Science at the heart of medicine

Impact of Frequent Assessment on Student Ratings of Preceptor Feedback and Clinical Teaching Effectiveness

William B. Jordan, MD, MPH
Pablo A. Joo, MD
Maria T. Santos, MD
Jennifer M. Purcell, PhD

STFM MSE
January 25, 2013
San Antonio, Texas
Objectives

By the end of this peer presentation, participants will be able to:

• Determine if frequent student assessments of faculty and residents impact student ratings of feedback and clinical teaching.

• Identify challenges to creating similar educational research projects.
Background

• Feedback improves student performance (Boehler et al, 2006)
• Students feel feedback is part of high-quality teaching (Torre et al, 2005)
• Student report insufficient feedback (Branch & Paranjape, 2002)
Institutional Context

• Summative feedback on teaching effectiveness already collected by Einstein
• Insufficient individual feedback to preceptors for personalized development
• Developed family medicine-specific per session evaluation of preceptor as part of LCME ED-24 compliance (re: residents as teachers)
Instrument

**Department of Family and Social Medicine**

**Assessment of Clinical Teaching – Outpatient Form (ACT-OUT)**

<table>
<thead>
<tr>
<th>Site:</th>
<th>Rotation:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preceptor:</td>
<td>Date:</td>
</tr>
<tr>
<td>Number of patients seen independently:</td>
<td>Session length (check one): Half Day</td>
</tr>
</tbody>
</table>

*Please check the box indicating your level of agreement with the following statements.*

<table>
<thead>
<tr>
<th>During today’s patient care, this preceptor:</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neither</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heard my assessment(s) before giving his/her own.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Heard my plan(s) before giving his/her own.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Taught diagnostic skills (clinical reasoning, selection/interpretation of tests).</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Showed attitudes of concern and respect for patients.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Approached teaching with enthusiasm.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Provided feedback in a constructive manner about strengths.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Provided feedback in a constructive manner about areas to improve.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Was an effective clinical teacher.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>

*Based on today’s work, please list the preceptor’s strengths and areas for improvement (use the back if needed).*
Questions

• Will implementation of repeated formative assessments by students of preceptors change summative student assessment of preceptor feedback or teaching effectiveness?

• How well are repeated formative assessments correlated with summative assessments by students of teaching effectiveness?
Methods: Teaching Sites

• Only first half of each year (4-week rotations, #1-6)
• 16 sites: students evaluated both years
  • 4 solo practice, 8 group, 4 residency training
• Per rotation:
  1 site 3 students,
  15 sites 1 student

<table>
<thead>
<tr>
<th></th>
<th>Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011-2012</td>
<td>70</td>
</tr>
<tr>
<td>2012-2013</td>
<td>84</td>
</tr>
<tr>
<td>Median per site</td>
<td>4</td>
</tr>
</tbody>
</table>
Methods: Change in Summative

• Average summative rating by students of each site, paired t-test for site scores
• Compared 2011-2012 & 2012-2013: pre- / post- formative assessments
• Items
  • Ongoing constructive feedback
  • Attendings effective clinical teachers
• Scale: 5-pt, strongly disagree to strongly agree
Methods: Summative Response

Students per Site
2011-2012 & 2012-2013 Rotations 1-6
Methods: Correlation

• Average of all formative ratings by all students at each site, 2012-2013
• Item
  • effective clinical teachers, attendings only
  • 5-pt scale: strongly disagree to strongly agree
• Linear regression to evaluate correlation between average of repeated formative assessments and average of summative assessments
Methods: Formative Response

Responses per Site
2012-2013 Rotations 1-6
Median = 27.5
## Results: Change in Summative

<table>
<thead>
<tr>
<th></th>
<th>2011-2012 Average</th>
<th>2012-2013 Average</th>
<th>Change</th>
<th>P-value (paired t-test)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Summative Feedback</strong></td>
<td>4.269</td>
<td>4.194</td>
<td>-0.075</td>
<td>0.680</td>
</tr>
<tr>
<td><strong>Summative Effective Teacher</strong></td>
<td>4.519</td>
<td>4.553</td>
<td>0.034</td>
<td>0.814</td>
</tr>
</tbody>
</table>

*Statistics using VassarStats*
## Results: Correlation

<table>
<thead>
<tr>
<th></th>
<th>2012-2013 Average</th>
<th></th>
<th></th>
<th>P-value (linear regression)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>r</td>
<td>$r^2$</td>
<td></td>
</tr>
<tr>
<td>Summative</td>
<td>4.553</td>
<td>0.750</td>
<td>0.562</td>
<td>0.001</td>
</tr>
<tr>
<td>Effective Teacher</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Formative</td>
<td>4.619</td>
<td>0.750</td>
<td>0.562</td>
<td>0.001</td>
</tr>
<tr>
<td>Effective Teacher</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Statistics using VassarStats*
Discussion

• Repeated formative assessments did not bias summative student assessments of preceptor feedback or teaching effectiveness

• Formative assessments were moderately correlated with summative assessment of teaching effectiveness
Limitations

• Median only 4 students per site
  • Likely to introduce more variability
  • However, no significant change
• Limited data on solo practice sites
• Moderate correlation may be due to
  • Insufficient formative assessments (voluntary)
  • Anonymity concerns w/ formative assessment
  • Recall bias in summative assessment
Next Steps

• Formal roll-out of formative assessments without fear of biasing summative assessment
• Compare ratings of residents and faculty
• Targeted intervention to improve teaching for particular sites / teachers
• Compare ratings pre- / post- intervention
References


Thank You