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ASSESSING TEAMWORK SKILLS USING CONSTRUCTS FROM THE AAC&U TEAMWORK VALUE RUBRIC AT THE UNIVERSITY OF TEXAS AT ARLINGTON

SPRING 2016 REPORT

Assessing the Teamwork Core Objective Assessment at UT Arlington

Projects and tasks that are too large and complex for one person are typically assigned to teams of people. Teamwork skills allow an individual to collaborate with others on an assigned task. When these skills are highly developed, they propel a team to accomplish together much more than was possible on their own. Conversely, when team members exhibit under-developed teamwork skills, the task is often poorly executed by the whole or it is completed through the efforts of one or two individuals who shoulder the entire burden. Teamwork at its best can be a very satisfying experience, at its worst, it is annoying and frustrating.

An example of highly developed teamwork was relayed by Hughes and Jones (2011) in describing the approach of the National Aeronautics and Space Administration engineers and the Apollo 13 astronauts as they formed a team and worked together quickly to avert disaster. Most examples of teamwork are less dramatic than Apollo 13. However, many businesses may assume that college students realize that most jobs involve team-oriented work as they prepare for post-graduate employment. In fact, national surveys of employers reveal that teamwork is among the top five competencies and skills that hiring managers are seeking in a prospective hire (Hart Research Associates, 2013; National Association of Colleges and Employers, 2012). For example in 2014, hiring managers from 260 businesses (mostly large companies such as Chevron and IBM) responded to the National Association of Colleges and Employers Job Outlook Survey and ranked "the ability to work in a team structure" as the number one skill (Gray and Koncz, 2015).

An individual's comfort level and ability to collaborate with others translates across academic disciplines. Common themes for teams in the hard sciences such as engineering, nursing, and research labs in biology, chemistry, and physics involve teamwork by utilizing the following abilities 1) collaborating with others, 2) determining the steps to completion within a complex

project, 3) assessing individual strengths when assigning tasks to ensure that the best skillset is employed for each, 4) communicating effectively, and 5) demonstrating a willing to manage conflict. Further, teamwork is often utilized in class projects in sociology, anthropology, architecture, social work, business, theatre, and psychology.

Assessing attainment of teamwork ability at UT Arlington is underscored by the fact that teamwork is one of six core objectives selected by the Texas Higher Education Coordinating Board (THECB) when the current Core Curriculum was established in 2011 (THECB, 2015). The assessment of the Teamwork Objective is required in three of the eight Foundational Component Areas (FCA) listed by THECB, thus, Teamwork is implemented within core curriculum coursework at the undergraduate level in Communication, Life and Physical Sciences, and Creative Arts. The University of Texas at Arlington (UT Arlington) assesses the six core objectives on a multi-year cycle to determine the extent of student achievement.

At UT Arlington, assessment of the Teamwork Objective used two methodological approaches. First, responses on a teamwork evaluation form were collected from undergraduates enrolled approved Texas Core Curriculum courses within the Life and Physical Sciences FCA. The quality of teamwork over a series of lab assignments from ten separate lab sections was rated by peers, specifically by the lab partners in these projects. Second, a targeted focus group of mostly upper division students (juniors and seniors) was convened to gather candid responses to a series of semi-structured questions based on the same rubric. In this "outside-the- classroom" setting, the element of participating for a grade or affecting a classmate's grade in the class was removed.

The purpose of this report is to present teamwork ratings and information gleaned directly from UT Arlington students during the 2016 spring semester.

<p style="text-align:center">Method</p>

Teamwork Evaluations of Lab Partners

Participants. Lab partner rating forms were obtained from 174 undergraduates enrolled in Core

Curriculum courses at UT Arlington. Because the evaluations were anonymous, detailed

demographics (e.g., age, race, and ethnicity) that could have been used as covariates in analyses

were not available. From the class roster, we could glean information regarding the college or

school of their intended major and their classification level (freshman, sophomore, junior, senior).

Students represented six of ten colleges and schools at UT Arlington (see Table 1). More than two-

thirds were freshmen or sophomores and the balance were juniors and seniors (see Figure 1).

Table 1

Student composition by College/School

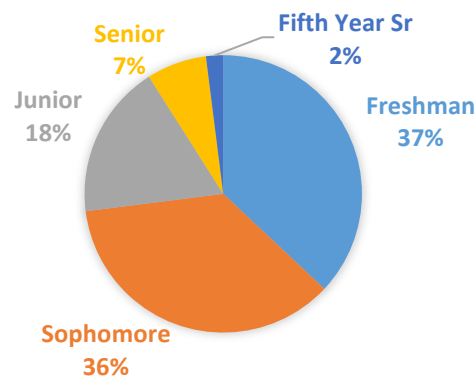| College/School	Percent of Students in sample
Liberal Arts	3%
Engineering	2%
Business	0%
Science	44%
Nursing and Health Innovation	15%
Education	2%
Social Work	0%
Architecture	0%
University College	21%
Urban and Public Affairs	0%

Figure 1. College Levels by Percent

Procedure. Faculty teaching undergraduate chemistry labs in the Life and Physical Sciences FCA agreed to have students fill out teamwork evaluation forms. The syllabus in each core curriculum class at UT Arlington describes the fact that Signature Assignments are part of the course and students enrolled in these courses have the expectation that they complete for a grade just as other required course work and for university use in evaluating student attainment of TCC objectives. In this case, the teamwork evaluations that were submitted for this assessment process were ungraded copies and the evaluator's names were not collected. Using a copy of the teamwork evaluation form for each of their lab partners (see Figure 2), the lab partner doing the rating was anonymous as they evaluated their lab partner by name for each construct. These steps to make the ratings anonymous were followed to reduce any bias among rater scores in response to the grade their peer might receive from the instructor.

Assessment Instrument. The teamwork evaluation forms and focus group questions were based on the Valid Assessment of Learning in Undergraduate Education (VALUE) Rubric for Teamwork (AAC&U, 2015) developed by the Association of American Colleges and Universities' (AAC&U). This rubric (see Figure 3) categorizes teamwork into five constructs for assessing an individual on the team, not the complete group on the team. The constructs include: *Contributes to Team Meetings, Facilitates the Contributions of Team Members, Individual Contributions Outside of Team Meetings, Fosters Constructive Team Climate, and Responds to Conflict*. In that sense, use of the team evaluation form is a process measurement approach rather than a rating of the team's final presentation of their project. The peer-rating form, like the rubric, used a four-point Likert scale for determining scores (see Figure 2). Higher values indicate more evidence of teamwork and each teamwork construct was assigned a score.

Evaluating Your Team

This form is anonymous. Do not write your name. Complete one form for each team member.

Name of team member you are evaluating: _____

Directions: Place an "X" in each row that best describes your teammate.

	4 – Excellent	3 – Above Average	2 - Average	1 – Poor
Contributes to Team Meetings *Attended labs and suggested good ideas*				
Facilitates the Contributions of Team Members *Listened to partner and engaged their ideas*				
Individual Contributions *Completed work, completed experiment within schedule time period, and helped partner*				
Fosters Constructive Team Climate *Had positive attitude and motivated partner*				
Responds to Conflict *Addresses and works through disagreements and conflict*				

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Figure 2. UT Arlington Team Evaluation Form

TEAMWORK VALUE RUBRIC
for more information, please contact value@aacu.org

AAC&U
Association of American Colleges and Universities

Definition

Teamwork is behaviors under the control of individual team members (effort they put into team tasks, their manner of interacting with others on team, and the quantity and quality of contributions they make to team discussions.)

Evaluators are encouraged to assign a zero to any work sample or collection of work that does not meet benchmark (cell one) level performance.

	Capstone 4	Milestones 3	Milestones 2	Benchmark 1
Contributes to Team Meetings	Helps the team move forward by articulating the merits of alternative ideas or proposals.	Offers alternative solutions or courses of action that build on the ideas of others.	Offers new suggestions to advance the work of the group.	Shares ideas but does not advance the work of the group.
Facilitates the Contributions of Team Members	Engages team members in ways that facilitate their contributions to meetings by both constructively building upon or synthesizing the contributions of others as well as noticing when someone is not participating and inviting them to engage.	Engages team members in ways that facilitate their contributions to meetings by constructively building upon or synthesizing the contributions of others.	Engages team members in ways that facilitate their contributions to meetings by restating the views of other team members and/or asking questions for clarification.	Engages team members by taking turns and listening to others without interrupting.
Individual Contributions Outside of Team Meetings	Completes all assigned tasks by deadline; work accomplished is thorough, comprehensive, and advances the project. Proactively helps other team members complete their assigned tasks to a similar level of excellence.	Completes all assigned tasks by deadline; work accomplished is thorough, comprehensive, and advances the project.	Completes all assigned tasks by deadline; work accomplished advances the project.	Completes all assigned tasks by deadline.
Fosters Constructive Team Climate	Supports a constructive team climate by doing all of the following: • Treats team members respectfully by being polite and constructive in communication. • Uses positive vocal or written tone, facial expressions, and/or body language to convey a positive attitude about the team and its work. • Motivates teammates by expressing confidence about the importance of the task and the team's ability to accomplish it. • Provides assistance and/or encouragement to team members.	Supports a constructive team climate by doing any three of the following: • Treats team members respectfully by being polite and constructive in communication. • Uses positive vocal or written tone, facial expressions, and/or body language to convey a positive attitude about the team and its work. • Motivates teammates by expressing confidence about the importance of the task and the team's ability to accomplish it. • Provides assistance and/or encouragement to team members.	Supports a constructive team climate by doing any two of the following: • Treats team members respectfully by being polite and constructive in communication. • Uses positive vocal or written tone, facial expressions, and/or body language to convey a positive attitude about the team and its work. • Motivates teammates by expressing confidence about the importance of the task and the team's ability to accomplish it. • Provides assistance and/or encouragement to team members.	Supports a constructive team climate by doing any one of the following: • Treats team members respectfully by being polite and constructive in communication. • Uses positive vocal or written tone, facial expressions, and/or body language to convey a positive attitude about the team and its work. • Motivates teammates by expressing confidence about the importance of the task and the team's ability to accomplish it. • Provides assistance and/or encouragement to team members.
Responds to Conflict	Addresses destructive conflict directly and constructively, helping to manage/resolve it in a way that strengthens overall team cohesiveness and future effectiveness.	Identifies and acknowledges conflict and stays engaged with it.	Redirecting focus toward common ground, toward task at hand (away from conflict).	Passively accepts alternate viewpoints/ideas/opinions.

Figure 3. Teamwork VALUE Rubric

Focus Group

Participants. Upper division students involved in teamwork activities sponsored by the UT Arlington Department of Student Affairs were invited via email to participate in a two-hour focus group discussion about teamwork. Participants were offered a delicious lunch and twenty dollars in cash as compensation for participation. The AAC&U Teamwork VALUE rubric guided the construction of a group of Semi-structured questions based on the five constructs (described above). The nine focus group members represented Nursing (33%), Science (33%), Architecture (22%), and the CAP program. Six were female, the rest were male. By level, one was a freshman, three were sophomores, three were juniors, one was a senior, and one was a graduate student.

Procedure. The discussion of teamwork was conducted at a conference table and as each participant was seated they chose a "table tent" that contained the name of a color to place in front of them. During the discussion, all participants used the name of their respective color to identify themselves before speaking or to respond to the comments of another focus group member. This practice was an effort to keep all responses anonymous. A facilitator led the discussion, reading from a list of questions. Participants were served a working lunch during the two-hour session.

Assessment instrument. The list of five semi-structured questions was prepared to guide student discussion to share their thoughts and experiences on the topics contained in the five constructs from the Teamwork VALUE Rubric. For each question, additional prompts were prepared to reframe the question if additional clarification was needed (see Appendix A).

Analysis and Results

The final data set for the teamwork evaluation scores ($N = 174$) contained ratings for all five constructs. The means and standard deviation for each dimension are presented in Table 2. Across five constructs there was little variability.

Table 2

Mean scores for Teamwork Evaluation Form by Constructs

Construct	Mean	SD
Contributes to team meetings	3.9	.28
Facilitates the contributions of team members	3.9	.38
Individual contributions outside the team meeting	4.0	.24
Fosters constructive team climate	3.9	.37
Responds to Conflict	3.9	.31

Summary

This report assessed teamwork using two approaches. In the first, students from the Life and Physical Sciences Foundational Component Areas used a teamwork evaluation form to rate the teamwork behaviors exhibited by their lab partner as they completed project-based assignments for the course. The anonymous rating was based on the constructs in the Teamwork VALUE Rubric developed by the AAC&U. The second methodological approach utilized a focus group in which participants discussed their teamwork experiences at UT Arlington based on the same five constructs. The rationale for adding the focus group as a direct measure of teamwork formed out of the exceedingly high ratings on the teamwork evaluation forms.

Teamwork Evaluation Form

It was clear to see a possible weakness of this method because the ratings were very high across the board. In most cases, the student rated their lab partner at the highest level, a value of 4, on every construct. As a further example of this trend, one student evaluator added a narrative comment "she is an Excellent person and SO, SO Smart!" This study confirms reports in the teamwork literature about similar problems encountered when students rate their peer's contribution in graded team projects. For example, Jaschik and colleagues (2015) found that many college students, underestimate the importance of teamwork, overestimate their teamwork skills,

and place a high value on maintaining a high grade point average. In the present study, the results suggest that either the students have attained excellent levels of teamwork skills or the students were unwilling to negatively influence the grades received by their peers for the lab projects. It could also be the case that it is a combination of both scenarios.

Focus Group

Several themes emerged across all five constructs in the focus group. The first related to *Unjust Grading Policies for Team Members*. Students commented that "oftentimes the professor's assessment of teamwork projects in undergraduate courses seemed unfair". From their perspective, the members of the team vary in proficiency and motivation, yet in their experience typically everyone was awarded the same grade for the project. In addition, a theme emerged related to the *Control of Team Composition*; typically the team members are assigned by the instructor. Students commented that "who was assigned to the team was beyond my control". As such, a course that uses a team assessment approach may actually be a hindrance to their goals (e.g., high grade point average), especially when everyone on the team gets the same grade and the individuals on the team do not have a voice to articulate the individual contributions of fellow team members and how they might have differed. In fact, Woodley & Armatas, (2010) relate the same theme of the frustration students express when their locus of control is reduced and a group grading policy is in force.

Last and probably most important in light of student attainment, is the theme of *Teamwork Importance*. One comment that seemed to resonate with the entire group related to teamwork being annoying in their freshman and sophomore years. While expressing that early experiences were not satisfying, they added that those experiences also built their skills and enabled them to form helpful strategies for constructive work while collaborating with others. Without exception, all

agreed that teamwork experiences at UT Arlington had enriched their preparation for post-graduate employment.

Conclusions

Overall, results were positive for the assessment of the THECB Teamwork Core Objective measured student attainment using two methods. While the high teamwork evaluations for lab partners may have reflected an unwillingness to inflict harm to the grade point average of a peer, the focus group revealed that students valued their teamwork experiences very highly while at UT Arlington. Themes that emerged from the multi-disciplinary focus group provided valuable evidence of student attainment of teamwork over time and could be used to enhance teamwork experiences in the future. Our multi-year plan to assess the Teamwork Objective at UT Arlington will include Creative Arts and Communication Foundational Component Areas when completed in 2017.

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APPENDIX A

Semi-Structured Focus Group Questions

Specific Aim: to explore and describe teamwork behaviors by individuals and self in terms of 1) the effort they put into team tasks, 2) the way members interact with others on the team, 3) the quantity of contribution, and 4) the quality of contribution. Questions below address each of the five Teamwork Dimensions in the AAC&U Teamwork VALUE Rubric.

Contributes to team meetings

Question 1: What does it look like when individuals actively contribute to the team at meetings?
- Additional Prompts. What behaviors by teammates help to move the team forward? Does everyone need to offer ideas, suggestions, and solutions for the task? Does it matter how ideas, suggestions and solutions are shared?

Facilitates the Contributions of Team Members

Question 2: Can you give an example of a team member making it easy for others to make a contribution?
- Additional Prompts. What stands out as something you could do to facilitate the efforts of others on teams or groups you may be a part of in the future? What roles need to be filled on a good team and what is your natural role? What is your comfort level in taking a different role in the case where there is no one to fill the facilitator role?

Individual Contributions outside the team meeting

Question 3: How does the quantity and quality of contribution help or hamper team effectiveness? Please give an example.
- Additional Prompts. When deadlines are set for assigned tasks is there a difference in how some team members respond?

Fosters Constructive Team Climate

Question 4: Based on your teamwork experience, please give an example of a situation when you experienced non-constructive team climate OR give an example of a constructive team climate.
- Additional Prompts. Have you ever been on a team where a team member did not treat others with respect? How did that make you feel? Are there certain facial expressions and body language that foster a constructive team climate? When these are present during team meetings, what happens?

Responds to Conflict

Question 5: What are some different levels of dealing with conflict that you have experienced on teams?
- Additional Prompts - describe the effect it has on a team when a team member passively accepts or redirects focus toward the task at hand (away from conflict) vs. when conflict is addressed and resolved? Does it have to be either/or? Are there situations when one is better? Does it strengthen team cohesiveness to confront conflict or ignore it? Please give an example from your teamwork experience here at UT Arlington.