College of Humanities and Social Sciences & College of Business Administration
A Report on the Teamwork Self-Reflection Instrument (TSRI)
2023-2024

The Teamwork Self-Reflection Instrument (TSRI) was developed by the Sam Houston State University (SHSU) Office of Assessment to evaluate one of six Core Objectives outlined by the Texas Higher Education Coordinating Board (THECB), teamwork. The THECB (2018) defines teamwork as "the ability to consider different points of view and to work effectively with others to support a shared purpose or goal" (p. 4).

Research Questions

The following research questions were addressed in this investigation: (a) What is the difference between overall teamwork scores for students classified as freshman/sophomore and students classified as junior/senior? (b) What is the difference between groups based on the number of teamwork experiences and the total TSRI score?

Method

Instrument

The TSRI was intentionally designed to assess students' self-perceived actions, attitudes, and behaviors in team settings. It was piloted in Fall 2016, revised, then further tested in Fall 2017 and Spring 2018. The full implementation began in Fall 2018. The TSRI is administered each academic year to approximately 500 students. Over a three-year cycle, each academic college at SHSU participates. The TSRI schedule can be viewed on the Office of Assessment's Core Curriculum Projects webpage.

Instrument Reliability

An exploratory factor analysis conducted on the first iteration of the instrument revealed the possibility of four underlying factors, each meeting the eigenvalue-greater-than-one rule (Kaiser, 1958), and three of those factors were ultimately demonstrated to be reliable using internal consistency analysis. The relative fit of questions within each factor was determined using a correlational cutoff of .3 (Lambert & Durand, 1975). Two questions did not factor into any of the three reliable factors, and overall reliability was slightly improved with their exclusion (.838 to .844), so the questions were revised.

A factor analysis conducted using data from the 2023-2024 administration, involving the College of Humanities and Social Sciences and the College of Business Administration, confirmed three underlying factors: group engagement and task management, interactions with group members, and responses to intergroup conflict. As revealed in the principal component analyses for 2021-2022 and 2022-2023 results, one question (Q9) had an r-square value less than .3, and it did not factor into any of the factors, so this question was revised for the 2023-2024 TSRI administration. The principal component analysis for 2023-2024 revealed that this question still did not contribute to any of the factors. Therefore, it will be removed from the TSRI for the 2024-2025 administration. Reliability analysis revealed that three of the factors were reliable. In general, good alpha estimates range from .7 - .9 (George & Mallery, 2003), with <.50 being unacceptable, .51-.60 being poor, .61-.70 being questionable, .71-.80 being acceptable, .81-.90 being good, and .91-.95 being excellent. Cronbach's Alpha for each factor was as follows: Factor

1 (group engagement and task management) = .798, Factor 2 (interactions with group members) = .762, Factor 3 (responses to inter-group conflict) = .760.

Participants

For 2023-2024, 588 students from the College of Humanities and Social Sciences (CHSS) and the College of Business Administration (COBA) completed the TSRI. Table 1 provides a breakdown of participants by college.

Table 1
TSRI Participants by College

College	*n*
CHSS	171
COBA	417
Total	588

Procedure

The Office of Assessment strives to elicit faculty and student participation from every department in participating colleges. Although the TSRI may be completed by students enrolled in face-to-face or online classes, face-to-face is the preferred modality as it typically yields higher participation rates.

At the beginning of the semester, the Director of Assessment sends an email to college leadership requesting participation in the TSRI process. The Associate Dean responsible for assessment in his/her college coordinates with department chairs to recruit faculty willing to designate approximately ten minutes of class time during which students are encouraged to complete the TSRI. Interested faculty then coordinate with the Office of Assessment to determine a date and time for students to complete the instrument. A Qualtrics link to the TSRI is sent to students on the arranged date and time. After all of the TSRIs have been completed, results are exported to an Excel file, which is then imported into SPSS for data analysis

Results: Independent Samples t-test

CHSS and COBA Combined

The research question for this analysis was: What is the difference between overall teamwork scores for students classified as freshman/sophomore and students classified as junior/senior?

Before calculating inferential statistics to ascertain if statistically significant differences were present in overall teamwork scores between class groups (i.e., freshman/sophomore and junior/senior students), the standardized skewness coefficients (i.e., the skewness value divided by the standard error of skewness) and the standardized kurtosis coefficients (i.e., the kurtosis value divided by the standard error of kurtosis) were calculated. Because all of the coefficient values were within the range of normality (i.e., +/-3, Onwuegbuzie & Daniel, 2002), the

assumption of normality of the dependent variable for an independent samples *t*-test was met. The standardized skewness and standardized kurtosis coefficient values are presented in Table 2. Because the independent variable of student classification was dichotomous and the dependent variable of overall teamwork scores was at the ratio level, these assumptions for a parametric independent samples *t*-test were also met (Slate & Rojas-LeBouef, 2011). Therefore, a parametric independent samples *t*-test was performed to answer the research question. Results did not reveal a statistically significant difference between teamwork scores by class group, $p = .372$. Descriptive statistics for this analysis are provided in Table 3.

Table 2
Standardized Skewness Coefficients and Standardized Kurtosis Coefficients for Teamwork Scores by Class Group for CHSS and COBA Combined

Class Group	Standardized Skewness Coefficient	Standardized Kurtosis Coefficient
Freshman/Sophomore	-0.21	-2.04
Junior/Senior	-1.55	-0.85

Table 3
Descriptive Statistics for Teamwork Scores by Class Group for CHSS and COBA Combined

Class Group	*n*	*M*	*SD*
Freshman/Sophomore	234	49.42	8.27
Junior/Senior	354	50.65	7.91

Results: One-Way Analysis of Variance (ANOVA)

CHSS and COBA Combined

This research investigation addressed the following question: What is the difference between groups based on the number of teamwork experiences and the total TSRI score? Before performing inferential statistical procedures to answer the research question, the data were examined to ensure the assumptions for a parametric one-way Analysis of Variance (ANOVA) were met. Because the dependent variable (total TSRI score) was a continuous variable, and the independent variable (number of teamwork experiences) consisted of five categorical groups of independent observations, the first two assumptions were met. To determine if the data were normally distributed, the standardized skewness coefficients and the standardized kurtosis coefficients were calculated. These calculations revealed that all ten of the coefficients were within the +/- 3 range of normality (Onwuegbuzie & Daniel, 2002); therefore, the assumption for a normal distribution was met. Standardized skewness and kurtosis coefficients are presented in Table 4. A Levene's test was performed for the fourth assumption regarding homogeneity of variance. This result revealed that homogeneity of variance was present ($p = .208$). Because all assumptions were met, a parametric one-way ANOVA was performed.

Regarding the extent to which differences were present in students' total teamwork scores as a function of the number of teamwork experiences, the results revealed a statistically significant difference $F(4,583) = 7.893$, $p < .001$, partial $n^2 = .051$. The effect size for this difference small. An examination of Scheffe post hoc results revealed that TSRI scores were statistically

significantly higher for students with ten or more teamwork experiences than students with one to three teamwork experiences and students with four to six teamwork experiences. In addition, scores were statistically significantly higher for students with seven to nine teamwork experiences than students with one to three experiences. Table 5 contains the descriptive statistics for TSRI scores and the number of teamwork experiences for CHSS and COBA combined.

Table 5
Descriptive Statistics for TSRI Scores and Number of Teamwork Experiences for CHSS and COBA Combined

Group	*n* of teamwork experiences	*n* of students in the group	*M*	*SD*
1	0	20	48.70	10.34
2	1-3	160	47.83	8.24
3	4-6	205	49.96	7.74
4	7-9	91	51.73	7.11
5	10 or more	112	52.87	7.77

References

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