Author’s response to reviews

Title: Mastery Learning in a Bachelor’s of Nursing Program: The Roseman University of Health Sciences Experience

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Version: 1 Date: 29 Aug 2019

Author’s response to reviews:

To the Editor:

We appreciate the opportunity to revise and resubmit our manuscript, Mastery Learning in a Bachelor’s of Nursing Program: The Roseman Experience (NURS-D-10-106) to BMC Nursing.

We also want to thank the reviewers for their insightful comments. We addressed their comments as outlined below and in doing so, feel that the manuscript is significantly better. Changes to the manuscript are highlighted in red.

In submitting the revised manuscript, the download from the BMC website would not allow us to add material without changing formatting so the line numbers do not match up to the original submission.

Thank you for your consideration and we look forward to your response,

Catherine Cone Corresponding Author

Comments to the reviewers:

Reviewer 1:

Thank you for the opportunity to review your manuscript "Mastery Learning in a Bachelor's of Nursing Program: The Roseman University of Health Sciences Experience". The manuscript is an experience of applying a Mastery learning program, which has been submitted as a research article. Your experience is interesting, but could be improved if comparative results were
included with other similar groups that showed that one methodology is better than another. Satisfaction surveys are interesting but provide little evidence of the effectiveness of one (educational) intervention over another.

We appreciate these comments. This is primarily a descriptive study and we report on outcomes that were available for comparison to national standards. We agree that studies exploring whether CBE is superior to a traditional curriculum are needed. Our aim was not to determine if one methodology was better than another but to describe our program and report our outcomes. In doing so, we believe that we demonstrated that a comprehensive mastery model can work but were very careful in our conclusion to not assert that the mastery model was superior. Since this is the first paper we can find in the literature that details a comprehensive, longitudinal mastery model and reports on its outcomes we feel it adds to the literature and will be of value to those considering such a model. We also hope this will stimulate more research to address the very important question about what methodology might prove superior. Also to acknowledge the reviewer’s comments as a limitation -- we added the sentence below to the limitation section:

Additionally, our analysis is primarily descriptive. We compare our outcomes with national standards and national averages wherever possible, but we do not have a matched comparator to use as a true control.

In addition, we did report on more than student satisfaction by including outcome measures such as graduation rates, licensing exam pass rates and employment rates. We also added new material to the discussion which allows us to put more context to our findings in relation to other studies reporting on competency based nursing education.

Reviewer 2:

This is an important and interesting study.

Thanks!

However, there are some issues I would like you to clarify:

Abstract:

There was not any objective of the study in the abstract at all.

We added the study aim to the abstract. Lines 9-10

Background:

Lines 74-77: what are the program outcomes?
We added the following to --including program outcomes such as program completion rates and pass rates for licensing exams. In addition, student exit surveys were reviewed to evaluate student assessment of the program.  Lines 52-54

Lines 87-88: Should there be a reference? How do you know that most nursing education is like that, not mastery learning?

We added two new references and also changed Currently to Traditionally which we believe is more accurate Line 64

Lines 90-92 needs a reference.

We added a reference Line 69

Lines 111-113 needs a reference.

This was referenced but moved the placement to the end of the sentence to make this clearer. Line 83

Line 132-134: You mention that the mastery learning is the best method for educating health professionals but earlier you said that there is little nursing literature about these programs in lines 72-73. How can you know that it is the best for nursing education if there is only little evidence of it?

It was the founders of the University who believed it and so it was based on their opinion. Line 113

Methods:

What is the design of this study?

The is a descriptive study and used retrospective analysis of dated a collect as part of the programs accreditation reporting and internal self-assessment Lines 211-312 and we added this statement to the methods section The American nursing education system could be explained in the beginning because readers in Europe has difficulties to understand how your nursing education is built in general.

Line 149: what is GPA and what does GPA of 2.75 means?

We defined GPA, added a brief description and how it was calculated. Lines 142-146

Line 151: What is the maximum score of TEAS?

The maximum TEAS score is 100. We added a brief description of TEAS for readers who may be unfamiliar with this test The TEAS is comprised of four content sections: English/language usage, reading, science, and mathematics and is a standardized test used by many nursing
schools to predict a candidate’s likelihood for academic success. TEAS scores range from 0 to 100% [ref] with a national average about 65-75%.

Data collection and analysis:
This chapter could be a bit more informative and detailed. The data analysis should also be explained more detailed. Also, did you use a statistician and what program you used for the statistical analysis?

We added to the data analysis section and the program used. The calculations were straightforward and one of the authors PL did the statistical analysis.

Results:
The results are not in line with the aim of the study in page 5, lines 74-77. For example, what were the lessons learned?

We deleted this from the aim and instead used the discussion section to reflect on the challenges e.g. our lessons learned.

Discussion:
The standards of NCLEX could be explained shortly because in Europe, we do not have such system.

There could be more discussion about the results and how can these results be used in nursing education. You should also refer your findings more with the previous literature to strengthen the discussion.

Thank you for the suggestions. We added more material to the discussion about how our findings fit into the context of previous studied. We also briefly explained the NCLEX and as such justified why exceeding the national pass rates is used as a marker to externally validate a program’s success. The added material is highlighted in red in the revised manuscript

Limitations:
What are the limitations and strengths of this study? In addition, could these results be generalized into other universities/countries etc.?

We added additional material to strengthen the limitations section and it is highlighted in red. We also added as a strength that our paper adds to the literature by being the first to describe outcomes related to a compressive longitudinal competency based nursing program. It also reports on three years of data over two campuses. Our detailed description of the program and our students should allow readers to assess how these result might apply to their institution.
Conclusions:

Based on the methods, analysis and results of this study, the conclusion is too straightforward. There are certain limitations in this study that could only suggest that this teaching method is working. More research is needed.

We narrowed the conclusion as suggested and added that more research is needed.

Tables:

Could you also add the credits of each course to the table 2, so that the reader knows what the extension of each course is? We changed the table to include credits.

Table 2 Course Progression in the BSN and ABSN programs

<table>
<thead>
<tr>
<th>Block Number</th>
<th>Course #</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
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<tr>
<td>1.0</td>
<td>300</td>
<td>Introduction to the Profession</td>
<td>3</td>
</tr>
<tr>
<td>2.0</td>
<td>301</td>
<td>Health Assessment</td>
<td>3</td>
</tr>
<tr>
<td>3.0</td>
<td>302</td>
<td>Fundamentals of Nursing - Didactic</td>
<td>4</td>
</tr>
<tr>
<td>3.1</td>
<td>302.1</td>
<td>Fundamentals of Nursing - Experiential</td>
<td>1.8</td>
</tr>
<tr>
<td>4.0</td>
<td>303</td>
<td>Nursing Pharmacology</td>
<td>3</td>
</tr>
<tr>
<td>5.0</td>
<td>304</td>
<td>Adult Health I - Didactic</td>
<td>7.5</td>
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<td></td>
<td></td>
<td>Remediation</td>
<td></td>
</tr>
<tr>
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<td>304.1</td>
<td>Adult Health I - Experiential</td>
<td>2.7</td>
</tr>
<tr>
<td>6.0</td>
<td>305</td>
<td>Nursing Theories, Practice &amp; Practice Issues</td>
<td>3</td>
</tr>
<tr>
<td>7.0</td>
<td>401</td>
<td>Nursing Research</td>
<td>3</td>
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<tr>
<td>*11.0</td>
<td>409</td>
<td>Community/Mental Health - Didactic</td>
<td>8</td>
</tr>
<tr>
<td>*11.1</td>
<td>409.1</td>
<td>Community/Mental Health – Experiential</td>
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<td></td>
<td></td>
<td>Remediation</td>
<td></td>
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<tr>
<td>*10.0</td>
<td>306</td>
<td>Adult Health II - Didactic</td>
<td>7</td>
</tr>
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<td>306.1</td>
<td>Adult Health II - Experiential</td>
<td>3.6</td>
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<tr>
<td>*8.0</td>
<td>402</td>
<td>Maternal Newborn - Didactic</td>
<td>4</td>
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</table>

* Denotes remediation block
Remediation

<table>
<thead>
<tr>
<th>Code</th>
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<th>Credits</th>
<th>Type</th>
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</thead>
<tbody>
<tr>
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<td>2.7</td>
<td>Clinical</td>
</tr>
<tr>
<td>9.0</td>
<td>Pediatrics - Didactic</td>
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<td>Didactic and Lab</td>
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<td>Care of the Older Adult</td>
<td>3</td>
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<td>13.0</td>
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<td>3</td>
<td>Didactic</td>
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<td>Clinical</td>
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<tr>
<td>15.0</td>
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<td>3</td>
<td>Didactic</td>
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<td></td>
<td><strong>Total Credits</strong></td>
<td><strong>76.9</strong></td>
<td>Credits</td>
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</table>

Other:

This study was conducted in the USA. It was a bit difficult for a European reader to follow it because the education system is quite different here in Europe. You should explain your nursing education system a bit more to make your article easier to understand for those who are not familiar with the education system in USA.

Thanks for attuning us to the need for adding this to make the paper more understandable to the European reader. We added the following paragraph.

In the US, several types of nursing programs exist. A BSN or Bachelor of Science in Nursing is a degree level program the typically requires four year of training after completing high school. Successful completion of a degree program includes both didactic and clinical experiences and allows a graduate the opportunity to sit for the nursing licensure examination. Students accepted to Roseman must have either a bachelor’s degree including courses in anatomy and physiology, chemistry, microbiology and statistics. Those without a degree need a minimum of 54 credit hours that include prerequisite courses.