

**ON SOLID GROUND: TESTING A THEORETICAL MODEL FOR STUDENT TEAM
PROJECT DELIVERY AND USING IT TO ASSESS STUDENT TEAM CRISIS
MANAGEMENT AND TRUST**

*Michael Lohle, University of Bridgeport, mlohle@bridgeport.edu
Steven Terrell, Nova Southeastern University, terrell@nova.edu*

ABSTRACT

This study tests a grounded theory that provides a pedagogical framework for instructors interested in facilitating student team project delivery. Initially developed for use in online courses, this study investigates its' validity in a campus-based course. Building upon previous studies, the model's independent variables of communication, accountability and scheduling are confirmed as fully grounded. This study also examines campus-based student teams' lived experiences with crisis management and their establishment of trust over time and explores whether these experiences are similar to those of their online peers. Recommendations for additional research are provided.

Keywords: Pedagogy, crisis management, team trust, virtual teams, student teams, online, on campus, projects, project management, grounded theory.

INTRODUCTION

After delivering an online project management course, Lohle and Terrell (2016) discovered the course's learning management system contained valuable feedback about student teams' lived experience delivering an online project focused on writing a research paper. During the third week of class, students were asked:

Relate what you have learned about the special demands of project managers and the cultural dimension with your experience in coming together as a team for the team research paper over the first two modules. What have you learned the most? Why?

Using a grounded theory data analysis approach (Charmaz, 2006 & Glaser and Strauss, 1967), the authors categorized student concerns into distinct themes – communication, accountability and scheduling, and critical success factors and coaching points. Using these, the authors developed a theoretical model (Figure 1) to assist online instructors in facilitating the delivery of virtual student projects:

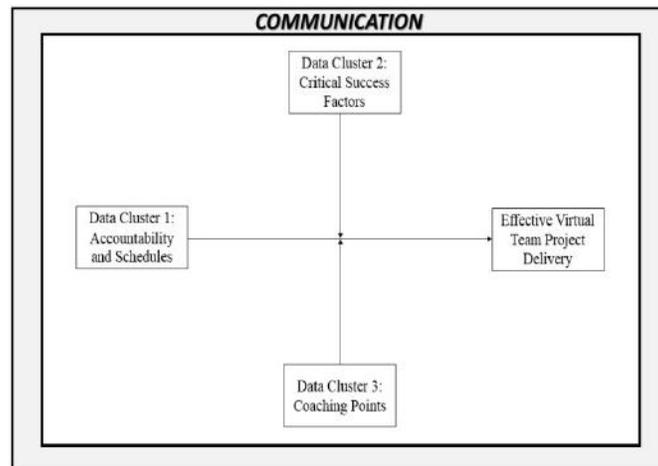


Figure 1. A Grounded Theoretical Model for Student Project Delivery on Virtual Teams.

The model's dependent variable is effective virtual project delivery. Its independent variable consists of both accountability and schedule management with moderating variables including critical success factors and coaching points comprising student concerns. Due to its pervasiveness and overarching student concerns, communication bounds the model. The model implies effective communication, accountability and scheduling have a direct, positive impact on project delivery while their absence has a detrimental effect. It also affirms communicating the critical success factors and coaching points can enhance the positive effect of effective communication, accountability and scheduling or lessen the negative effect if these variables are not effectively managed.

The authors were aware that the initial study focused solely on the students' experience early in the project lifecycle, because of this, attention was turned to assessing whether the model applied throughout the project. Two case studies, using the same project data but covering the full semester, focused, first, on successful teams with the second focused on teams that failed (Lohle & Terrell, 2017a; Lohle & Terrell, 2017b). This analysis reconfirmed the model's validity with the caveat that failing teams tend to emphasize accountability to a greater extent than successful teams.

Satisfied that their model appeared sufficiently grounded for online projects, the researchers shifted their focus to verification of its application to face-to-face classes. The results of the study, using thirty-five respondents during two master's level, campus-based project management courses (Lohle & Terrell, 2018), led the authors to conclude the model is as relevant in both environments. Because the study's findings regarding crisis management and team trust were less clear, it was decided to conduct the study described herein to focus on these issues.

METHODOLOGY

This qualitative study was designed to further ground the authors' theoretical model. Following Institutional Review Board approval, students completed an anonymous online survey during the fourteenth week of two fifteen-week project management courses delivered on campus during the Fall semester, 2018. The survey consisted of four open-ended questions:

- Which of these factors, communication, accountability or scheduling, was most important for your team's success? Which was least important? Why? Did any other factors contribute to team success?
- What was the biggest crisis your team experienced while working on your mid-term and final projects? How did your team respond to this crisis? Was your team successful?

- Do you think your team trusted each other? Why? How did this impact team success?
- How did your team trust change over time? What was team trust like at the beginning of the semester and what was it like at the end of the semester? Why?

Thirty-six students responded to the survey. Researchers documented and validated survey feedback and qualitatively analyzed the results.

FINDINGS

The survey's first question affirmed the authors' previous findings and further grounded the model. Twenty four students (67%) of the participant sample confirmed effective communications was their primary concern:

Communication was more important to the team because I realized that once the communication was good, the accountability and scheduling followed smoothly.

Communication was most important because no one would have anything done if there was no communication.

I felt the more we communicated the clearer the goals were and who was responsible for what. It also helped to identify where we were at on various projects and determine if we were on schedule and scope.

Though five students (7.2%) declared accountability for delivery was their biggest concern, eleven students (31%) felt it was least important because their teams successfully divided their work. This student's response summarizes their feedback:

...we are all expected to do our little bit to help finish the task that we had to complete. We divided the project among us and compiled everything after each one of us was done with their part.

Although a small number of students confirmed scheduling was their most important concern, several mentioned technical tools mitigated it:

...the hardest part was we all have different schedules but we decided to use online tools that helped our team achieve success.

...scheduling was less [important] because we made use of technology.

...Scheduling was the least important because we all have the ability to work remotely.

...our schedule is inconsistent so [we used the online project management tool] Basecamp to chat with each other.

Crisis Management

Eldrege and Gould (1972) , from their work in paleontology, determined that evolution did not progress along a smooth trajectory, instead species displayed periods of relative equilibrium punctuated by dramatic evolutionary change. Gersick (1988, 1989, 1991) extended this theory to the corporate environment and observed that business teams follow the same pattern by experiencing crises at the midpoint of a project that precipitate dramatic shifts in how they progress toward their goals. These crises either bring team members together for successful delivery or push them apart. Regardless of success or failure, all online teams examined by the authors for case studies exhibited midpoint crises, leading the authors to attempt to determine if their campus-based counterparts

experienced the same phenomenon. Unfortunately, the findings from their first study with this population were inconclusive.

In this study the students' responses were more conclusive and the researchers were surprised to discover the crisis they most often mentioned centered on scheduling challenges. Seventeen (47%) of the respondents reported issues with team availability, scheduling meetings and meeting deadlines. They tended to navigate this using technical communication platforms and dividing their work assignments:

The biggest crisis was scheduling a meeting time, [and] when everyone could make it, we all could meet for only an hour maximum due to conflicting schedules. But we managed by making use of the hour, discussing and managing the work load.

Meeting face to face and having common time was the biggest crisis. But as Professor taught us about [the internet communication service] Zoom after that we used to meet every night after our work [was] done and discuss what needs to be done.

Sometimes our life schedules didn't match and when that used to happen we used to separate the team into smaller teams and [kept] the work tracked.

...some team members were not usually available and we had to work around their availability. Our response was to delegate tasks and ensure that we met at least once to pull all the parts together, that way everyone's parts were done and we'd modify [if needed].

Issues with accountability also created crises where students emphasized ensuring everyone delivered their work:

The biggest crisis of my team was some members not showing a strong concern for the project...lack of concern was a huge crisis for us.

The biggest crisis was that the project was partially complete because team members were procrastinating their work or did not take it seriously so we ended up having to work late nights to deliver the project. The other team members took the initiative to do extra work and the team was successful in the end.

[The] biggest crisis my team experienced was making sure everyone did their part of the work properly.

Team Trust

Lohle and Terrell observed that the online student teams in the study exhibited "swift trust" (Jarvenpaa, Knoll, & Leidner, 1998; Jarvenpaa, Shaw, & Staples, 2004; Jarvenpaa & Leidner, 1999). Swift trust posits that, since virtual team members come together without meeting, they tend to trust each other to deliver based on the content of their resumes. Swift trust is ephemeral and, during a project's initial phases, virtual team members closely watch other team members' progress. If the team succeeds, team trust is enhanced. If the team does not succeed, team trust evaporates. Because of this benevolence between team members is not present at first, it is triggered by success.

Since each of the online teams studied exhibited swift trust and benevolence after achieving success, the researchers examined whether campus-based student teams exhibit similar behavior. The findings were inconclusive leading to an enhancement of survey questions for further examination in the current study. Twenty-nine (81%) students confirmed that they trusted their teammates and most reported this trust improved over the semester. While students also mentioned other factors, interdependence, becoming comfortable with each other and understanding team members' capabilities were their most cited reasons for this improvement:

At the beginning of the semester, we asked each other if we have finished the task before the deadline. End of the semester, we didn't have to ask because of trust.

Depending on the other team member also increased the trust between each other.

Initially, we did not know much about the other, which was confusing about who could do what. Now, we all know each other's strengths and weakness and support each other.

My team developed a strong, collegial bond over time, despite the fluidity of responsibility assigned to each member in the beginning. Mutual respect for each other's opinion and input led to reduction of stress and burden, knowing that each voice counted and was valued.

Student feedback also described delivery followed by benevolence:

...We delegated work and our team members delivered so we established trust. This trust caused us to excel as a team and also to establish personal relationships.

Trust keep on increasing over time. It increased a lot from the time it was at the start of the semester. Because while working together and producing work and getting good grades kept the enthusiasm high. So, trust built up along the path.

We started good but it increased after [the] first assignment as we proved to each other that all of us are working and committed.

In the beginning there was uncertainty as to who was accountable because we were still getting to know each other and by the end it was easy to see who would come through and who wouldn't.

This course required students to conduct peer evaluations after delivering their mid-term and final projects. Several respondents mentioned team trust changed after receiving this feedback. One confirmed an underperforming peer improved, another confirmed their team's trust degraded and the additional feedback was inconclusive. Since the authors' prior study focused on the efficacy of these peer evaluations, and the majority of the student participants in that study valued the opportunity to evaluate their peers, the researchers did not pursue this further.

CONCLUSIONS

The researchers derived four conclusions from this study's findings:

- Having analyzed feedback from 105 participants over time, the authors are confident communication, accountability and scheduling have a direct impact on project team delivery. Moreover, since grounded theory studies tend to engage a limited number of participants because generalization is not required, the researchers noticed considerable repetition as they proceeded. While this repetition further grounds the theoretical model, they concluded saturation has been achieved and minimal return will accrue on additional investment in studying the model's independent variables.
- While this study's findings provided additional insight into student team crises they served more to reinforce the saturation than to advance the researchers' understanding of the phenomena observed in their previous case studies. The case study approach appears to be a more effective means of studying crisis management than the use of surveys.
- This study appears to affirm campus-based teams experience the same swift trust online teams experience.
- Since the campus-based teams in this study were unable to meet in-person they tended to meet online. When this occurred their communication and work patterns appeared to mimic those of their online counterparts.

RECOMMENDATIONS FOR FUTURE RESEARCH

This study's findings provide several additional avenues for research:

- Given the substantiation of the independent variables, assessing the efficacy of addressing the student concerns clustered in the theoretical model's critical success factors and coaching points moderating variables is warranted.
- Additional case studies focused on studying campus-based student team progress throughout a semester and the crises they encounter would be instructive.
- Studying whether information and communication technologies render online and campus-based projects and the way students engage while delivering them indistinguishable may reinforce the validity of the theoretical model.
- While this and previous studies focused on qualitative research and grounding the theoretical model, the model should also be tested with a larger participant sample, hypotheses should be generated and statistical analysis conducted via a quantitative study to affirm its generalizability.
- Though each of Lohle and Terrell's studies have focused on student teams it would be helpful to consider adjusting the model as required and testing it in a business setting.

RECOMMENDATION FOR PRACTITIONERS

This theoretical model was designed to assist instructors in facilitating the delivery of student projects. Both online and campus-based instructors should benefit from applying the model and the associated recommendations. The researchers will consider publishing this material in a separate format to assist them.

REFERENCE LIST

- Charmaz, K. (2006). *Constructing grounded theory: A practical guide through qualitative analysis*. Thousand Oaks, CA: Sage Publications, Inc.
- Creswell, J. W. (2007). *Qualitative inquiry and research design: Choosing among five approaches* (2nd edition). Thousand Oaks: Sage Publications, Inc.
- Eldredge, N., & Gould, S. (1972). Punctuated equilibria: An alternative to phyletic gradualism. In *Models in Paleobiology* (pp. 82–115). Retrieved from <http://www.blackwellpublishing.com/ridley/classictexts/eldredge.pdf>
- Gersick, C. (1988). Time and transition in work teams: Toward a new model of group development. *The Academy of Management Journal*, 31(1), 9–41. <https://doi.org/10.2307/256496>
- Gersick, C. (1989). Predictable transitions in task groups. *The Academy of Management Journal*, 32(2), 274–309.
- Gersick, C. (1991). Revolutionary change theories: A multilevel exploration of the punctuated equilibrium paradigm. *The Academy of Management Review*, 16(1), 10–36.
- Glaser, B., & Strauss, A. L. (1967). *The discovery of grounded theory: Strategies for qualitative research*. Chicago, IL: Aldine Publishing Company.

- Jarvenpaa, S. L., Knoll, K., & Leidner, D. E. (1998). Is anybody out there? Antecedents of trust in global virtual teams. *Journal of Management Information Systems*, 14(4), 29–64.
- Jarvenpaa, S. L., & Leidner, D. E. (1999). Communication and trust in global virtual teams. *Organization Science*, 10(6), 791–815.
- Jarvenpaa, S. L., Shaw, T. R., & Staples, D. S. (2004). Toward contextualized theories of trust: The role of trust in global virtual teams. *Information Systems Research*, 15(3), 250–267.
- Lohle, M., & Terrell, S. (2016). Knowledge management using student feedback: A study of online students' lived experiences on virtual teams. *Issues in Information Systems*, 17(4), 260–265.
- Lohle, M., & Terrell, S. (2017a). Strange conceptual bedfellows: Assessing grounded theory for effective student team project delivery via knowledge management, qualitative research and management theory. *Issues in Information Systems*, 18(1), 180–190.
- Lohle, M., & Terrell, S. (2017b). The endurance test: A virtual project team's lived experience in an online project management course. *The Online Journal of Applied Knowledge Management*, 5(1), 1–13.
- Lohle, M., & Terrell, S. (2018). Approaching an axiom: Testing a grounded theory developed for online student team projects on campus. *Issues in Information Systems*, 19(2), 199–207.