Slaying Assessment Dragons:
Assessing Teamwork Using the Teamwork Self-Reflection Instrument (TSRI)

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First, a show of hands...

- How many of you are from:
  - Public Institution?
  - Private Institution?
  - 2-year College?
  - 4-year University?
Institutional Profile

- 4–year, public university approximately 1–hour north of Houston, Texas

- Current enrollment over 20,000 undergraduate and graduate students
  - 80+ bachelor’s degree programs, more than
  - 50+ master’s degree programs, and
  - 6 doctoral programs

- Classified by the Carnegie Commission on Higher Education as a “Doctoral Research University” and a “Community Engaged” University
Why assess teamwork?

- To provide valuable programmatic assessment data for the degrees and programs at SHSU
- To satisfy general education assessment requirements. Teamwork is identified as a core objective within the Texas Higher Education Coordinating Board’s (THECB) Core Curriculum
The Ability to Consider Different Points of View and to Work Effectively With Others to Support a Shared Purpose or Goal
Hypothesis

As a result of the teamwork assessment, we expected to observe the following:

- Students with more teamwork experiences will demonstrate higher total TSRI scores

- Students enrolled in upper-division (i.e., junior- and senior-level) courses would demonstrate higher TSRI scores than those enrolled in lower-division (i.e., freshman- and sophomore-level) courses
In the 2016–2017 academic year, SHSU completed a teamwork assessment pilot.

- Paper format adapted from the AAC&U Teamwork VALUE Rubric
- In–person classroom administration to all colleges that responded to our call for volunteers
- 580 completed, but only 84% were usable due to students not following instructions correctly
In Fall 2017, SHSU piloted an electronic version of the TSRI using the Qualtrics survey platform.

- Evaluated strengths and weaknesses of initial pilot to adapt paper TSRI to an electronic version

- Scheduled emails sent to students in participating classrooms within two of our colleges, instructor participation highly encouraged

- 541 students received emails and 403 students provided responses, resulting in a 74.49% response rate
Structure of the TSRI

17 Likert–Scale questions to evaluate student perceptions of their:
- Contributions to group activities and discussions
- Time and task management skills
- Interactions with group members
- Responses to intergroup conflict and disagreement
Students were asked to:

“Reflect on their teamwork experiences as a whole, not necessarily just one experience”

and that they should:

“choose the answer that (they) feel best identifies (their) behaviors”
Example TSRI Question

- Choose one from the list below:
  - I only contribute what is required to complete the project or task
  - I may contribute some ideas and work to the group
  - I actively contribute ideas and work that advance the project
  - I help integrate the work and ideas of all group members to complete the project
3 additional questions at the end
  ◦ Estimate number of teamwork experiences at SHSU
    • 0, 1–3, 4–6, 7–9, 10 or more
  ◦ Rate ability to work with others on a Likert–scale
    • Very Below Average, Below Average, Average, Above Average, Very Above Average
  ◦ Estimate whether their teamwork skills are better than ___% of students completing the survey
    • Less than 10%
    • 10%
    • 30%
    • 50%
    • 70%
    • 90%
Scoring of the TSRI

- Each response assigned a point value (−1, 1, 2, and 3)
- Scores can therefore range from a minimum of −17 to maximum of 51
An exploratory factor analysis revealed the possibility of four underlying factors each meeting the eigenvalue-greater-than-one-rule (Kaiser, 1958):

- Three were ultimately demonstrated to be reliable using internal consistency analysis

- Relative fit of questions within each of the factors was determined using the correlational cutoff of .3 (Lambert & Durand, 1975)
Instrument Reliability (cont’d)

Reliability Analysis Revealed Three Reliable Factors:

- Factor One – Interactions with Group Members
  - Cronbach’s Alpha = .78

- Factor Two – Engagement in Group Activities and Discussion
  - Cronbach’s Alpha = .78

- Factor Three – Responses to Intergroup Conflict
  - Cronbach’s Alpha = .76
Two questions (Question 2 and Question 9) did not factor into any of the three reliable factors and

- Overall reliability of the instrument was (slightly) improved with their deletion (.838 to .844).

These questions will be revised prior to the Fall 2018 administration
<table>
<thead>
<tr>
<th>Question Number</th>
<th>Factor One Interactions with Group Members (Reliable)</th>
<th>Factory Two Engagement in Group Activities and Discussions (Reliable)</th>
<th>Factor Three Responses to Intergroup Conflict or Disagreement (Reliable)</th>
<th>Factor #4 (Not Reliable)</th>
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</thead>
<tbody>
<tr>
<td>Question 1</td>
<td>.100</td>
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<td>.065</td>
<td>.452</td>
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<td>.051</td>
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<td>.412</td>
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<td>-.006</td>
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<td>.386</td>
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<td>.313</td>
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<td>.442</td>
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<td>Question 9</td>
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<td>.036</td>
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<td>.750</td>
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<td>.072</td>
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<td>.286</td>
<td>.707</td>
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<td>Question 17</td>
<td>.165</td>
<td>.249</td>
<td>.758</td>
<td>.049</td>
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</table>
Results

- Although students with more self-reported teamwork experiences demonstrated higher mean scores than those with fewer teamwork experiences, these results were not statistically significant
  - \((F(4, 398) = 1.26, p = .28, n^2 = .01)\)

- TSRI scores of students enrolled in lower-division courses were statistically significantly lower than those of students enrolled in upper-division courses
  - \(t(253.54) = -1.99, p = .05\)
  - This difference represented a small effect size (Cohen’s \(d\)) of 0.28

- The overall Mean score for all students was 31.14, with scores ranging from a low of 1 to a high of 51
<table>
<thead>
<tr>
<th>Number of Teamwork Experiences</th>
<th>N of students</th>
<th>$M$</th>
<th>$SD$</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 Experiences</td>
<td>15</td>
<td>28.27</td>
<td>9.22</td>
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<tr>
<td>1–3 Experiences</td>
<td>129</td>
<td>30.16</td>
<td>10.31</td>
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<td>4–6 Experiences</td>
<td>141</td>
<td>31.27</td>
<td>9.01</td>
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<tr>
<td>7–9 Experiences</td>
<td>50</td>
<td>32.78</td>
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<tr>
<td>10 or More Experiences</td>
<td>68</td>
<td>32.18</td>
<td>9.85</td>
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</table>

<table>
<thead>
<tr>
<th>Course Level</th>
<th>N of students</th>
<th>$M$</th>
<th>$SD$</th>
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</thead>
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<tr>
<td>Lower Division</td>
<td>270</td>
<td>30.47</td>
<td>9.38</td>
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<tr>
<td>Upper Division</td>
<td>133</td>
<td>32.50</td>
<td>9.76</td>
</tr>
</tbody>
</table>
Next Steps

- Exploring the student scores within the three reliable factors will provide more information when analyzing data for future use.

- Statistical analysis revealed two of the questions must be revised in order to increase the validity of the TSRI:
  - Plans are underway to have an updated version ready for fall 2018.

- A potential change in the way each answer was scored will be considered, due to Qualtrics inability to calculate the negative scores.
Next Steps (cont’d)

- Deeper analysis of institutional data is forthcoming in an effort to keep equity in mind when presenting findings to appropriate constituents at SHSU.

- The transition from a pilot project to full rollout to colleges will occur in fall 2018.
Highlights

- One of the two hypotheses was met!
- Instrument was reliable, overall
- Approach to administration was a success, with some minor tweaks for next year
- High response rate due to instructor participation and incentives
Questions for Further Discussion

- Will a larger and more representative sample size result in statistically significant results regarding the relationship between overall TSRI score and number of teamwork experiences?

- Will we discover that this relationship is simply the result of a natural growth in maturity of the students?

- Will our results of future administrations be duplicated or will we see more pronounced trends?
Questions?
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Citations
