Use of Crib Sheets and Exam Performance in an Undergraduate Nursing Course

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Learner Objectives:
The learner will be able to:

• Describe the use of an authorized crib sheet during an exam.

• Discuss the outcomes of allowing nursing students to use crib sheets during exams.

• No disclosures or conflict of interests to report.
Background

- Student-prepared testing aides can have a positive impact on outcomes such as test anxiety and exam performance.

- Faculty approved crib sheets common in disciplines such as math, engineering, psychology, and other sciences.
# Use of Crib Sheets & Outcomes

<table>
<thead>
<tr>
<th>Course</th>
<th>Outcome Description</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Veterinary students</td>
<td>Helped to reinforce, remember, &amp; retain course information, lower stress levels during exams, higher exam scores</td>
<td>(Vogelweid et al., 2014)</td>
</tr>
<tr>
<td>Teacher education course</td>
<td>Preparing the crib sheet helped to learn information</td>
<td>(Erbe, 2007)</td>
</tr>
<tr>
<td>Economics course</td>
<td>Crib sheets improved test performance</td>
<td>(Wachsman, 2002)</td>
</tr>
<tr>
<td>Nursing students</td>
<td>Helped to reduce test anxiety</td>
<td>(Drake, Freed &amp; Hunter, 1998)</td>
</tr>
</tbody>
</table>
Use of Crib Sheets & Outcomes

- **Computer science**
  The quality of the content on the crib sheet associated with exam performance
  (Hamouda, 2016)

- **Statistics course**
  Higher quality crib sheet predicted higher exam scores
  (Ludorf & Clark, 2014)

- **Applied stats course**
  Handwritten crib sheets associated with higher exam scores
  (Larwin, 2012)

- **Physics course**
  Students using crib sheet performed better than using open book
  (Hamed, 2008)
Purpose & Design

Repeated measures, correlational study was conducted to assess the outcomes of allowing baccalaureate nursing students to use authorized crib sheets during exams.
Sample & Setting

• Baccalaureate senior nursing students ($N=86$)
• Nursing program located in an urban medical center
• Community health nursing course
• 2 unit exams and 1 final exam
Procedures

• All students received a blank crib sheet (10 cm X 15 cm index card) 1 week before each exam.
• Students were allowed to write on the front and back of the index card and then use it during the exam.
• Use of the sheet was not required.
• The crib sheet was collected after each exam and the students completed a post-exam survey developed by the researchers.
Instrument

Questions assessed 5 domains:

1. Exam **Confidence**
2. Exam **Preparedness**
3. Test **Anxiety**
4. **Assistance** during Exam
5. **Recommend** for Future Exams

Also assessed:

• **Time to create** the crib sheet
• **Use** of crib sheet during exam
• One **open-ended question**
## Instrument

<table>
<thead>
<tr>
<th>The index card....</th>
<th>Yes, very much</th>
<th>Yes</th>
<th>Neutral</th>
<th>No</th>
<th>No, not at all</th>
</tr>
</thead>
<tbody>
<tr>
<td>gave me CONFIDENCE before the exam</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>helped me to study before the exam</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>decreased my test anxiety</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>helped me during the exam</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>I would recommended the index card for future classes</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>

During the exam, how many times did you look at the index card?

___ I did not bring the card.
___ I had the card but never looked at it.
___ 1 time
___ 2-5 times
___ 6-10 times
___ >10 times

How much time did you spend creating the index card before the exam?

_____minutes or ______hours

Any comments about the index cards:
Results

• Even though it was not required, 82 out of 86 students (95%) used the crib sheet for all 3 of the exams.

• Repeated measures ANOVA found significant changes on all variables.
# Results

<table>
<thead>
<tr>
<th>Variable</th>
<th>N</th>
<th>Exam 1</th>
<th>Exam 2</th>
<th>Final Exam</th>
<th>Statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>M</td>
<td>SD</td>
<td>M</td>
<td>SD</td>
</tr>
<tr>
<td>Exam grade</td>
<td>86</td>
<td>82.07</td>
<td>6.01</td>
<td>83.42</td>
<td>5.69</td>
</tr>
<tr>
<td>Confidence</td>
<td>82</td>
<td>4.00</td>
<td>0.85</td>
<td>4.45</td>
<td>0.59</td>
</tr>
<tr>
<td>Preparedness</td>
<td>82</td>
<td>4.15</td>
<td>0.92</td>
<td>4.57</td>
<td>0.61</td>
</tr>
<tr>
<td>Anxiety</td>
<td>82</td>
<td>3.83</td>
<td>0.98</td>
<td>4.20</td>
<td>0.92</td>
</tr>
<tr>
<td>Assistance</td>
<td>82</td>
<td>3.72</td>
<td>0.97</td>
<td>4.39</td>
<td>0.75</td>
</tr>
<tr>
<td>Recommented</td>
<td>82</td>
<td>4.62</td>
<td>0.66</td>
<td>4.80</td>
<td>0.43</td>
</tr>
</tbody>
</table>
5 Domains Over 3 Exams

- Confidence: $p<.001$
- Preparedness: $p=.001$
- Anxiety: $p=.003$
- Assistance: $p<.001$
- Recommend: $p<.031$

Legend:
- Exam 1
- Exam 2
- Final Exam
**Time to Create**

- **Exam 1**: 2.5 hours spent to create card
- **Exam 2**: 3.5 hours spent to create card
- **Final Exam**: 4.0 hours spent to create card

**Use During Exam**

- **Exam 1**: 4.3 times looked at card during exam
- **Exam 2**: 4.5 times looked at card during exam
- **Final Exam**: 5.3 times looked at card during exam
Spearman’s $r$ Results

• Looking at the crib sheet during the exams was positively correlated to all 5 domains.

• The amount of time creating the sheet was also positively correlated to all domains except for assistance.

• Crib sheet usage was not correlated to exam grade overall.
## Results

<table>
<thead>
<tr>
<th></th>
<th># times looked at card during exam</th>
<th>Time spent to create card</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean Exam Grade</td>
<td>-.147</td>
<td>-.009</td>
</tr>
<tr>
<td>Exam Confidence</td>
<td>.306**</td>
<td>.290**</td>
</tr>
<tr>
<td>Exam Preparedness</td>
<td>.381**</td>
<td>.255*</td>
</tr>
<tr>
<td>Test Anxiety</td>
<td>.229*</td>
<td>.293**</td>
</tr>
<tr>
<td>Assistance during Exam</td>
<td>.548**</td>
<td>.120</td>
</tr>
<tr>
<td>Recommend for Future Use</td>
<td>.435**</td>
<td>.310**</td>
</tr>
</tbody>
</table>

*p<.05; **p<.01
Open Ended Question

• Creating the card helped me learn/memorize.
• Card was a security blanket during exams.
• Great study tool
• Wished other courses would allow
Conclusions

• By the Final Exam, the students were spending more time creating the crib sheet and using it more during the exam. Possible learning curve on how-to create/use the crib sheet.

• Not only did almost all of the students use the crib sheets, but they overwhelmingly considered it to be a positive study tool.