The Time Veterinary Medicine Students Study Each Week is Driven by Exams, not Quizzes

Katie L. Bidne
Renee M. McFee
University of Nebraska - Lincoln
Class Time Demands

- Undergraduate
  - 12-20 credit hours
- Graduate
  - 6-9 credit hours
  - Seminars
- Professional
  - 19-21 credit hours required

<table>
<thead>
<tr>
<th>Schedule Fall 2013</th>
<th>Monday</th>
<th>Tuesday</th>
<th>Wednesday</th>
<th>Thursday</th>
<th>Friday</th>
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<th>Schedule Fall 2017</th>
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<tr>
<td><strong>Monday</strong></td>
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Workload and Mental Health

• Veterinary school application is competitive
  – > than 2 applicants/seat
  – UNL program → undergrad science GPA average > 3.5

• 30% of vet students report depression above clinical cut off\(^1\)
  – 2017 rates for American adults: 7.1%\(^2\)

\(^1\)Hafen et al., 2008  \(^2\)National Institute of Mental Health
# Workload and Mental Health

## Table 1: Stressors for first-semester ($N=93$) and second-semester ($N=78$) veterinary medical students

<table>
<thead>
<tr>
<th>Variables*</th>
<th>First Semester $M (SD)$</th>
<th>Second Semester $M (SD)$</th>
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</thead>
<tbody>
<tr>
<td><strong>Concerns about academic performance</strong></td>
<td>1.77 (1.00)</td>
<td>1.72 (0.91)</td>
</tr>
<tr>
<td><strong>Financial concerns</strong></td>
<td>1.70 (0.87)</td>
<td>1.95 (0.90)</td>
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<tr>
<td><strong>Heavy workload</strong></td>
<td>1.70 (0.99)</td>
<td>1.81 (0.82)</td>
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<tr>
<td><strong>Being behind in studies</strong></td>
<td>1.61 (0.96)</td>
<td>1.65 (0.82)</td>
</tr>
<tr>
<td><strong>Amount of time spent studying</strong></td>
<td>1.60 (0.93)</td>
<td>1.65 (0.74)</td>
</tr>
<tr>
<td><strong>Balancing school with personal life</strong></td>
<td>1.18 (1.02)</td>
<td>1.23 (1.06)</td>
</tr>
<tr>
<td><strong>Perception of not being as smart as other students</strong></td>
<td>1.11 (1.01)</td>
<td>0.95 (0.90)</td>
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</tbody>
</table>

*Possible scores: $0−3$ ($0 = not at all or not currently experiencing$, $1 = slightly$, $2 = moderately$, $3 = extremely$)
Testing and Retention

• “Testing Effect”\(^1\)
  – Improves knowledge retention

• Quizzes can encourage regular studying\(^2\)
  – Less “cramming” for exams

• Gaps in knowledge
  – Professional-level programs
  – Effects of other courses

\(^1\)McDaniel et al., 2007  \(^2\)Azorlosa, 2011
Objective
To determine the effects of weekly quizzes on student study habits

Hypothesis
Assigning weekly quizzes will encourage distributed study
Methods

- 27 first-year veterinary medicine students
- Systems Physiology course
- 4 units
  - Independent
  - Equal course time
  - Time of semester effect
- Quiz points = exam points
  - No quiz units → quiz questions added to exam

<table>
<thead>
<tr>
<th>Cell &amp; Neuromuscular</th>
<th>Endocrinology</th>
<th>Reproduction</th>
<th>Cardiovascular</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Quiz</td>
<td>Quiz</td>
<td>No Quiz</td>
<td>Quiz</td>
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</table>
Methods

• Anonymous surveys
  – Weekly
    • Study time
  – End-of-semester
    • Overall perceptions

• Unique student identifier within survey
  – Allows tracking of students over the course
Effects of quizzes on study time varied by unit

Different letters represent significance, $P < 0.05$

$\dagger P < 0.1$
Study time for physiology determined by exams

- Hours Studied: R = 0.17
- Number of Quizzes: P = 0.39
Study time for physiology determined by exams

- Hours Studied
- Number of Exams

\[ R = 0.937 \]
\[ P < 0.0001 \]
Overall study time determined by exams

- Hours Studied: $R = 0.07$
- Number of Quizzes: $P = 0.73$
Overall study time determined by exams

- Hours Studied
- Number of Exams

R = 0.905
P < 0.0001
Quiz study time consistent, exam study time varied

How much time did you spend studying for each quiz/exam?

- Quiz
- Exam
Course Grades v. Study Time

• Physiology grades predictive of GPA ($R = 0.86$)
• Self-reported expected grades
  – A (90-100): 8 students
  – B+ (85-90): 9 students
  – B (80-84): 8 students
Study time overall, but not physiology, different between grade groups

**Physiology Study Time**

- A: 8 hours
- B+: 6 hours
- B: 4 hours

$P = 0.32$

**Overall Study Time**

- A: 20 hours
- B+: 15 hours
- B: 10 hours

Different letters represent significance, $P < 0.05$
Other Considerations

• Some classes harder than others
  – Neuroanatomy vs Foundations

• Assessment timing
  – “It is taxing to have a quiz every single week especially if it is a busy week for other course work.”
  – “[physiology quizzes] often lined up with our quizzes or exams with pathology or neuroanatomy so they didn't get the attention they deserved.”
Limitations

• Quality vs quantity of studying
• Use of in-class assignments
• Motivation to study
  – Intrinsic v extrinsic
Conclusions

• Use of quizzes did not prevent “cramming”
• Study time determined by exam number, not quizzes
• Time spent studying not predictive of course grade
Questions?
References


• National Institute for Mental Health. “Major Depression”. Updated February 2019, Accessed May 19, 2019
