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The Benefits of Undergraduate Research Assistantships in Nursing

Ryoko Pentecost
School of Nursing, Boise State University

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Ryoko Pentecost, BS
School of Nursing
Jane Grassley, PhD, RN, IBCLC

Abstract

Specific Aims:The specific aim of this study was to explore student nurses' perceptions of the benefits of being an undergraduate research assistant.

Background: Undergraduate student nurses gain benefits from collaborating outside of the classroom with faculty as a research assistant. Students can explore the faculty role of researcher through their experiences, and these experiences may encourage students to become faculty in the future. Boise State University School of Nursing (BSU SON) students have been encouraged to participate with faculty members through the Faculty-Student Research Support Initiative, funded by the DeMeyer Endowment. Through this research experience, undergraduate research assistants from BSU SON have participated in local, regional and national research conferences to present their research. However, students' perceptions of the program have not been investigated.
Methods:This study used a mixed methods research design. Quantitative data was collected using a survey which consists of a list of 37 potential benefits, skills, and abilities that undergraduate research assistants may experience. Qualitative data was collected from two open-ended questions. Former and current SON students were contacted by email and invited to participate in the study using a web-based cover letter. Those interested in participating completed an on-line Qualtrics survey. Data were analyzed using the following statistics. Mean responses for the "achieve" and "importance" dimensions were analyzed using descriptive statistics. A principal component, varimax rotation factor analysis was used to analyze the 37 importance items. Qualitative content analysis was used to analyze participants' responses to the two open-ended questions. The themes related to students' descriptions of the undergraduate research assistant experience were identified.
Results: Cronbach's alpha estimates of internal consistency was 0.9. Rotated component matrix resulted in a three factor scale: 1)the benefits of being an undergraduate research assistant; 2) gaining research skills; and transferrable skills for the future.

Significance to Nursing. This research will provide the School of Nursing with valuable information about student outcomes of the SON Faculty-Student Research Support Initiative, which can be used by faculty in writing NIH R15 AREA grant proposals. The study findings could be used by other nursing education programs to develop similar projects that encourage their undergraduate students to partner with faculty in conducting research.

Keywords:
undergraduate research assistants, nursing research, faculty and student partnerships

Introduction

Boise State University School of Nursing (BSU SON) students have been encouraged to participate with faculty members through the Faculty – Student Research Support Initiative, funded by the DeMeyer Endowment. This program provides undergraduate nursing students a paid position as a research assistant and also provides opportunities to participate in faculty research projects, and to conduct their own research under the faculty mentor. BSU SON faculty and students have actively participated in local, regional and national research conferences to present students' research. However, students' perceptions of the program have not been investigated.

A foundation in research is an essential component of undergraduate nursing programs. According to the American Association of Colleges of Nursing AACN, 2006), accredited undergraduate programs must contain research content that can help theirgraduates to "understand and apply research findings from nursing and other disciplines in their clinical practice. They understand the basic elements of evidence-based practice, can work with others to identify potential research problems, and can collaborate on research teams" (American (AACN, 2006, p. 5). However, students are rarely given the opportunity to become active participants in clinical research activities (Vessey and DeMarco, 2008). Undergraduate students' involvement in research beyond a research methods course is a valuable experience, especially for students planning to attend graduate school (Lei ad Chuang, 2009). Undergraduate students can explore the faculty role of researcher through their research assistant experiences, and these experiences may encourage students to become faculty in the future.

The need to help today's undergraduate students further their professional and educational trajectories cannot be overstated, especially in view of the worsening nursing and nursing faculty shortages(AACN, 2012). With an increasing emphasis on evidence-based clinical nursing practice, nurse educators need to more fully implement teaching strategies that help students gain critical thinking skills and leadership skills related to inquiry and understanding the importance of evidence-based nursing practice (Callister, Matsumura, Lookinland, Mangum & Loucks, 2005; Vessey and DeMarco, 2008). There is a need to encourage undergraduate nursing students to develop a research skill set that articulates with rapid career advancement of gifted, young graduates interested in nursing research and faculty careers (Vessey and DeMarco, 2008). BSU SON Faculty – Student Research Support Initiative may provide a model for providing undergraduate students with experiences that encourage them to pursue higher degrees and become faculty. The purpose, therefore, of this study was to explore student nurses' perceptions of the benefits of being an undergraduate research assistant.

Methods

Study Design

A mixed methods research design was used for this study. Quantitative data were collected using the Qualtrics on-line survey a survey of 37 potential benefits, skills, and abilities that undergraduate research assistants may experience . This survey wasdeveloped by R. Eric Landrum, PhD, originally with 40 items; three items were not included.(Landrum & Nelson, 2003). This survey used a Likert Scale to assess degree of importance of each item to the undergraduate research assistant (1= not at all, 2= slightly, 3= moderately, 4 = extremely). Participants were also asked if they experienced a skill (yes or no). Qualitative data were collected from two open-ended questions: 1) How would you describe the benefits and challenges of the undergraduate research assistant role? and 2) What have been the positive outcomes of this experience for you for your future professional plans?

Setting and Participants

Data collection began after approval was obtained from the Boise State University Institutional Review Board. Former and current SON undergraduate research asistant students were contacted by email and invited to participate in the study using a web-based cover letter. Those interested in participating completed the on-line Qualtrics survey.

Data Analysis

All data from the survey were entered into SPSS for data analysis. Mean responses for the "importance" dimension were analyzed using descriptive statistics. A principal component, varimax rotation factor analysis was used to analyze the 37 importance items. Qualitative content analysis was used to analyze participants' responses to the two open-ended questions. The themes related to students' descriptions of the undergraduate research assistant experience were identified.

Results

A convenience sample of 24 former and current undergraduate nursing students who had experience as a research assistant were invited to participate in the study and 15 completed the survey. Cronbach's alpha which estimates of internal consistency was 0.967, indicating strong internal consistency of the survey. Table 1 describes the results of the factor analysis. Three factors were identified. The first factor described the intangible skill set of being a research assistant and was labeled as benefits of being an undergraduate research assistant. The second factor described advanced research skills that were gained while being an undergraduate research assistant. The third factor contained transferrable skills for the future as a graduate student and/or a nursing researcher. Factor loadings ranged from -0.750 to 0.878. Three items overlapped among the factors: practice in making oral presentations (0.425, 0.588, and 0.565) ; prepares graphs and tables (0.284 ,0.360, and 0.319); opportunity to manage and troubleshoot an entire research project (0.583, 0.593, and 0.432). There was one item that had negative factor loadings: gains enthusiasm for the research process (-.750, -.357, and .173). Overall, factor analysis showed that through the undergraduate research assistant experience, students gained skill sets as a nursing researcher which helped prepare them for graduate school. Students also valued the opportunity to build a one-to-one relationship with faculty and to meet other students involved in research.

Table 1 *Rotated Component Matrix*

Item	Component		
	1	2	3
An opportunity to increase critical thinking skills.	.802	.101	.373
Preparation for graduate school.	.703	.348	.134
Gains enthusiasm for the research process.	-.750	.348	.134
Participates in the data collection process.	.628	-.007	-.002
Develops a one-to-one relationship with a professor.	.878	-.108	-.013
To be capable of asking effective research questions.	.800	.271	.306
Gets to know faculty.	.699	.349	.409
An increased comfort level in using statistical procedures.	.736	.471	.312
Meets other students involved in research.	.908	.228	.185
Improves teamwork skills.	.799	.270	.325
Use of statistical programs (e.g., SPSS)	.608	.423	.432
Ability to choose appropriate measures.	.706	.589	.249
Improvement of math skills	.435	.310	.160
Practice in developing surveys and questionnaires.	.749	.269	.376
Participates in the data-collection process	.628	-.007	-.022
Improved writing ability.	.097	.674	.516
Influences decisions about attending graduate school.	.289	.648	-.330
Applies ethical principles to actual research situations.	.130	.877	-.073
Ability to cope effectively with deadlines.	-.306	.757	.201
Practice in making oral presentations.	.425	.588	.565
Increased familiarity with a variety of research.	.507	.680	.277
Improves interpersonal communication skills.	.375	.780	.290

Ability to code data accurately.	**.242**	**.767**	**-.081**
Gains an increase in self-confidence.	**.415**	**.467**	**.185**
Use of time-management skills.	**.397**	**.654**	**.197**
Generation of writing samples.	**.334**	**.749**	**.448**
Gets practice in manuscript preparation.	**.505**	**.635**	**.445**
Prepares graphs and tables.	**.284**	**.360**	**.319**
Opportunity to manage and troubleshoot an entire research project.	**.583**	**.593**	**.432**
The ability to conduct literature searches.	**.103**	**-.105**	**.843**
Sees the research process from beginning to end.	**.525**	**.425**	**.544**
Ability to analyze data.	**.662**	**.161**	**.693**
Improvements in general library skills.	**.160**	**.026**	**.802**
Enhanced knowledge of APA format.	**.294**	**.084**	**.758**
Prepares conference presentations for a poster format.	**-.117**	**.400**	**.674**
Develops leadership skills.	**.466**	**.185**	**.662**
Ability to develop clear research ideas.	**.094**	**.587**	**.635**

Mean responses for the "importance" dimension are described in Table 2. The six most important items for this group of students are described in Table 3. For this group of this student, developing one to one relationship with a professor was by far the most importamt item with a mean of 3.8. Also of interest, was the item majority of students did not experience, which was gain enthusiasm for the research process.

Table 2

Item	**Frequency**		
	N	**Mean**	**Standard Deviation**
An opportunity to increase critical thinking skills.	**15**	**3.13**	**.92**
Preparation for graduate school.	**15**	**3**	**.76**
Gains enthusiasm for the research process.	**15**	**1.27**	**1.62**
Participates in the data collection process.	**15**	**3**	**1.36**
Develops a one-to-one relationship with a professor.	**15**	**3.8**	**.41**
To be capable of asking effective research questions.	**15**	**2.87**	**1.06**
Gets to know faculty.	**15**	**3.13**	**.92**
An increased comfort level in using statistical procedures.	**15**	**2.80**	**1.21**
Meets other students involved in research.	**15**	**2.67**	**129**
Improves teamwork skills.	**15**	**2.93**	**1.10**
Use of statistical programs (e.g., SPSS)	**15**	**1.80**	**1.70**
Ability to choose appropriate measures.	**15**	**2.27**	**1.22**
Improvement of math skills	**15**	**1.27**	**1.28**
Practice in developing surveys and questionnaires.	**15**	**2.33**	**1.72**
Prepares conference presentation in oral format	**15**	**2.47**	**1.43**
Improved writing ability.	**15**	**2.47**	**1.36**
Influences decisions about attending graduate school.	**15**	**2.60**	**1.06**
Applies ethical principles to actual research situations.	**15**	**3.20**	**.78**
Ability to cope effectively with deadlines.	**15**	**3.40**	**.63**
Practice in making oral presentations.	**15**	**2.67**	**1.35**
Increased familiarity with a variety of research.	**15**	**2.87**	**1.25**
Improves interpersonal communication skills.	**15**	**3.33**	**.62**
Ability to code data accurately.	**15**	**2.80**	**1.37**
Gains an increase in self-confidence.	**15**	**2.93**	**.96**
Use of time-management skills.	**15**	**3.33**	**.62**
Generation of writing samples.	**15**	**2.07**	**1.62**
Gets practice in manuscript preparation.	**15**	**2.07**	**1.83**
Prepares graphs and tables.	**15**	**2.27**	**1.44**

Opportunity to manage and troubleshoot an entire research project.	**15**	**2.07**	**1.83**
The ability to conduct literature searches.	**15**	**2.73**	**1.39**
Sees the research process from beginning to end.	**15**	**2.87**	**1.46**
Ability to analyze data.	**15**	**2.80**	**1.42**
Improvements in general library skills.	**15**	**2.27**	**1.28**
Enhanced knowledge of APA format.	**15**	**2.27**	**1.67**
Prepares conference presentations for a poster format.	**15**	**3.07**	**1.34**
Develops leadership skills.	**15**	**2.80**	**1.21**
Ability to develop clear research ideas.	**15**	**2.80**	**1.27**

Table 3

	Importance				
Items	**Did not do**	**Not at all**	**Slightly**	**Moderately**	**Extremely**
Develops a one-to-one relationship with a professor	0	0	0	3	12
Participates in the data-collection process	2	0	1	7	5
Use of time-management skills	0	0	1	8	6
Prepares a poster	2	0	0	6	7
Coping with deadlines	0	0	1	7	7
Improves interpersonal communication skills	0	0	1	8	6
Gains enthusiasm for the research process	9	0	5	1	0

Open-ended survey responses described students' positive experiences and challenges. Becoming a scholar was the main theme. One student commented, "Before, I never would have thought myself capable of conducting research. I was actually quite apprehensive, at first, but I find new excitement in the prospect of my research positively impacting the field of nursing through the implementation of evidence-based practice." Students also stated that until they began working as a research assistant, they never thought they would choose nursing research as one of possibility for a future career. They also enjoyed a one-to-one relationship with a faculty. A student stated, "The experience was beneficial in that I had the privilege of getting to know my professors in a way I never have before. The networking has really been a huge help in my personal development as a new nurse."

Students described challenges they encountered. One student wrote, "The largest challenge has to be the time constraint placed on students who work as research assistants." Another student commented, "….time management, coordination with community partners, didn't feel like I learned enough about statistics or SPSS, which would have been helpful." Another described an experience as a novice research assistant: "Challenges occurred mostly at the beginning of my role as I learned how to conduct research related to nursing and how to develop my ideas. I can see how I have grown in my RA role, at the start I relied very much on my faculty and now I am much more independent and have a stronger direction." Two students stated that they would like to go onto graduate school to experience more research. However, most students described their research assistant experiences as great opportunities to gain research skills, get to know a faculty, increase their confidence, and help them to obtain nursing jobs after graduation.

Discussion

The study has limitations. The sample size did not meet the minimum requirement for sample size for the factor analysis. The Faculty – Student Research Support Initiative is a new program, which limits the sample size. The majority of students had graduated from BSU-SON, so it was hard to obtain their current e-mail addresses. Therefore, these results are related to immediate graduates and current students. The data analysis, however, revealed meaningful results that can be used to facilitate students' experience in the future. The interpersonal relationships students developed with faculty and other undergraduate research assistants were perceived as an extremely important benefit. Through their research assistant experience, they gained confidence as they improved their interpersonal communication and time management skills. The majority of faculty conduct research with community partners, which gave the students experienced interacting with not only with their faculty mentor but with community partners. This experience involved students in nursing research in community clinical settings. The majority of students were also given the opportunity to prepare poster presentations and present at research conferences. Through these experiences the students gained confidence as beginning nurse scholars.

However, even though students reported positive aspects of gaining research skills and developing a one-to-one relationship with a faculty, their enthusiasm towards the research process was lacking. The meaning of this finding needs further research. Does this lack of enthusiasm cause students to discontinue participating in research or discourage their pursuit of graduate education? Future studies are needed to identify and analyze what facilitates students' enthusiasm for research.

Conclusions

Students appreciate their research assistant experiences. Through these experiences, students gain beginning skills as a researcher, advanced research skills, and transferrable skills for their future. Students grow as nurse scholars through their one to one relationship with their faculty as a mentor. In spite of benefits they received, students may not gain an enthusiasm for the research process. This problem needs to be analyzed to identify what factors discourage students to lose enthusiasm for nursing research.

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