

Increase Your Project's Success Through Coordinated Communication: Research and Practice

Ella L. Ingram, PhD

Center for the Practice and Scholarship of Education
Rose-Hulman Institute of Technology
Terre Haute, Indiana, USA
ingram@rose-hulman.edu

Tiago Forin

Civil and Environmental Engineering
Rowan University
Glassboro, New Jersey, USA
forin@rowan.edu

Beena Sukumaran, PhD

Civil and Environmental Engineering
Rowan University
Glassboro, New Jersey, USA
sukumaran@rowan.edu

Elizabeth Litzler, PhD

Center for Evaluation and Research for STEM Equity
University of Washington
Seattle, Washington, USA
elitzler@uw.edu

Abstract—Engineering education researchers focus on research, putting research into practice, and creating innovative practice. These foci require meaningful communication that elicits a desired response (e.g. adoption of innovation). Innovation advocates and change agents know that communication is critical to a project's success. Without expertise in rhetoric, communications present significant challenges, but they are known challenges in the organizational change literature. We view a focus on communication as a major empowerment tool for advocates and change agents, thereby positively impacting the reach of innovative practices and research into our engineering classrooms. This workshop centers on providing a framework for communication, allies in communication efforts, and best practices in communicating change. We request no more than 40 participants and require only projection capabilities for audio-visual equipment.

Keywords—communication strategies; change; higher education; faculty development; advocacy

I. INTRODUCTION

Promoting change requires telling the story of change - its origins, motivations, vision, actions, and consequences. This storytelling will occur with many different constituents. Change agents use specific strategies to create coordinated messaging across venues, with the goals of information, invitation, and advocacy, while recognizing that different recipients of the message will bring very different perspectives to the hearing of the message. A change project needs a playbook for communication in the context of the project and institutional setting, including capturing stakeholder perspectives and holding a project-specific lexicon. The source material for this workshop emerges from the research literature in organizational change [e.g., 1, 2, 3] and from research focused on the thir-

teen institutions involved in the National Science Foundation program REvolutionizing Engineering and Computer Science Departments (RED) [4]. Through general lessons learned from across these schools and specific examples derived from a civil and environmental engineering program centered on transforming engineering diversity, participants will learn how a coordinated and thoughtful communication approach can support their change efforts. In this way, change agents will impact their own and colleague's capacity to lead change efforts.

II. AGENDA

Participants in this 180 minute session will work specifically on their potential change projects. Over the course of the session, we will transition from introduction or supporting main points to having participants apply these best practices to their own situations. At strategic points, Sukumaran and Forin will provide examples from the Rowan University Civil and Environmental Engineering project REDTED [5], which focuses on inclusion. With four facilitators, we will circulate through the room to provide individual support during work periods. The approximate time distribution follows: introduction of personnel (5 minutes), setting the conceptual stage and individual brainstorming (15 minutes), presenting stakeholders, brainstorming stakeholders, sharing stakeholder lists (25 minutes), identifying stakeholder interests in change (20 minutes), mapping stakeholders to the influence chart and debrief (25 minutes), stretching break (5 minutes), mini-lecture on language analysis with respect to stakeholders (10 minutes), guided work through structured exercises (45 minutes), highlights from the room and examples from facilitators (10 minutes), crafting the communication plan (15 minutes), and finally summary, thanks, and follow-up (5 minutes).

We acknowledge the support of the National Science Foundation, award 1623053 to Rowan (BS & TF), and award 1540042/1540072 to EL & EI. Any opinions, findings, and conclusions or recommendations expressed in this material are those of the author(s) and do not necessarily reflect the views of the National Science Foundation. Rose-Hulman Institute of Technology provided the materials for this workshop.

III. OUTCOMES AND TAKE-AWAYS

As a result of this workshop, participants will be able to (1) analyze stakeholder interests in change efforts; (2) develop a change lexicon relevant to their institutional context; and (3) articulate at least three common messaging themes.

The primary take-away material from this workshop is a 20+ page workbook filled with the analysis of stakeholders, draft messaging, and a communication plan specific to the context of each attendee's institution. The workbook also contains examples from at least two different major change efforts, annotated with the main points of the session. This workbook serves participants as a guide for discussions with colleagues when they return to their home campus and a reminder of their thinking during the workshop. The primary take-away knowledge is an actionable framework for communication of change efforts. By having this framework in mind, change agents can increase their effectiveness, decrease stress, and positively impact their project's success.

IV. DESIRED AUDIENCE

The audience of interest includes faculty members and department head or director level leaders anticipating a change project (e.g. instituting new faculty evaluation procedures, revising curricula, transitioning course assessments to a competency basis, realigning courses with research-based principles). Desired audience members are willing to work intensely for the session to apply communication principles.

V. FACILITATOR QUALIFICATIONS

Via the Revolutionizing Engineering and Computer Science Departments program, NSF awarded thirteen institutions approximately \$2M each to fundamentally change the engineering and computer science student experience through institutional transformation. Workshop facilitators Ingram and Litzler work with these institutions to both support and study their change efforts, with the idea of improving the likelihood of success and developing generalizable lessons regarding the change process. Sukumaran is the PI for one awardee department, where Forin serves as project manager; their project focuses on increasing inclusion and diversity, with the goal of 50% of their majors being women and underrepresented minorities by the grant's end in 2021. The project includes contributions from across the institution and beyond: admissions, industrial partners, K12 outreach, and more. With the larger scale, research-based perspective provided by Ingram and Litzler, and the specific examples and experiences provided by Sukumaran and Forin, this workshop will guide participants through a process of developing a communication approach.

A. Ella Ingram

Ella L. Ingram, Ph.D., is an Associate Professor of Biology and Director of the Center for the Practice and Scholarship of Education at Rose-Hulman Institute of Technology. Her educational research interests include promoting successful change practice of STEM faculty, effective evolution and ecology instruction, and facilitating undergraduate research experiences. Her teaching portfolio includes courses on: nutrition, introduc-

tory biology, ecology and environmental studies, evolution, evolutionary medicine, and research practices in science.

B. Beena Sukumaran

Beena Sukumaran, Ph.D., Professor and Department Head of Civil and Environmental Engineering at Rowan University, is the Division Chair for the Women in Engineering Division at ASEE. She has been actively involved in developing Rowan's unique engineering curriculum, especially engineering clinics. She has worked extensively to encourage the participation of underrepresented groups in engineering by participating in several outreach programs. She is the principal investigator of the REDTED project.

C. Tiago Forin

Tiago Forin is currently a doctoral candidate in the School of Engineering Education at Purdue University. He works at Rowan University managing the REDTED project and teaching engineering clinics. He received his B.S. in Civil Engineering from Florida State University in 2006 and his M.S. in Environmental Engineering from Purdue University in 2008. While in the School of Engineering Education, he worked as a research assistant in the X-Roads Research Group. His interests include cross-disciplinary practice and identity development.

D. Liz Litzler

Elizabeth Litzler, Ph.D., is the director of the University of Washington Center for Evaluation and Research for STEM Equity and an affiliate Assistant Professor of Sociology. She directs research and evaluation projects from conceptualization, methodological design, data collection and analysis to dissemination of findings. Dr. Litzler is a member of ASEE and a former board member of the Women in Engineering ProActive Network. Her research interests include the educational climate for students in science and engineering, and gender and race stratification in education and the workforce.

VI. ACKNOWLEDGMENTS

We thank Cara Margherio, Kerice Doten-Snitker, and Julia Williams for their contributions to developing these ideas. We thank Stephanie Farrell, Harriet Hartman, and Rowan's Civil Engineering faculty for providing material for discussion.

VII. REFERENCES

- [1] P.S. Rogers, M. Gunasekera, and M.L. Yang, "Language options for managing," *International Journal of Business Communication*, vol. 48, iss. 3, pp. 256-299, May 2011.
- [2] A.D. Brown, S. Ainstworth, and D. Grant, "The rhetoric of institutional change," *Organization Studies*, vol. 33, iss. 3, pp. 297-321, Feb. 2012.
- [3] J.G. McClellan, "Announcing change: Discourse, uncertainty, and organizational control," *Journal of Change Management*, vol. 14, iss. 2, pp. 192-209, 2014.
- [4] National Science Foundation Improving Undergraduate STEM Education/Professional Formation of Engineers program solicitation <https://www.nsf.gov/pubs/2017/nsf17501/nsf17501.htm>
- [5] B. Sukumaran, T. Forin, H. Hartman, S. Farrell, P. Bhavsar, K. Jahan, R. Dusseau, and T. Bruckerhoff, "Rethinking engineering diversity, transforming engineering diversity (REDDT)," *ASEE Annual Conference*, Columbus, OH, 2017.