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SoTL Grant Application Form

(2019-2020)

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I. Basic Information

Title of Project: **High impact on student teams, low impact on educators:**
Two simple interventions enhancing teamwork effectiveness

Investigator(s) Information

Principal Investigator: Name:	**Joan N. Shapiro Beigh**
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Other Investigators (Co-Pi): None

Name	College	Department

For each investigator, please include an abbreviated CV using the SoTL grant CV template.

Will your project involve human subjects?   **X Yes**

If Yes, you must include evidence of IRB approval or exemption, or of having applied for IRB approval or exemption. Please note that before any granted funding can be made available, you will be required to provide evidence of IRB approval or exemption.

NOTE – I have IRB approval from Northeastern Illinois University. I am willing to transfer the study to DePaul, as I no longer have an affiliation with NEIU.

Requested Funds

Amount Requested (up to $2,500): $2,476 (estimate – see Section V.)

II. Project Abstract (250 words or less)

As research on teams explodes, employers demand teamwork-trained graduates. In response, educators integrate team projects into their courses, which, unfortunately, does not guarantee that students actually learn teamwork skills. Effective teamwork is problematic, given students' proclivities for procrastination and widely divergent work styles. In organizations, teams have the potential to increase worker productivity, morale, and innovation (Dumaine, 1994; Thompson, 2008), all of which make teamwork skills worth cultivating in student populations (Cox et al., 2004; Kalliath et al., 2006). Like workplace teams, student teams also have the potential to reach synergistic ends (Watson, Minzenmayer, & Bowler, 2006). The benefits of teamwork are supported by theory. Achieving synergy, learning together, and pooling resources on teams are related to the quality of social interaction among team members. Bandura's (1986; 1991) social cognitive theory (SCT) suggests that learning takes place through social interactions. Drawing from SCT, this study explores whether giving student teams a simply-written resource (one-page teamwork effectiveness guidelines), or a brief classroom exercise, will mitigate the effects of conflict from lack of teamwork training in the classroom, enabling higher level team performance and a better overall team experience for team members. Through affective support and cognitive skill-building, two interventions have the potential to help project teams reduce conflict, boost intra-team experience, and achieve higher quality team results. The proposed study offers an easily replicable resource, and an intra-team discussion guide reminiscent of team chartering, which may be used every time students are assigned to teams.

III.   Project Description

Purpose of Project

> **Clear statement of the teaching-learning issue to be investigated, and brief explanation why this issue warrants a systematic and rigorous investigation:**

We know from the study of people at work that evidence-based resources and interventions may potentially assist in countering the problematic nature of team work. We know less about *how* to implement those interventions among college students working in work teams. As such, I ask:

Research Question: Can a simply written, one page set of teamwork effectiveness guidelines, with or without an accompanying brief teamwork skills facilitation, positively impact students' teamwork effectiveness skills, results, and team experience in student teams, as judged by the students and their professors?

Some instructors assign team projects without offering their students guidance in how to work effectively on teams, and when student teams experience conflict, refuse to get involved. The instructors may fail to teach teamwork skills because they believe they do not have the expertise necessary to do so – it's "not my area," or feel that teaching teamwork skills is a long and involved process that they just don't have time for. Yet as we saw in the abstract, learning to work together with others as part of a team is a critical skill set for students to develop as they enter the workplace, regardless of chosen profession or industry. Students in classes with instructors who can't or won't teach teamwork skills, stressed by the lack of hierarchical support, might be relieved to have access to a resource that helps them navigate team process.

Conservation of resources (COR) theory suggests that people under stress tend to maintain their current resources and seek out new resources to help them cope with the stress (Hobfoll, 1986). A concise, easy-to-read set of teamwork effectiveness guidelines that is based in evidence, and explains how teams work together more effectively, may be considered such a coping resource by students, particularly

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those who have had negative team experiences in the past. Thus, COR suggests that students would be pleased to receive such a resource. In a grounded theory exploratory study of social loafing, all students indicated they had had experience with social loafing in teams, and 100% of the students voluntarily completed the survey instrument, without being offered any type of compensation (not even extra credit points) (Jassawalla, Sachittal & Malshe, 2009). This suggests that teamwork effectiveness and reducing social loafing behaviors are of singular importance to students who have teamwork experience.

This controlled study tests two, low-cost, effective, and quick intervention strategies. Both interventions to be tested maintain the spirit of testing an intervention that is low impact on instructors' time and required skills. The first intervention is a single-sided page of teamwork effectiveness guidelines based in evidence from the literature, but written in an easy-to-understand style for students. The second intervention is a simple teaching module that facilitates a discussion about team norms in a classroom setting, and follows up the facilitation with a worksheet that guides intra-team discussions, in order to apply the resource from the first intervention. It utilizes an active learning methodology (Gueldenzoph, 2007) that combines students' *a priori* experience with evidence-based research, delivered through simple educational mechanisms designed to facilitate transformational learning (Mezirow, 1978, 1994) and positive affective experiences (Weiss & Cropanzano, 1996).

IV.   Theoretical Framework

Explain how your proposed research builds on or fits into existing relevant literature. Provide a brief but comprehensive bibliography as an appendix.

NOTE: This theoretical framework is in addition to the theory cited above.

Intervention #1: Giving students teamwork effectiveness guidelines to use voluntarily

Drawing from technology acceptance and compatibility theories in business intelligence and analytics (B&IA), we can begin to predict the possible usage of a teamwork effectiveness guidelines resource if we interpret the guidelines as a kind of "new technology." While B&IA technology tends not to cover soft skills, it does give users the capability to use information and insights to support decision-making processes, a similar capability to the teamwork effectiveness guidelines (Kowalczyk & Buxmann, 2015). Like B&IA, the guidelines also provide value to teams and organizations by increasing the potential for organizational performance (Audzeyeva & Hudson, 2016; Olszak, 2016; Sharma, Mithas, & Kankanhalli, 2014), and should lead to higher quality decision-making based less on intuition than on reasoning (Kowalczyk et al., 2015). An investigation of technology use intentions by Jaklic, Grubljesic, and Popovic (2018) considered individual level characteristics drawn from a unified theory of acceptance and use of technology (UTAUT) (Venkatesh, Morris, Davis, & Davis, 2003). UTAUT combines lessons from the technology acceptance model (Davis, 1989), which suggests that a technology's perceived usefulness to the user and perceived ease of use are combined levers that helps users decide whether to adopt a new technology.

Similarly, innovation diffusion theory (Kapoor, Dwivedi, & Williams, 2014; Rogers, 1983) and its revision by Moore and Benbasat (1991) suggest that acceptance of new technology is based on: (1) the demonstrability of the technology's relative advantage and results, (2) its ease of use and compatibility with existing organizational technology, (3) the image it portrays and degree of visibility to others within or external to the organization, and (4) whether its use is voluntary for users. Thus, UTAUT theory consolidates the two earlier theories into a set of three determining factors for the usage of new technology: expectancy of how the new technology will perform, expectancy of how much effort the new technology will require to use and integrate into existing processes (effort + compatibility), and social influences on the user to use the new technology (Venkatesh et al., 2003). In their study of B&IA new

technology usage, Jaklic and colleagues (2018) found that social influence (B = .277, *p* < .01), and results demonstrability (B = .210, *p* < .01) significantly predicted usage intentions (r² = .361). These findings suggest that in the case of a "new technology" like teamwork effectiveness guidelines, the resource will be used if others in the class or on the team influence their use, or if the guidelines are introduced in a manner that is couched in demonstrating their effectiveness with regards to results. As the resource will be offered for voluntary use without intentional influence on the part of the resource, it is likely that only the most conscientious teams will elect to use the guidelines, although many students will likely express gratefulness for receiving them.

Intervention #2:. Guidelines together with a class-wide teamwork facilitation exercise and an individual team assignment that replicates a team charter exercise without the "busywork" aspects

Making team effectiveness guidelines available to individual students as a team resource to use voluntarily (Intervention #1) does not mean they will use the guidelines within their teams to improve their team's process. However, using the guidelines in combination with other teaching modalities in a team charter-like guided discussion, early in the life-cycle of the team, might be more likely to influence positive results, given Mezirow's (1991) theory of transformative learning. A recent application of transformative learning that is time-bounded, and relevant to project teams, is Allen's (2002) *Impact Teaching*. Impact teaching involves using short chunks of time in the classroom for high-impact lessons (Gueldenzoph, 2007), which could be utilized for this study. Couched in this type of classroom intervention, student project teams should benefit cognitively from the fast acquisition of succinct, accessible material, such as simple teamwork guidelines offered as part of a facilitation exercise, followed by an intra-team discussion to apply the guidelines. The intent of the 20-minute, high impact, facilitation including the entire class would be to demystify teamwork and focus students on exploring the teamwork norms and goals that have worked well or failed in their own previous *a priori* team experiences. Teams would then work with each other outside of class in a kind of flipped classroom format by using a structured set of dialogue-provoking questions to guide a discussion that creates shared expectations for behavior and performance.

The purpose of the team-wide exercise is to create norms, surface values, expectations and roles, assist in team process planning, and prevent potential team conflict (Courtright, McCormick, Mistry, & Wang, 2017), similar to team chartering exercises. Studies from Bettenhausen & Murninghan (1985) and Gersick & Hackman (1990) showed that when positive or negative team behavioral norms are established early, they tend to remain throughout the life of that team. High quality team charters also force the team to take control of the project from the outset, developing an agreement on how team members will work together to make decisions and accomplish the work by clarifying roles, responsibilities and expectations (Bettenhausen et al., 1985; Gersick, 1988; Salas et al., 1999). Chartering also builds early team cohesion and is particularly effective as a performance-enhancing mechanism in circumstances where teams' mean conscientiousness is low (Courtright et al., 2017). The idea of impacting a team positively early in its life span has been well-studied; events that impact teams early tend to have long-lasting effects on the teams' well-being (Bales, 1950; Braaten, 1974; Gersick, 1988, 1989; Mills, 1964). Mathieu and Rapp (2009) also argued that structured teamwork activities early in a team's life cycle will help establish a solid foundation for success. Research into team chartering exercises offers a way to practically test previous findings that early interventions work, as team charters are an assignment which is typically given to student teams to complete as the teams are forming. According to Holtham et al., (2006), the process of creating a team charter at the beginning of a semester also can head off the chaos and confusion teams experience as they begin work on their project. the way the team chartering process should force group discussion and documentation of team norms. In the structured team dialogue exercise outside of class, the students would discuss their expectations, project goals, communication and coordination plans, and how they would handle conflict, similar to recommendations by Mathieu and Rapp (2009). Each team would be expected to jot down brief notes from the intra-team discussion and turn them in. Unlike a team

charter, which is written down by the team, and intended by educators as a team resource, the briefly jotted notes would merely prove that the discussion has taken place. One hopes it might therefore be less likely to be considered "busywork" by students (Gatchell, Ankenman, Hirsch, Goodman, & Brown, 2014), and be more likely to occur as a team event in which everyone on the team participates.

Without such an early intervention as a team charter-type exercise to delay the team long enough to discuss strategy and norms, teams often do not take the time to explicitly plan out their process of working together; instead, they tend to jump right into task work (Mathieu et al., 2009). Chartering therefore has the added potential benefit of circumventing critical barriers to teamwork, including not setting goals or a plan to achieve those goals, not spending enough time planning how to work together, holding inefficient meetings, refraining from resolving interpersonal conflicts, and Groupthink, where team members conform to the perceived consensus without finding their own independent voice to speak their mind (World Health Organization, 2007). Understandably, team charters work best when the team chartering process is shared by all team members (Hunsaker et al., 2012). Cautionary tales from the literature suggest that the team chartering process does not achieve its intended goals if the charter is completed by a subset of team members or by a single individual; student teams seeking efficiency often will consider a chartering exercise as another chore, another assignment to be handed in, and seek the fastest way to do that – often assigning it to one or two people on the team rather than having the entire team work through the exercise together (Gatchell et al., 2014). Indeed, Gatchell and colleagues (2014) reported being disappointed in the "overwhelming number" of students who felt the team chartering exercises were tedious, written "busywork" that took away from learning (p. 1).

These findings suggest that the two proposed interventions should be given to students during the critical period just after the student teams have been formed and the project assignment has been explained. They also suggest that the resources guidelines and the classroom intervention should mimic the content of team chartering exercises, perhaps without the onus of requiring a lengthy, written charter document to be turned in for a completion grade.

V.   Research Methodology

Describe the research design you have chosen to answer your research question, and briefly explain why it is appropriate for this project. Make sure to indicate the kind of data that will be collected, how it will be collected, and how it will be analyzed.

This is a controlled, quasi-experimental design which tests two different interventions. This is appropriate for this project because it is important to use a control group to gather baseline information, plus use the guidelines separately in a simple intervention to gauge effects of voluntary usage, and then also test the impact of an integrated classroom intervention to test effects of training and reinforcement.

Collection would take place via online Qualtrics surveys. Classes selected for participation would be based on any professors who offer student team projects, and who would be willing participate themselves in team evaluations.

I began the study as an MBA student at Northeastern Illinois University. There was a face-to-face meeting where I introduced the study and handed out the guidelines (or not, if a control group), and sometimes a second meeting where I conducted a teamwork facilitation. The students were given links to a survey at the beginning and end of the semester, and the highest levels of participation came from classes were the students were offered extra credit points for their participation.

After approval from DePaul's IRB, the design would be punctuated by three time periods in which students are surveyed to gauge progress and experience, and several new measures related to technology acceptance and compatibility theories in business intelligence and analytics (B&IA), and innovation diffusion theory noted above would be added.

Professors at DePaul throughout the university would be contacted with a recruitment email asking if they use team project assignments in their classes and would like to participate in the study. If they agree to have their students participate and to participate themselves, the researcher will randomly assign a control group or intervention status to the class. Professors will understand that at the end of the semester, they will be asked to rate their student teams individually on the basis of quality of the results and level of perceived interdependence. They will also be asked several questions about the length, and difficulty of the projects, and level of interdependence the projects will require from student teams. It will be desirable if the same professors agree to have their classes participate at least three time periods, so that one of their classes may be designated a control class, one for Intervention I, and one for Intervention II. Last, they will understand the necessity of the researcher coming into the classroom at four separate times to ask students to participate in the study.

Each team will be given a unique team code, enabling a match between professor and team member responses. To be included in the study, a work team will have to satisfy certain criteria (Chen, Kirkman, Kanfer, Allen, & Rosen, 2007; Rubin, Munz, & Bommer, 2005): (a) the class professor has to have completed a follow up survey of the team's performance, (b) at least 60% of team members had to complete the first survey of traits and attitudes, and (c) at least two team members had to complete the measures in the second survey following completion of the project. I will note the percentage and numbers of how many of the teams identified met these requirements. Additionally, it will be helpful if any professors who participate are willing to offer their students extra credit points in order to ensure wider levels of participation.

Measures to be used / Gathered data / Data to be gathered

Please note that existing data does not include all of these measures below, but also includes measures related to general procrastination (Lay, 1986) and active procrastination (Choi & Moran, 2009).

Big Five Inventory of personality factors (Survey Part 1) (John, Donahue Robinson, & Kentle, 1991; John, Donahue, Kentle, Schriber, Robins, & Solomon, 2014).

Preference for Group Work (Survey Part 1). This construct will be assessed with a six-item scale based on previous work (Barber, Rau, & Simmering, 1996; Eby & Dobbins, 1997; Wagner, 1995.

Individual General Self-Efficacy: (Survey Part 1) This self-efficacy measure from Chen, Gully, & Eden (2001) will measure individual team members' general self-efficacy.

Appreciation: (Survey Part 1) All students will be asked if they would appreciate receiving teamwork effectiveness guidelines, and if they believe the guidelines would increase their team's performance. They also will be asked if they would like to spend 20 minutes of class time dedicated to discussing how to effectively work on a team, and if they would like an entire class dedicated to discussing how to effectively work on a team. NOTE that these questions will be presented to all students across all three designated classroom types (control, Intervention I, Intervention II), before the students will receive an intervention.

Control Variables (Survey Part 1). Age in years, graduate vs. undergraduate student, and gender will be included because they might be related to PGW (e.g., Chen & Church, 1993; Wagner, 1995). We will also control for team size, as it may be related to interdependence and social loafing behavior (e.g., Duffy, Shaw, & Stark, 2000; Gladstein, 1984; Liden et al., 2004). Self-reported team project experience also will be controlled.

Aspirational Performance Perceptions: (Survey Part 1) This measure will gauge the H1 assertion that nearly all students will appreciate receiving the guidelines because they believe the guidelines could help their team's performance. APP will be measured using Jaklic, Grubljesic, and Popovic's (2018) measure. APP will include referent shifts from "B&IA" (new technology) to "teamwork effectiveness guidelines" (a kind of new technology for student teams), and from "my job" to "my team project."

Individual Teamwork Self-Efficacy: (Survey Parts 2, 4) McClough & Rogelberg (2003) revised the Personal Efficacy Beliefs Scale (PEBS; Riggs, Warka, Babasa, Betancourt, & Hooker, 1994) to measure an individual's self-efficacy for teamwork, based on a 5-point Likert scale, 1 (strongly disagree) and 5 (strongly agree). They used referent shift to replace items such as "general work" with "teamwork."

Team Project Accomplishment Self-Efficacy: (Survey Parts 2, 3) This self-efficacy measure draws from Chen, Gully, and Eden (2001) to measure individual team members' perception of their team's self-efficacy. It includes a referent shift from the self to the team. The measure will include 8 items, measured on a 5 point Likert scale from 1 (strongly disagree) to 5 (strongly agree). Sample item is "My team will be able to achieve most of the goals that we have set for ourselves." This measure will be used in past tense for teams and professors in parts 4 and 5 of the survey.

Team Conflict (*Survey Parts* 3 & 4). This scale will measure the negative effects of task and relationship conflict in H2, H3 and H4. It also will establish connections to conflict for hypotheses related to H3. Team conflict comes from Jehn's (1995) scale of 8-items, four of which measure relationship conflict, and four of which measure task conflict. The items will be measured on a 5 point Likert scale from 1 (never) to 5 (all the time). Referent shifts will alter "work unit" to "your team."

Team Conflict Resolution Self-Efficacy: (Survey Parts 3 & 4) Group Conflict Resolution Self-Efficacy: This measure will be applied in H2 hypotheses that gauge changes in perception of the team's ability to resolve conflicts. This self-efficacy measure draws from a revised Personal Efficacy Beliefs Scale (PEBS; Riggs, Warka, Babasa, Betancourt, & Hooker, 1994) to measure individual team members' perception of their team's self-efficacy (McClough & Rogelberg, 2003).

Social Influence: (Time 3) This measure will assess whether an intra-team social dynamic existed supporting the usage of the guidelines, noted in H1. SI will be measured using Jaklic, Grubljesic, and Popovic's (2018) measure. SI will include referent shifts from "people who influence my behavior" to "people on my team," from "senior management of this business" to "my professor," from "the organization" to "the class." The scale will include four items: "My team members think I should use the teamwork effectiveness guidelines." "The people in this class who are important to me think I should use the teamwork effectiveness guidelines." "My professor has been helpful in the use of the teamwork effectiveness guidelines." "In general, the class supports using the teamwork effectiveness guidelines." This will be measured using a 5 point Likert scale from 1 (strongly disagree) to 5 (strongly agree).

Guidelines Performance / Performance Perceptions (only teams that received the guidelines to use as a resource, i.e., both interventions): (Time 4) This variable will assist in answering H1 questions related to whether teams felt the guidelines were useful, and actually used them. Referent shift from B&IA to teamwork effectiveness guidelines, and from "my job" to "my team project."

Results Demonstrability: (Time 4) This measure will be used to answer H1 questions whether teams would be able to demonstrate usage. RD will be measured using Jaklic, Grubljesic, and Popovic's (2018) measure, including a referent shift from "telling others" to "people on other teams."

Guidelines Performance / Future Use Intentions: (Time 4) This measure will answer the H1 questions relating to whether teams would consider using the guidelines on a future team. FUI will be measured using

Jaklic, Grubljesic, and Popovic's (2018) measure with 3 items that include a referent shift from "my job" to "team projects."

Team Experience: (Time 4) Experiential norms will be used to understand the connections with several hypotheses. There will be five created items to gauge mean team experience.

Team Performance: (Time 4 and 5) Team performance is a key variable used to test hypotheses related to dependent, endogenous variables. This measure is adjusted from Chen, Gully, & Eden (2001), and confirms the team-level version of this measure used at Time 2 and 3. It includes a retrospective referent shift from the self to the team, and from present/future tense to past tense.

Team Performance: (Time 5) Team performance is a key variable used to test hypotheses H3b, H4, and H5. Professors will be asked to rate each of the teams on the quality of their performance using a 5-item Likert scale from 1 (Lowest quality work) to 5 (highest quality work).

Qualitative Measures: The team norms as facilitated in classroom discussions will be compared with individual teams' jotted notes on listening and communication to distinguish teams that were present during classes that discussed communication strategies, and then carried these conversations into specific intra-team norms discussions as documented and returned to their professors. This will address hypothesis H2b on listening and communication.

Analysis:

I will test the hypotheses in two steps that are interlinked. First, I will evaluate a simple mediation model for hypotheses 1-3 using hierarchical regression. Regression coefficients, R-squares, adjusted R-squares and significance of changes in R-squares will be shown in a table.

Prior to testing the hypotheses, I will conduct confirmatory factor analyses on the key moderator variables (control, guidelines, team facilitation) to ensure that they are independent and that the items will produce the expected factor structures. I will use LISREL and a multi-factor solution with one factor representing each of the scales.

To further explore the discriminant validity of the scales used, I will follow the procedure outlined by Fornell and Larcker (1981) and calculate the square root of the average variance for each of the scales in the study. This value, presented on the diagonal in a table of Correlations, Means and Standard Deviations, will represent the variance accounted for by the items. To demonstrate discriminant validity, this value should exceed the corresponding variable correlations in the same row and column, thus offering evidence that the variance shared between any two constructs is less than the average variance explained by the items composing the scale.

Before running full HLM analyses, I will estimate a null model with no predictors for the dependent variables to confirm that between-professor variance existed in the professor-rated dependent variables of quality of the team's work and level of interdependence. I will examine what percentage of the variance in those variables were due to a professor effect. In doing so, I will demonstrate the appropriateness of the decision to use HLM to conduct the analyses.

Additionally, I will conduct a Hotelling-Williams test because we will be comparing nonindependent correlations that share a variable (Steiger, 1980). For the hypothesis tests, the level of analysis is a team-level model. I will examine whether aggregating individual members' responses to the team level is statistically adequate by calculating the intraclass correlation coefficient (ICC), i.e. inter-member reliability, with regard to expected team outcomes and process variables such as team-level self-efficacy and team conflict. I also will test whether average scores differ significantly across teams within

the intervention category of control group teams, intervention 1 teams, and intervention 2 teams, using one-way analyses of variance (ANOVA). I will calculate within-group agreement (rwg; James, Demaree, & Wolf, 1984), although some researchers have suggested that the index may be likely to overestimate agreement and should be used with caution (Chen, Mathieu, & Bliese, 2004; Cole, Walter, Bruch, 2008).

VI. Project Impact

Impact of Project

Assuming successful completion of this project, please describe how the results of the proposed research could help in the development of teaching methodologies or practices aimed at improving student learning in measurable ways.

This SoTL application already has discussed the importance of building teamwork skills, and of finding interventions that are easy for instructors to implement, require very little class time, and require no background in teamwork on the part of the professor as a discipline. Here, I would like to discuss another significant point. These interventions could be tested and used in *any classroom* throughout a university that utilizes student teams to accomplish group projects, regardless of school or departmental affiliation. Furthermore, while the teamwork literature suggests that it is very difficult to build teamwork skills that are transferable between teams, this study suggests a way to do so. Simply put, if an intervention like I am suggesting is adopted wholesale by a department, college, or entire university, it has the potential over time to develop positive habits that will enhance students' teamwork skills.

Here are some findings to support my assertions above: Prichard and colleagues (2006) tested a comprehensive teamwork skills curriculum that included problem solving, goal setting, interpersonal relations, and role clarification; they found team-level and individual-level impacts on performance across a range of assignments during the semester in which it was taught, amounting to a 6 percent difference in performance for students who had been trained vs. those who had not ($N = 295$; $p < .01$). However, an extended study by Prichard and colleagues (2006b) demonstrated that even a comprehensive teamwork skills curriculum may be limited to short-term effects shared only among team members who have been trained together, nested within the team's context. Prichard and colleagues (2006b) studied the effects of teamwork training for an entire school year; they found that the effects of teamwork training tended only to be significant during the same semester in which it was taught, and with the same team members. When students changed teams, even if their new team's members had all received the same teamwork training, the benefits of the team skills curriculum tended to disappear. Prichard and her colleagues used a univariate ANOVA test that showed a significant main effect for student teams trained together and continuing to work together in a second semester, in comparison with student teams where all individuals were trained but then reassigned to different teams, and with teams that were untrained (F (2, 103) = 27.34; p<.05). This suggests that team skills acquired during training are not necessarily transferable to other team situations.

Nevertheless, the literature on peer evaluation systems (PES), a simple intervention that has been shown to enhance team effectiveness (Cestone, Levine, & Lane, 2008), offers a way to resolve this incongruity. When PES is standardized into all classes where group projects are offered within a business school, students' confidence and aptitudes in communication and peer-to-peer evaluation increase over time, resulting in higher levels of member-contributor self-efficacy (Brutus, Donia, & Ronen, 2013). The learning process takes place through repeated experiences with peer evaluation: observation of peer behaviors, attitudes and performance; evaluation using the standardized format; and practice in communication and feedback (Heidemeier & Moser, 2009; Murphy & Cleveland, 1995). By the same token, if a simple process of teamwork skills education were systematized into an educational methodology school-wide, students would perhaps gradually develop teamwork skills and teamwork self-efficacy over time, a premise underlying this study. Students would observe the relationships in their team

and team process, evaluate progress and interdependence, and learn to communicate with one another and deliver constructive feedback. Thus, while one use of teamwork guidelines or teamwork training impacts one team, repeated use can raise the ability levels of all students at a university over the course of their tenure at the school.

In summary, there is a clear case to be made for a simplified teamwork skills training module that can be easily replicable every time students participate in a team project, rather than a comprehensive curriculum which assumes that one exposure to training is enough to teach teamwork skills. Replicability of teamwork skills interventions, like the two in this proposed study, is critical, because to date, teamwork skills training research has assumed the "one and done" principle that students should only require teamwork skills training once, and will then magically become experts at negotiating the complexities of teamwork. This is not the case, as demonstrated by Prichard and her colleagues' (2009) study.

VII.   Dissemination of Results

> **Dissemination of Results**
>
> **Describe how you plan to share the results of your project, within and/or outside of the DePaul community.**

Assuming that the results are significant and impactful …

At DePaul, I would like to present the results to educators throughout the university, and perhaps publish the teamwork effectiveness guidelines as an online resource via the school's website for any students or student teams to download, plus add the simple classroom module and team norming exercise on the faculty site related to the Teaching Commons. I would offer to introduce a short lecture on utilizing team projects to new adjunct professors. I also would be happy to present my findings at the spring quarter DePaul Teaching and Learning Conference. My proposal postulates that if a generation of students uses the guidelines and integrated classroom exercises in every class that offers team projects, the students will truly build teamwork skills. My preference would be to conduct a longitudinal study to test this hypothesis.

Ideally, I would like to publish the results in the *Academy of Management Learning & Education Journal* or other similar A-level education journal after delivering versions of the paper at several conferences.

VIII.   Project Plan and Timeline

Describe the proposed project plan and timeline.

The plan integrates analysis of previously gathered data with new data gathering and analysis:

September, 2019:   Transfer the study from NEIU to DePaul's IRB.

October, 2019:   Seek DePaul's IRB approval for new data gathering at the university.
Clean data previously gathered at NEIU.

November, 2019:   Revise application per IRB at DePaul.
Analyze data previously gathered at NEIU.

December, 2019:   Secure instructor agreement to participate in winter quarter.
Submit abstract / preliminary paper to the annual Academy of
Management conference, held in August, 2020.

January, 2020   Begin data-gathering efforts at DePaul for winter & spring quarters

June, 2020   Finish gathering data. Begin data analysis.

July, 2020   Fold data analysis into existing paper as a second study.

August, 2020   Present at Academy of Management Annual Conference, Learning &
Education Division

September or later   Work with DePaul's Teaching Commons staff to integrate findings into
the school in terms of training and resources

IX.   Budget

Provide a detailed, itemized budget of how proposed funds will be used. If applicable, provide information about any external funds you have secured for this project and/or matching funds from DePaul University (including in-kind contributions).

1. Academy of Management Annual Conference – AOM Learning & Education Section. Goal of publishing in this journal, AMLE. August 7-11, 2019 (five nights). *Please note that the hotel information has not yet been published so I have included an estimate.*

   a. Travel to Vancouver, Canada from Chicago $500

   b. Student conference registration/membership $346

   c. Teaching & Learning Conference Add-on $130

   d. Hotel / food for five nights (estimate $300/night) $1500

   TOTAL: $2476