Differences in Raters’ Severity, Consistency and Biased Interactions between Trained and Untrained Raters

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Introduction

• The importance and effect of rater training (Shohamy, Gordon & Kraemer, 1992; Weigle, 1994)
• Rater training for a task-based writing performance test (TBWT)
  1st stage: Promoting the understanding
  2nd stage: Familiarizing the procedure
  3rd stage: Increasing experiences

Purposes of this study

• The purpose of this comparative study is to investigate the degree of difference in:
  (1) Raters’ severity
  (2) Consistency and biased interactions between trained and untrained teacher raters.

Participants

• Trained raters (TRN) consisted of five novice junior high school teachers, who received training session before rating.
• Untrained raters (UNTRN) consisted of five experienced teachers, who did not have training session beforehand.

Data Analysis

• Rater behavior both of TRN and UNTRN was modeled using FACETS
  Three facets were used:
  (1) Subjects (n=20)
  (2) Raters (five TRNs, five UNTRNs)
  (3) Tasks (accuracy, communicability and impression)

The specification of assessment task 1

• You will have 20 minutes to complete the test. You are going to stay with the Parker Family in Britain this summer. Write a 100-120 word letter introducing yourself to your host family. Before writing, think of the following topics.
  • Your name and age
  • Your job and major in school
The specification of assessment task 1

- Your hobbies and interests
- Your family and pet
- Your favorite places, foods and activities
- Your experience traveling abroad
- Some things you want to do while you are in Britain

Construct definitions of task 1

<table>
<thead>
<tr>
<th>Accuracy</th>
<th>Linguistic accuracy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Organizational skills</td>
<td></td>
</tr>
<tr>
<td>Organizational skills can be defined as ability to organize logical structure which enables the content to be accurately acquired</td>
<td>Linguistic accuracy concerns errors of vocabulary, spelling, punctuation or grammar</td>
</tr>
</tbody>
</table>

The specification of assessment task 2

- You will have 10 minutes to complete the test. You are going to discuss the following topic with your classmates, “Why do you study English?” In order to prepare for the discussion, think of as many answers as possible to the question and write them as “To travel abroad.”

Construct definitions of task 2

<table>
<thead>
<tr>
<th>Communicability</th>
<th>Communicative effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communicative quality</td>
<td></td>
</tr>
<tr>
<td>Communicative quality refers to the ability to communicate without causing the reader any difficulty</td>
<td>Communicative effect concerns the quantity of ideas necessary to develop the response as well as the relevance of the content to the proposed task</td>
</tr>
</tbody>
</table>

Result: TRN raters

<table>
<thead>
<tr>
<th>Raters</th>
<th>TRN1</th>
<th>TRN2</th>
<th>TRN3</th>
<th>TRN4</th>
<th>TRN5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Severity</td>
<td>-1.44</td>
<td>-2.58</td>
<td>-0.32</td>
<td>-1.06</td>
<td>-2.13</td>
</tr>
<tr>
<td>Error</td>
<td>0.25</td>
<td>0.26</td>
<td>0.25</td>
<td>0.25</td>
<td>0.25</td>
</tr>
<tr>
<td>Infit</td>
<td>0.82</td>
<td>1.29</td>
<td>0.75</td>
<td>0.79</td>
<td>0.64</td>
</tr>
</tbody>
</table>

Separation: 2.99  Reliability=.90; fixed (all same)  chi-square: 49.7, df:4; significance:.00

Result: UNTRN raters

<table>
<thead>
<tr>
<th>Raters</th>
<th>UNT1</th>
<th>UNT2</th>
<th>UNT3</th>
<th>UNT4</th>
<th>UNT5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Severity</td>
<td>-2.06</td>
<td>-0.20</td>
<td>0.53</td>
<td>-1.19</td>
<td>-1.69</td>
</tr>
<tr>
<td>Error</td>
<td>0.25</td>
<td>0.25</td>
<td>0.25</td>
<td>0.25</td>
<td>0.25</td>
</tr>
<tr>
<td>Infit</td>
<td>1.34</td>
<td>1.11</td>
<td>1.35</td>
<td>0.90</td>
<td>0.77</td>
</tr>
</tbody>
</table>

Separation: 3.70  Reliability=.93; fixed (all same)  chi-square: 73.8, df:4; significance:.00
Result (1): Raters’ severity

- Both TRN and UNTRN raters differ significantly in their severity
- UNTRN raters as a group vary much more in severity than TRN raters
- UNTRN raters tend to apply stricter standards overall to the written samples than TRN raters.

Result (2): Raters’ consistency

- No raters were identified as misfitting (M-2SD<Infit<M+2SD)
  → Both TRN and UNTRN raters behaved consistently in scoring
- TRN raters: infit mean .86 (SD .22) UNTRN raters: infit mean 1.10 (SD .23)
  →UNTRN are supposed to be less consistent as a group

Result (3): Rater-subject bias interaction

<table>
<thead>
<tr>
<th>Ability</th>
<th>N</th>
<th>Harsh (Raters)</th>
<th>Lenient (Raters)</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.00 higher</td>
<td>5</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>-2.99~2.99</td>
<td>9</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>-3.00 lower</td>
<td>3</td>
<td></td>
<td>3</td>
</tr>
</tbody>
</table>

→ TRN raters were more lenient, and the UNTRN raters were more severe.
→ UNTRN raters might be more biased than TRN raters.

Result (3): Rater-task bias interaction

<table>
<thead>
<tr>
<th>Rater (task)</th>
<th>Observed score</th>
<th>Expected score</th>
<th>Obs. Exp</th>
<th>Bias (logits)</th>
<th>Z-score</th>
</tr>
</thead>
<tbody>
<tr>
<td>T2(a)</td>
<td>67</td>
<td>72.7</td>
<td>-0.29</td>
<td>-1.15</td>
<td>-2.58</td>
</tr>
</tbody>
</table>

→ One rater (TRN2) shows significantly biased rate-task interaction, who awarded severe ratings to all subjects on accuracy task.

→ The fit value by UNTRN1 on communicability task was 1.8, which indicates the rater was not consistent in evaluating the task.

Implications for raters’ severity

- Both TRN and UNTRN raters differ significantly in their severity
  → Rater training was not successful in getting raters to give identical scores.
  → The use of FACETS analysis is assumed to be effective in compensating for inter-rater differences.

Implications for raters’ consistency

- There are differences in consistency between groups of TRN and UNTRN raters.
  → Rater training is effective in improving raters’ consistency in scoring.
  → A shared understanding of the constructs of writing ability could be effectively promoted by training sessions.
Implications for task difficulty

- There was only one interaction with a significant bias out of the 30 interactions.
- Assessment tasks developed in this study may draw valid inference to Japanese learners’ writing performance.

Conclusion

- All raters as a group differ significantly from one another in terms of severity, and UNTRN raters showed the tendency to be more severe than TRN raters.
- UNTRN raters were more biased than TRN raters, showing the UNTRN raters’ inconsistency in scoring.
- Rater training is, therefore, more effective in improving raters’ consistency than in improving their severity in scoring.

References