generalize— to uncover the main idea.

### **8. RNBP Program Assessment: Recruitment**

Prior to the initiation of this study approval for this study was obtained from the Intuitional Review Board (IRB) at SBU. Consent was implied by subject participation. A letter describing the purpose of the study was included in all SBU/SON RNBP admission orientation packets sent August 2011.

Seventeen students agreed to participate in this study. Although the subject sample was small it was decided to continue with the study and utilize the data obtained as a preliminary overall outcome evaluation screening. The initial HSRT evaluation was completed on-site in the SBU/SON Health Science Center (HSC) student computer laboratory. The second HSRT evaluation students were able to access the HSRT via their private personal computer (PC) from their home. All data obtained was coded, encrypted and maintained in a secure and protected data base by the Department of Technology in the SBU/SON.

**9. Study Method and Results**

A quasi-experimental design was utilized. Assessment of the RNBP student’s critical thinking was evaluated prior to actively engaging in the first year of full time study in the SBU/SON RNBP program and upon completion of the first year full time year of study.

There were 17 observations in the data set, with scores of the same student’s before and after completion of the first full year of study in the SBU/SON RNBP program. Six paired T-tests were conducted on the critical thinking results data set, with respect to induction scores, education scores, analysis scores, inference scores, evaluation scores, and total scores.

A summary of paired comparisons (Tamhane & Dunlop, 2000) on each section as well as the total scores are presented in Table2 below.

In each section it was found each of the mean scores increased after the completion of on one year of full study in the SBU/SON RNBP program. Among them, there were three significant results; deduction scores, analysis scores, and overall totals scores.

**8.1 Deduction**

There was a mean increase of deduction scores after completion of one year of full study in the SBU/SON RNBP program was 1.71 (SD=1.86). The p-value of the T-test was 0.002 which means that the enhancement of deduction performance was significant.

**8.2 Analysis**

There was a mean increase of analysis scores after completion of on one year of full study in the SBU/SON RNBP program was 1.06 (SD=1.09). The p-value of the T-test was 0.001, which means that the enhancement of analysis was significant.

**8.3 Overall Total Score**

There was a mean increase of total scores after completion of on one year of full study in the SBU/SON RNBP program was 2.53 (SD=3.56). The p-value of the T-test was 0.001, which means that the enhancement of general performance was significant.

**Table2 Summary of Paired Comparisons**

	Mean difference (Before-After)	P-value	Significant?(At significance level=0.05)
Induction	-0.29	0.517	No
Deduction	-1.71	0.002	Yes
Analysis	-1.06	0.001	Yes
Inference	-0.18	0.565	No
Evaluation	-0.12	0.773	No
Total	-2.53	0.001	Yes

**8.4 Interpretation of Study Results**

While after one year of engagement in full time study in the SBU/SON RNBP program did demonstrate an overall statistical significance; induction, inference and evaluation did not. This may be related to course sequencing in the RNBP program. The first year of study in the SBU/SON RNBP program concentrates on the clinical sciences; pathology, pharmacology and epidemiology providing the student with a solid basis in the clinical sciences.

Undergraduate course work in the clinical sciences in the RNBP program provide little opportunity for the undergraduate RNBP student to conceptualize, apply, analyze, evaluate and translate (relate) knowledge to new or original work (clinical practice) (Bloom, 1956). It is during the second year of study that the RNBP student engages in course work that continually challenges and requires the student to analyze; synthesize, translate and apply the scientific principles of the clinical sciences; pathology, pharmacology and epidemiology into clinical project(s). Hence, the course work the student has completed during the first year of study has provided the student with limited opportunity to develop the knowledge and skill to apply inductive, inferential and evaluation skills.

### **9. Limitations of the Study**

While the overall total scores did indicate statistical significance the sample size was too small to draw a cause and effect relationships from the data results. Additionally, the results obtained are limited to this small study sample.

Future recommendations include:

1. Replication of this study with a larger study sample.
2. Comparing study participants results to national norms of other RNBP cohorts.
3. Compare base line critical thinking of RNBP students to traditional RN BS student prior to either cohort actively engaging in programmatic course and after one year of the traditional RN BS student engaged in clinical practice as well as active course work (Patel, Arocha & Zhang, 2004).
4. Compare HSRT scores of the RNBP student immediately prior to graduation.

### **10. Conclusions**

Program evaluation is an essential component of the academic process. Program evaluation is the means by which academicians assess whether students are actually achieving the programs intended goals.

Furthermore, overall program evaluation provides the academician with the ability to utilize the results to improve the quality of the educational experience. A means to evaluate curriculum and overall student outcomes must be built into all programs of study. Additional research is needed to assess overall program evaluation outcomes to assure quality in RNBP articulation programs. Programmatic assessment and national bench marks need to be established in order to align RNBP articulation programs with traditional BSN degree programs whereby assessment is rigorous and continuous and results are utilized for course and overall EBC revision to assure academic integrity of the program.

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