College of Health Sciences
A Report on the Teamwork Self-Reflection Instrument (TSRI)
2021-2022

The Teamwork Self-Reflection Instrument (TSRI) was developed by the Sam Houston State University (SHSU) Office of Assessment to evaluate one of the six Core Objectives outlined by the Texas Higher Education Coordinating Board (THECB), teamwork. According to the THECB (2018), teamwork is defined 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 Question

This investigation addressed the following research question: 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. This instrument was piloted in the fall of 2016, revised, and then further tested in the fall of 2017 and spring of 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 for the 2021-2022 version confirmed three underlying factors: contributions to the group, interactions with group members, and intergroup conflict. Principal component analysis revealed that one question (Q9) had an r-square value less than .3, so this question may be considered for removal from future versions of the TSRI. Reliability analysis revealed that the three factors were reliable. As a rule of thumb, Cronbach's Alpha equal to approximately .78 is considered good, and approximately .77 is considered acceptable. Cronbach's Alpha for each factor was as follows: Factor 1 (contributions to the group) = .799, Factor 2 (interactions with group members) = .818, and Factor 3 (inter-group conflict) = .779.

Participants

For the 2021-2022 academic year, 232 students from the College of Health Sciences completed the TSRI. Participation by department is presented in Table 1.

Table 1
TSRI Participants by Department

Department	*n*
Family and Consumer Science	19
Kinesiology	24
Population Health	79
School of Nursing	110
Total	232

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. Upon receipt of the email, 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, the results are exported to an Excel file, which is then imported into SPSS for data analysis.

Results

Results Summary

For the College of Health Sciences, the results revealed a statistically significant difference between groups (categorized by the number of teamwork experiences). Scores were statistically significantly higher for students with ten or more teamwork experiences than those with four to six teamwork experiences. For the Department of Population Health, the results revealed no statistically significant differences between the five groups. The sample sizes for the Departments of Family and Consumer Sciences and Kinesiology, and for the School of Nursing, were insufficient for statistical analyses.

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Because the TSRI instrument was not administered to students enrolled in lower-division courses during the 2021-2022 year, no comparison was made between TSRI data collected in lower-division courses and upper-division courses. Instead, the number of students' teamwork experiences and their total TSRI scores were examined to determine whether students who reported more teamwork experiences also scored higher on the instrument.

Before performing inferential statistical procedures to answer the research question, the data were examined to ensure that 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 of the coefficients were within the +/- 3 range of normality (Onwuegbuzie & Daniel, 2002); therefore, the assumption for a normal distribution was met. The standardized skewness and standardized kurtosis coefficients are presented in Table 2. A Levene's test for homogeneity of variance was calculated for the fourth assumption. This result revealed that homogeneity of variance was not present (p = .001); however, according to Field (2009), the parametric ANOVA is sufficiently robust that this violation can be withstood. Accordingly, a parametric ANOVA statistical procedure was performed.

Table 2
Standardized Skewness Coefficients and Standardized Kurtosis Coefficients for the College of Health Sciences

Group	Standardized Skewness Coefficient	Standardized Kurtosis Coefficient
1	-0.18	-1.16
2	-0.44	-1.14
3	-0.40	-1.29
4	0.28	-0.45
5	-2.00	0.08

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 between groups, $F(4,227) = 4.71$, p = .001, partial n^2 = .077. The effect size for this difference was medium. Scheffe post hoc results revealed that TSRI scores were statistically significantly higher for students with 10 or more teamwork experiences than those with four to six teamwork experiences. Descriptive statistics for TSRI scores and the number of teamwork experiences for the College of Health Sciences are presented in Table 3.

Table 3
Descriptive Statistics for TSRI Scores and Number of Teamwork Experiences for the College of Health Sciences

Group	*n* of teamwork experiences	*n* of students in the group	*M*	*SD*
1	0	4	50.25	14.99
2	1-3	26	50.96	10.82
3	4-6	69	51.54	7.68
4	7-9	42	52.05	8.04
5	10 or more	91	56.24	7.25

Department of Family and Consumer Sciences

Because the sample size for Group 1 was $n = 0$, and the sample size for Group 2 (n = 3) and Group 4 ($n = 1$) was so small, neither a parametric or a nonparametric ANOVA was performed. Descriptive statistics for the Department of Family and Consumer Sciences are presented in Table 4.

Table 4
Descriptive Statistics for TSRI Scores and Number of Teamwork Experiences for the Department of Family and Consumer Sciences

Group	*n* of teamwork experiences	*n* of students in the group	*M*	*SD*
1	0	0	-	-
2	1-3	3	45.33	10.50
3	4-6	11	47.73	5.88
4	7-9	1	45.00	-
5	10 or more	4	60.50	7.00

Department of Population Health

Before performing inferential statistical procedures to answer the research question, the data were examined to ensure that 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 and kurtosis coefficients were calculated. These calculations revealed that all of the coefficients were within the +/- 3 range of normality (Onwuegbuzie & Daniel, 2002); therefore, the assumption for a normal distribution was met. The standardized skewness and standardized kurtosis coefficients are presented in Table 5. A Levene's test for homogeneity of variance was calculated for the fourth assumption. This test revealed that homogeneity of variance was present ($p = .091$). Because all of the required assumptions were met, a parametric one-way ANOVA was performed. Results revealed no statistically significant differences between the five groups, $p = .912$. Descriptive statistics for the Department of Population Health are presented in Table 6.

Table 5
Standardized Skewness Coefficients and Standardized Kurtosis Coefficients for the Department of Population Health

Group	Standardized Skewness Coefficient	Standardized Kurtosis Coefficient
1	-0.18	-1.16
2	-0.69	-0.78
3	-0.43	-1.17
4	-0.41	-0.43
5	-0.02	-0.62

Table 6
Descriptive Statistics for TSRI Scores and Number of Teamwork Experiences for the Department of Population Health

Group	*n* of teamwork experiences	*n* of students in the group	*M*	*SD*
1	0	4	50.25	14.99
2	1-3	12	51.83	12.22
3	4-6	28	51.39	9.39
4	7-9	17	49.53	7.76
5	10 or more	18	52.67	9.49

Department of Kinesiology

Because the sample sizes for Group 1 ($n = 0$) and Group 4 ($n = 3$) were so small, neither a parametric nor a nonparametric ANOVA was performed. Descriptive statistics for the Department of Kinesiology are presented in Table 7.

Table 7
Descriptive Statistics for TSRI Scores and Number of Teamwork Experiences for the Department of Kinesiology

Group	*n* of teamwork experiences	*n* of students in the group	*M*	*SD*
1	0	0	-	-
2	1-3	8	52.98	8.22
3	4-6	6	53.67	6.22
4	7-9	3	53.00	1.73
5	10 or more	7	52.71	7.09

School of Nursing

Because the sample sizes for Group 1 ($n = 0$) and Group 2 ($n = 3$) were so small, neither a parametric nor a nonparametric ANOVA was performed. Descriptive statistics for the School of Nursing are provided in Table 8.

Table 8
Descriptive Statistics for TSRI Scores and Number of Teamwork Experiences for the School of Nursing

Group	*n* of teamwork experiences	*n* of students in the group	*M*	*SD*
1	0	0	-	-
2	1-3	3	48.00	14.73
3	4-6	24	52.92	6.11
4	7-9	21	54.29	8.42
5	10 or more	62	57.40	6.12

References

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