Can you fail your way to success?

Marilee L. Vosper
Alan Batt
Jennifer Berry
James Dinsch
Thomas Fentress

See next page for additional authors

Follow this and additional works at: https://first.fanshawec.ca/fhcsps_publicsafety_facultystaffpublications
Authors
Marilee L. Vosper, Alan Batt, Jennifer Berry, James Dinsch, Thomas Fentress, Erin Gallert, William Leggio,
Lucy Liu Xin, Paige Reinfeld, Elizabeth D. Shaw, Tiffany Sliter, and Kelly Walsh
Can you fail your way to success?

Do one or more formative examination failures predict a summative examination failure?

**Introduction**

Paramedic programs utilize formative assessments to determine cognitive competency. There are institutions that terminate students based on not achieving a pre-determined score on one or more formative examinations. Previously published research has shown that students’ exposure in clinical and field settings, particularly to emergent patients and successful team leads, improved critical thinking abilities on a summative examination.

**Hypothesis**

A student can fail one or more formative (unit) examinations and still pass the summative (comprehensive) examination.

**Methods**

Formative and summative scores for paramedic students with accounts in Fisdap™, an Internet-based administrative database, were retrospectively reviewed for the following criteria:

- provided consent for research
- completed all six formative examinations
- completed a summative examination from 2011–2016.

Analyses were performed with Pearson correlations and linear regression.

**Results**

A total of 1406 students were included based on inclusion criteria. Correlation with each formative and the summative examination are all significant, p < 0.001: Cardiology 0.597; Airway 0.571; Medical 0.571; Trauma 0.566; Ob/Pediatrics 0.549; Operations 0.495. The number of formative examination failures is a significant predictor of the probability of passing the summative examination, t(1406) = –31.02, p < 0.001.

**Formative (Unit) Exam Correlations**

<table>
<thead>
<tr>
<th>Unit Exam</th>
<th>Pearson Correlation: Unit Exam to Summative Section (n=338)</th>
<th>Pearson Correlation: Unit Exam to Summative Overall (n=338)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cardiology</td>
<td>0.584</td>
<td>0.597</td>
</tr>
<tr>
<td>OB/Pediatrics</td>
<td>0.501</td>
<td>0.549</td>
</tr>
<tr>
<td>Airway</td>
<td>0.497</td>
<td>0.571</td>
</tr>
<tr>
<td>Medical</td>
<td>0.494</td>
<td>0.571</td>
</tr>
<tr>
<td>Trauma</td>
<td>0.488</td>
<td>0.566</td>
</tr>
<tr>
<td>Operations</td>
<td>0.401</td>
<td>0.495</td>
</tr>
</tbody>
</table>

**Conclusion**

A formative cardiology examination was shown to have the strongest predictive value on summative performance, whereas operations had the weakest. Students who do not achieve a pre-determined cut score on a formative (unit) examination can still pass the summative (comprehensive) examination. In fact, students can fail three formative examinations and have a 60% likelihood of passing the summative examination.

**Authors:** Marilee L. Vosper, M.Ed., Paramedic, Alan Batt, MS, GradCert ICP, CCP, Jennifer Berry, BA, NREMT, CSPO, James Dinsch, MS, NRP, CCEMT-P; Thomas Fentress, BS, NRP, LPM, FT, Erin Gallert, BS, William Leggio, EdD, NRP, Xin Lucy Liu, PhD, Paige Reinfeld, BS, BA; Elizabeth D. Shaw, BA, NREMT, Tiffany Sliter, AB, Kelly Walsh, RN, BSN, PHRN