

Communication Across Divisions: Overview, Trends, and Implications Based on the ASEE 2015 Conference

Dr. Kathryn A. Neeley, University of Virginia

Kathryn Neeley is Associate Professor of Science, Technology, and Society in the Engineering & Society Department of the School of Engineering and Applied Science. She is a past chair of the Liberal Education/Engineering & Society Division of ASEE and is particularly interested in the role of liberal education in developing engineering leaders and innovators.

Dr. Judith Shaul Norback, Georgia Institute of Technology

Biography Judith Shaul Norback, PhD, is general faculty and Director of Workplace and Academic Communication in the Stewart School of Industrial and Systems Engineering at Georgia Tech. She applies her skills as a social psychologist to gather data from executives about stellar presentations and other oral communication skills and she conducts research on communication, to improve instruction for both undergraduates and PhD students. Dr. Norback has developed and provided instruction for students in industrial and biomedical engineering and has advised on oral communication instruction at other universities. Since she founded the Presentation Coaching Program in 2003, the coaching has had over 41,000 student visits. As of winter 2015, she shared her instructional materials, including a scoring system evaluated for reliability, with over 400 schools from the U.S., Australia, Germany, and South Korea. Dr. Norback has studied communication and other basic skills in the workplace and developed curriculum over the past 30 years—first at Educational Testing Service; then as part of the Center for Skills Enhancement, Inc., which she founded, with clients including the U.S. Department of Labor, the National Skill Standards Board, and universities. Since arriving at Georgia Tech in 2000 her work has focused on oral communication for engineering students and engineers. Dr. Norback has published over 20 articles in the past decade alone, in the ASEE Annual Conference Proceedings, IEEE Transactions on Professional Communication, INFORMS Transactions on Education, and the International Journal of Engineering Education, and others. She authored the book *Oral Communication Excellence for Engineers and Scientists*, published in summer 2013. Over the past 15 years Dr. Norback has given over 40 conference presentations and workshops at nation-wide conferences such as ASEE, where she has served as chair of the Liberal Education/Engineering & Society (LEES) Division. She has been an officer for the Education Forum of INFORMS and has served as Associate Chair for the National Capstone Design Conference. Dr. Norback has a Bachelors' degree from Cornell University and a Masters and PhD from Princeton University. Her current research interests include 1) clarifying the effectiveness of video distribution and the use of exit tickets in oral communication instruction for engineers, 2) identifying the mental models engineering students use when creating graphical representations, and 3) learning the trends and themes represented in the communication-related papers across various divisions of ASEE. As part of this effort, Norback is working with Kay Neeley of U of VA to start an ASEE Communication across Divisions Community, now numbering 80 people.

Communication across Divisions: Overview, Trends, and Implications Based on the ASEE 2015 Conference

Since the early twentieth century, communication has been a pervasive concern and common interest of engineering educators. At the 2015 Annual Conference of the ASEE, 33 papers dealt with some aspect of communication. Six sessions were devoted entirely to communication, four in the Liberal Education/Engineering & Society Division (LEES) and one each in Chemical Engineering and Educational Research and Methods.¹ There were fourteen divisions altogether that had at least one paper on communication in their program or co-sponsored a session on communication.²

Table 1. Divisions with Papers on or Sponsorship of
Sessions on Communication at the 2015 Annual
Conference

1. Chemical Engineering
2. Civil Engineering
3. Computing & Information Technology
4. Continuing Professional Development
5. Educational Research & Methods
6. Engineering Entrepreneurship & Innovation
7. Engineering Management
8. Engineering Technology
9. First Year Programs
10. Liberal Education/Engineering & Society
11. Materials
12. Manufacturing Materials & Processes
13. Mechanical Engineering
14. Technological & Engineering
Literacy/Philosophy of Engineering

These numbers provide evidence of a common interest in engineering communication, but they also reflect the fragmentation of the scholarly conversation. This paper reports on work in progress toward the goal of establishing some coherence in the conversation while at the same time highlighting the diversity of approaches and range of expertise that are relevant to researching and teaching engineering communication. We have begun a qualitative analysis using papers presented at the 2015 annual conference as our evidence base. Here we provide a quantitative overview of the papers, identify trends that we have observed in the papers, and offer some possibilities for collective action on the part of the Communication across Divisions community.

¹ There was also one sponsored technical session devoted to communication, but no papers from it were published in the proceedings.

² We used only the paper titles to determine whether a paper dealt with communication or not. A search of the texts of the papers might bring additional papers to light.

Tables 2 and 3 divide the papers into two categories: (1) papers that were presented in divisions other than LEES and (2) those presented in LEES. This set of categories was conducive to discerning whether there were significant differences in the trends emerging from the two groups. Our analysis thus far suggests that trends tend to be common to both groups. Specifically, most of the trends emerging from Table 2 are replicated in Table 3 and vice versa.

Table 2. Papers Presented in Divisions *Other Than* LEES

Division <i>Non-LEES Sessions</i>	Number and Title of Session		No. & Position of Papers	Paper Title(s) & ID Numbers
1. Chemical Engineering	W105	Communication in the CHE Curriculum	4 (entire session)	<ul style="list-style-type: none"> • “Improving Student Technical Communication via Self-Reflection” #11972 • “Technical and Professional Communication for Chemical Engineers” #13875 • “Student Led Example Problems in a Graduate-Level Advanced Transport Phenomena Course” #13944 • “Using an Article in a Sophomore Engineering Science Class to Boost Life-Long Learning Confidence” #12089
2. Civil Engineering	W406	(Technical Session 7)	1	• “Student Communication Improvements During an Industry-Sponsored Civil Engineering Senior Design Course” #12028
3. Computing & Information Technology	M130	Potpourri	1 4 of 6	• “Improving Technical Writing Skills Through the Judicious Use of Infographics” #13262
4. Continuing Professional Development	T210	(Technical Session 1)	1 3 of 3	• “Yes, We Teach Presentations Online and It Works: Methods for Teaching Technical Presentations to Practicing Engineers in an Online Environment” #11722
5. Educational Research & Methods	W114	Communication and Literacy	3 (entire session)	<ul style="list-style-type: none"> • “Determining Reliability of Scores from an Energy Literacy Rubric” #12198 • “Improving Students’ Technical Writing Skills: Abstracts in Introductory Solid Mechanics” #12976 • “Understanding Curricular Approaches to Communication as a Global Competency” #14040
6. Engineering Entrepreneurship & Innovation	T124	Entrepreneurship Education in New Contexts	1 5 of 6	• “Reinforcing Communication Skills Through Participation in a Team-Based Weekly Innovation Challenge” #11965
7. Engineering Management	W222	(Technical Session 5)	1 3 of 4	• “Improving Undergrad Presentation Skills” #11205
8. Engineering Technology	T123	Issues in Engineering Technology Education	1 5 of 5	• “Writing Proficiency in Engineering Technology Students and Skill Development in the Classroom” #11907
9. First Year Programs	M427	Design in the First Year: Challenges and Successes	1 3 of 6	• “Implementing and Evaluating a Peer Review of Writing Exercise in a First-Year Design Project” #12126
10. Materials	T536	(Technical Session 1)	1 5 of 5	• “Writing, Speaking, and Communicating-Building Disciplinary Literacy in Materials Science Undergraduate Students” #11347
11. Manufacturing Materials & Processes	M735	Teaching the Latest Manufacturing Processes & Materials Concepts	1 4 of 4	• “Improving Student Lab Report Writing Performances in Materials and Manufacturing Laboratory Courses by Implementing a Rhetorical Approach to Writing” #14083
12. Multidisciplinary Engineering	W241	Multidisciplinary Approaches for Enhancing Nontechnical Skills	1 1 of	• “Strategies to Integrate Writing in Problem-Solving Courses: Promoting Learning Transfer in an Interdisciplinary Context” #11223

Trend 1: Focusing on communication in a particular engineering discipline or in a workplace context. Session W104 “Communication in the CHE Curriculum” is perhaps the clearest example of the disciplinary approach. “Comparatively Mapping Genres in Academic and Workplace Engineering Environments”¹⁵ provides a robust example of academics drawing on the experience of industry and working with their industry counterparts in a variety of ways: (1) asking practitioners to provide workplace writing examples; (2) interviewing practitioners about their own writing practices; and (3) collaborating with practitioners to develop teaching materials and evaluate student writing. These practices help establish the relevance and focus of writing instruction and build credibility with students who might otherwise be skeptical about the guidelines their writing instructors give them. They also provide a manageable scale for

collaboration between experts in technical and non-technical disciplines. A possible disadvantage of a discipline-centric approach is that researchers and instructors may not be aware of or take advantage of research done in other areas regarding similar courses.

Trend 2: Having students engage in various forms of communication as a way of simultaneously teaching and learning course content and developing communication competency. This approach treats communication as intrinsic to education and practice across a broad range of modes, subjects, and contexts. The modes of communication ranged from self-reflection to technical journal articles, info-graphics, abstracts, oral presentations (formal and informal), and lab reports. The subjects ranged from transport phenomena and solid mechanics to engineering science, materials and manufacturing, and design (both senior and first-year). The contexts included not only traditional undergraduate courses, but also graduate courses and extracurricular student competitions.

Table 3. LEES-Sponsored Sessions on Communication (Including Communication across Divisions)

Sponsoring Division(s)	Paper Topics	Number of Authors	Disciplines & Institutions Involved
Session I: Communication in Engineering Disciplines			
LEES and Chemical Engineering	Creating a Civil Engineering writing guide	7	Civil and environmental engineering department and writing center, writing studies, technical and business communication University of Minnesota Duluth
	Students writing for professional practice	5	Applied linguistics, civil engineering writing project, civil engineering, law, undergraduate engineering education Portland State University, Cal State Pomona, Howard University, Lawrence Technology University, Foundation Engineering, Inc.
	Teaching peer review of writing in a large first-year ECE course	3	Rhetoric and writing, engineering education, electrical and computer engineering, first-year experiences Virginia Tech, Nova Southeastern University, Mississippi State
	Visual communication	2	Bioengineering, biomedical engineering, core introductory courses and technical labs for bioengineering undergraduates, capstone design, educational research, engineering writing and communication, mechanical engineering, engineering mechanics, aerospace engineering, engineering student motivation University of Washington (Center for Engineering Teaching and Learning and Department of Bioengineering)
Session II: Communication and Transdisciplinary Pedagogies			
LEES, Civil Engineering, Mechanical Engineering, Literacy/Philosophy	Assessing instructor's ability to discern student comprehension from nonverbal communication	3	Civil and mechanical engineering, assessment of professional ethics, teaching and learning in engineering education, learning through historical engineering accomplishments, engineering management U.S. Military Academy
	Transdisciplinary approach to developing communication skills in a first-year STEM seminar	5	Computer science, artificial intelligence for music composition, library science, methods for integration information literacy knowledge into the undergraduate engineering curriculum, industrial engineering, engineering education, history and philosophy, law, diplomacy, international relations, communication, computational social science analysis of authorship, leadership, trust and credibility in knowledge markets Purdue University
	Communication as interdisciplinary subject and a field of specialization encompassing more than technical writing	1	English; science, technology, and society; history of scientific and technical communication and instruction; liberal education for engineers; teaching of composition at the college level; role of liberal education in achieving ABET outcomes; engineering ethics, entrepreneurship, and leadership University of Virginia
	How engineering can contribute to a liberal education	2	Civil engineering, history, religion (Hebrew Bible/Old Testament), philosophy University of Evansville

(Table 3 is continued on the next page.)

Session III: Writing as Social-Technical Integration			
LEES, Computing and Information Technology	Comparatively mapping genres in academic and workplace writing	5	Engineering technology, English/digital/scientific/technical writing, engineering management, systems engineering, professional and technical writing (especially in disasters) Old Dominion University
	Social learning in a technical writing class	1	Philological sciences, rhetoric and ideology of genre, feminist utopian novels, fundamental competencies for engineers, technical communication, social learning, including community service Department of Mechanical Engineering, Faculty of Applied Science, University of British Columbia
	Analyzing writing exercises in a fluid mechanics textbook	5	Aerospace engineering, global engineering, engineering education, civil engineering, environmental fluid mechanics, electrical and computer engineering, science and technology studies, communication (both degrees and departments) Purdue University
	Writing-to-learn-to-program	5	Electrical engineering, electrical and computer engineering, first-year experiences, engineering education, technical communication recruitment and retention of underrepresented groups, automation (degrees, research interests, and departments) Mississippi State
Communication as Performance			
LEES	Educational value of watching a presentation competition for engineering students	2	Technical communication for ECE students British Columbia Institute of Technology
	Learning like an engineer in a theatre elective	1	Engineering communication, education, drama University of Toronto
	Using theater exercises to improve engineering student presentation capabilities	4	Technical communication, theater and musical performance (amateur and professional experience) Mississippi State
	Using memory maps to help engineering students fashion words on the spot in technical presentations	3	Engineering communication Penn State, Old Dominion University

Trend 3: Interdisciplinary integration and multi-institutional collaboration. This trend was consistent across all of the papers but is most visible in Table 3 in the three sessions explicitly designated as “Communication across Divisions.” Each of these sessions was sponsored by at least two divisions. Session II: Communication and Transdisciplinary Pedagogies had the most sponsors: LEES, Civil Engineering, Mechanical Engineering, and Technological & Engineering Literacy/Philosophy of Engineering. This breadth of sponsorship is commensurate with one of the most striking features of these sessions: the number disciplines represented by the authors and the pattern of collaboration between technical and non-technical disciplines. Six of the 12 papers in these sessions had five or more authors. We also observed diversity and breadth of expertise within teams and within individuals.

The fourth session in Table 3 provides further evidence of the trend toward interdisciplinary integration in a different form. All authors of these papers describe themselves as experts in technical or engineering communication. Taken collectively, the papers illustrate the value of bringing a wide variety of liberal arts backgrounds to the task of developing engineering communication skills. The authors drew on a variety of traditions, including theatre and the classical rhetorical device of memory maps. Several of the authors combined an amateur interest in theater or acting with their professional role as teachers of communication.

Trend 4: Collecting lots of assessment data but not making much of it. The authors of most of these papers present copious amounts of assessment data on the effectiveness of various teaching strategies, usually called “interventions.” The conscientious efforts of researchers notwithstanding, it is not clear that the data are being translated into reliable and useful knowledge. We hypothesize that two major factors contribute to this problem.

The first factor is that most of the studies reported at the conference are in the early stages of implementation with limited data sets. To some extent, this phenomenon results from the incompatibility between typical academic calendar structures and the ASEE timeline for submitting abstracts and papers. Abstracts are due in mid-October, authors are notified of accepted or rejected abstracts the first week in November, drafts are submitted at the beginning of February, and authors are notified of requested revisions in early March. This timeline means that opportunities to collect data are mostly focused on the fall semester. Encouraging researchers to sustain projects through more than one ASEE year could facilitate gathering data over longer periods of time and refining methods for collecting and interpreting the data.

A second area of concern arises from the extent to which authors are relying on student perceptions (as reflected in course evaluations and other forms of self-reporting), as opposed to using the students' performance and work products as evidence. It would be more effective to also gather behavioral evidence of student performance, but this is expensive and can be methodologically challenging. For example, it is difficult to measure the outcomes we are really interested in (such as the kinds of changes students make in their writing in response to comments). It is relatively easy to code and count the kinds and numbers of comments students make in peer critique, but such comments do not tell us anything about what we really want to know. We could find out about the kinds of changes students make in their writing by comparing and contrasting successive versions of a document. This kind of comparison is fairly easy to conceptualize but very labor-intensive to operationalize. The problem of finding robust ways to assess the outcomes of instruction is an excellent example of the gaps in knowledge and method that become more apparent when we consider the communication papers as a whole.

Action Items and Conclusion

The current fragmentation of the scholarly community represented by these papers means that they do not have the opportunity for cross-fertilization, especially with regard to scholarship that could inform their work and save them time. As the analysis presented here makes clear, there are common concerns and approaches that would be helpful across divisions. Perhaps the most significant and broad implication of this phenomenon is that we should focus on ways to become visible to each other. The Communication across Divisions initiative is a first step in this direction.

There are several other actions we could take to increase visibility, specifically:

- Work with ASEE to create a database of everyone publishing or interested in communication and establish an affinity group for communication across divisions. This seems a better strategy than establishing a new division, which would probably add to the fragmentation and visibility problems we currently have.
- Agree on, disseminate, and use a list of key words that would increase the chances that papers of interest would appear in search results and keyword analyses of the abstracts and complete texts of relevant articles. These could be applied not only within ASEE but in the wide range of scholarly publications that treat topics that are relevant to engineering communication and its teaching.

- Organize a National Science Foundation workshop that would allow the participants to extend and deepen the analysis presented in this paper by (a) identifying issues of common concern and (b) planning research to advance knowledge and understanding. In addition to establishing direction for research that would meet the needs of teachers and practitioners of engineering communication, such a workshop would also assist the individuals involved in advancing their own careers.
- Collaborate with a relevant engineering education journal to publish a special issue of that journal that focuses on engineering communication. One precedent for such an approach is the special issue of the *International Journal of Engineering Education* that publishes papers from the Capstone Design Conference. We might also be able to collaborate with ASEE to create an online compilation of all of the communication related papers from each conference.

We plan to continue this analysis in depth and add to our data the communication-related papers presented at the 2016 ASEE Annual Conference and look forward to broadening collaboration and awareness of each other within the Communication across Divisions community.

References (List of Papers Included in the Analysis Described in This Paper)

1. Alley, M., Miraldi, L. B., & Garner, J. K. (2015). Memory maps: Helping engineering students fashion words on the spot in their technical presentations. *Proceedings of the ASEE 2015 Annual Meeting*. Washington, DC: ASEE. Paper ID #12419
2. Barry, B. E., Fox, D. J., Wendel, R. M. (2015). A nod in the right direction? Designing a study to assess an instructor's ability to interpret student comprehension from nonverbal communication. *Proceedings of the ASEE 2015 Annual Meeting*. Washington, DC: ASEE. Paper ID #12127
3. Brocato, J. W., Barton, A., Agee, K., & Dechert, E. (2015). Improving engineering-student presentation abilities with theatre exercises. *Proceedings of the ASEE 2015 Annual Meeting*. Washington, DC: ASEE. Paper ID #11936
4. Chew, K. J., & Turpin, A. (2015). Improving students' technical writing skills: Abstracts in introductory solid mechanics. *Proceedings of the ASEE 2015 Annual Meeting*. Washington, DC: ASEE. Paper ID #12976
5. Conrad, S., Kitch, W. A., Pfeiffer, T. J., Smith, T. R., & Tocco, J. V. (2015). Students writing for professional practice: A model for collaboration among faculty, practitioners and writing specialists. *Proceedings of the ASEE 2015 Annual Meeting*. Washington, DC: ASEE. Paper ID #12608
6. Dixon, G., & Beverly, G. T. (2015). Improving undergrad presentation skills. *Proceedings of the ASEE 2015 Annual Meeting*. Washington, DC: ASEE. Paper ID #11205
7. Ekoniak, M., Scanlon, M., & Mohammadi-Aragh, M. J. (2015). Teaching peer review of writing in a large first-year electrical and computer engineering class: A comparison of two methods. *Proceedings of the ASEE 2015 Annual Meeting*. Washington, DC: ASEE. Paper ID #13867
8. Evans, J. J., Van Epps, A. S., Smith, M. T., Matei, S. A., & Garcia, E. (2015). A transdisciplinary approach for developing effective communication skills in a first-year STEM seminar. *Proceedings of the ASEE 2015 Annual Meeting*. Washington, DC: ASEE. Paper ID #12881
9. Ford, L. P. (2015) Using an article in a sophomore engineering science class to boost life-long learning confidence. *Proceedings of the ASEE 2015 Annual Meeting*. Washington, DC: ASEE. Paper ID #12089
10. Fries, R., Cross, P. E., Zhou, J., & Verbais, C. (2015). Student communication improvements during an industry-sponsored civil engineering senior design course. *Proceedings of the ASEE 2015 Annual Meeting*. Washington, DC: ASEE. Paper ID #12028

11. Golder, K., & Webb, D. B. (2015). Educating, enlightening, and entertaining: Audience perceptions of the educational value of a presentation competition for engineering students. *Proceedings of the ASEE 2015 Annual Meeting*. Washington, DC: ASEE. Paper ID #12335
12. Gotch, C. M., Langfitt, Q., French, B. F., & Haselbach, L. (2015). Determining reliability scores from an energy literacy rubric. *Proceedings of the ASEE 2015 Annual Meeting*. Washington, DC: ASEE. Paper ID #12198
13. Harper, K. A. (2015). Implementing and evaluating a peer review of writing exercise in a first-year design project. *Proceedings of the ASEE 2015 Annual Meeting*. Washington, DC: ASEE. Paper ID #12126
14. Jones, B. A., Mohammadi-Aragh, M. J., Barton, A. K., Reese, D., & Pan, H. (2015). Writing-to-learn-to-program: Examining the need for a new genre in programming pedagogy. *Proceedings of the ASEE 2015 Annual Meeting*. Washington, DC: ASEE. Paper ID #12829
15. Jovanovic, V. M., McKittrick, M., Pazos, P., Richards, D., & Romberger, J. (2015). Comparatively mapping genres in academic and workplace engineering environments. *Proceedings of the ASEE 2015 Annual Meeting*. Washington, DC: ASEE. Paper ID #11542
16. Kim, D., Olson, W. M., (2015). Improving student lab report writing performance in materials and manufacturing laboratory courses by implementing a rhetorical approach to writing. *Proceedings of the ASEE 2015 Annual Meeting*. Washington, DC: ASEE. Paper ID #14083
17. Lansiquot, R. D., & Cabo, C. (2015). Strategies to integrate writing in problem-solving courses: Promoting learning transfer in an interdisciplinary context. *Proceedings of the ASEE 2015 Annual Meeting*. Washington, DC: ASEE. Paper ID #11223
18. Lorca, F. G., Ferguson, D.M., & Condoor, S.S. (2015). Reinforcing communication skills through participation in a team-based weekly innovation challenge. *Proceedings of the ASEE 2015 Annual Meeting*. Washington, DC: ASEE. Paper ID #11965
19. Lucietto, A. M., & Ramirez, N. (2015). Writing proficiency in engineering technology students and development in the classroom. *Proceedings of the ASEE 2015 Annual Meeting*. Washington, DC: ASEE. Paper ID #11907
20. Mineart, K. P., & Cooper, M. (2015). Improving student technical communication via self reflection. *Proceedings of the ASEE 2015 Annual Meeting*. Washington, DC: ASEE. Paper ID #11972
21. Minerick, A. (2015). Student led example problems in a graduate-level advanced transport phenomena course. *Proceedings of the ASEE 2015 Annual Meeting*. Washington, DC: ASEE. Paper ID #13944
22. Miskioglu, E. (2015). Technical and professional communication for chemical engineers. *Proceedings of the ASEE 2015 Annual Meeting*. Washington, DC: ASEE. Paper ID #13875
23. Neeley, K. A. (2015). Communication as both the ultimate interdisciplinary subject and field of specialization encompassing more than technical writing: Communication instruction across divisions. *Proceedings of the ASEE 2015 Annual Meeting*. Washington, DC: ASEE. Paper ID #13566
24. Nicomento, C. G., & Nathans-Kelly, T. M. (2015). Yes, we teach presentations online and it works: Methods for teaching technical presentations to practicing engineers in an online environment. *Proceedings of the ASEE 2015 Annual Meeting*. Washington, DC: ASEE. Paper ID #11722
25. Nygate, J. A. & Cliver, R., (2015). Improving technical writing skills through the judicious use of infographics. *Proceedings of the ASEE 2015 Annual Meeting*. Washington, DC: ASEE. Paper ID #13262
26. Ruzyski, N. (2015) Writing, speaking and communicating – building disciplinary literacy in materials science undergraduates. *Proceedings of the ASEE 2015 Annual Meeting*. Washington, DC: ASEE. Paper ID #11347
27. Saftner, D.A., Christiansen, M. U., Hanson, A. T., Jenson, J.D., Ojard, S., Teasley, R. L., & Woster, E. (2015). Enhancing communication practices through development of a departmental civil engineering writing guide. *Proceedings of the ASEE 2015 Annual Meeting*. Washington, DC: ASEE. Paper ID #13645
28. Taylor, A. C., & Pulford, S. (2015). Visual communication learning through peer design critiques: Engineering communication across divisions. *Proceedings of the ASEE 2015 Annual Meeting*. Washington, DC: ASEE. Paper ID #12333
29. Teslenko, T. (2015). Focus on social learning in a first-year technical writing class: A Canadian case-study. *Proceedings of the ASEE 2015 Annual Meeting*. Washington, DC: ASEE. Paper ID #11869

30. Trellinger, N. M., Essig, R. R., Troy, C.D., Jesiek, B. K., & Boyd, J. (2015). Something to write home(work) about: An analysis of writing exercises in fluid mechanics textbooks. *Proceedings of the ASEE 2015 Annual Meeting*. Washington, DC: ASEE. Paper ID #12150
31. Valenzuela, M., & Stein, V. A. (2015). Minding the gap: How engineering can contribute to a liberal education. *Proceedings of the ASEE 2015 Annual Meeting*. Washington, DC: ASEE. Paper ID #12526
32. White, C. K., Breslow, L., & Hastings, D. E. (2015) Understanding curricular approaches to communication as a global competency: An interdisciplinary study of the teaching and learning of communications. *Proceedings of the ASEE 2015 Annual Meeting*. Washington, DC: ASEE. Paper ID #14040
33. Wilkinson, L. (2015). Engineering a humanities education: Learning like an engineer in a theatre elective. *Proceedings of the ASEE 2015 Annual Meeting*. Washington, DC: ASEE. Paper ID #13417

**Details on Communication-related Sessions and Papers
Including Initiative on Communication across Divisions**

Identified by XXXX and XXX

Liberal Education/Engineering and Society Division

Please note: The goals of the Initiative on Communication across Divisions include the cross-fertilization and sharing of information about communication with the eventual goal of collaboration across professionals and projects. To participate, email XXX.

Monday, June 15, 2015

[M130: Potpourri](#)

Technical · Computing & Information Technology Division

Mon. June 15, 2015 7:00 AM to 8:30 AM

Washington State Convention Center, Room 617

This session presents papers on a variety of topics pertaining to Computing and Information Technology.

Moderated by Dr. Afsaneh Minaie and Dr. Reza Sanati-Mehrizi

(Paper 4 of 6) Improving Technical Writing Skills Through the Judicious Use of Infographics Prof. Joseph Alan Nygate (Rochester Institute of Technology (CAST)) and Prof. Richard Cliver (Rochester Institute of Technology (CAST))

[M427: First-year Programs Division Technical Session 2: Design in the First Year: Challenges and Successes](#)

Technical · First-Year Programs Division

Mon. June 15, 2015 12:30 PM to 2:00 PM

Washington State Convention Center, Room 611

New, innovative approaches to design in the first year. Through design challenges and competition, these papers examine hands-on learning, as well as reflection and writing about design. Do these bring changes in learning?

Moderated by Dr. Ari W Epstein

(Paper 3 of 6) Implementing and Evaluating a Peer Review of Writing Exercise in a First-year Design Project Dr. Kathleen A Harper (The Ohio State University)

[M534-Communication Across the Divisions I: Communication in Engineering Disciplines](#)

Technical · Liberal Education/Engineering & Society Division and Civil Engineering Division

Mon. June 15, 2015 2:15 PM to 3:45 PM

Sheraton Seattle, Willow B

Session Description

This special session is the first in the Communication Across the Divisions series. This session brings together diverse approaches to teaching communication in civil and bio engineering.

Moderated by Dr. Judith Shaul Norback

1. Enhancing Communication Practices Through Development of a Departmental Civil Engineering Writing Guide Dr. David A. Saftner (University of Minnesota Duluth), Dr. Mary U. Christiansen (Affiliation unknown), Dr. Adrian T. Hanson (University of Minnesota Duluth), Prof. Jill D. Jenson (University of Minnesota Duluth), Ms. Sara Ojard (Affiliation unknown), Dr. Rebecca L. Teasley (University of Minnesota Duluth), and Emily Woster (University of Minnesota Duluth)
2. Students Writing for Professional Practice: A Model for Collaboration Among Faculty, Practitioners, and Writing Specialists Prof. Susan Conrad (Portland State University), Dr. William A. Kitch (California State Polytechnic University, Pomona), Mr. Timothy James Pfeiffer P.E. (Foundation Engineering, Inc.), Dr. Tori Rhoulac Smith (Howard University), and Prof. John V. Tocco J.D. (Lawrence Technological University)
3. Teaching Peer Review of Writing in a Large First-year Electrical and Computer Engineering Class: A Comparison of Two Methods Mr. Mike Ekoniak (Virginia Tech), Molly Scanlon (Virginia Tech), and M. Jean Mohammadi-Aragh (Mississippi State University)
4. Visual Communication Learning Through Peer Design Critiques: Engineering Communication Across Divisions Dr. Alyssa Catherine Taylor (University of Washington) and Dr. Stephanie Pulford (Center for Engineering Learning and Teaching (CELT))

[M735: Manufacturing Materials and Processes](#)

Technical · Manufacturing Division

Mon. June 15, 2015 6:15 PM to 7:45 PM

Sheraton Seattle, Ravenna B

This session features the presentation of articles focused on teaching the latest manufacturing processes and materials concepts.

Moderated by Dr. Richard Chiou

(Paper 4 of 4) Improving Student Lab Report Writing Performances in Materials and Manufacturing Laboratory Courses by Implementing a Rhetorical Approach to Writing Dr. Dave (Dae-Wook) Kim (Washington State University, Vancouver) and Dr. Wendy M. Olson (Washington State University, Vancouver)

Tuesday, June 16, 2015

[T124·Entrepreneurship & Engineering Innovation Division – Entrepreneurship Education in New Contexts](#)

Technical · Entrepreneurship & Engineering Innovation Division

Tue. June 16, 2015 7:00 AM to 8:30 AM

Washington State Convention Center, Room 603

Papers describing the teaching of entrepreneurship to engineers outside of the traditional entrepreneurship class.

(Paper 5 of 6) Reinforcing Communication Skills Through Participation in a Team-based Weekly Innovation Challenge Mr. Federico Garcia Lorca (Saint Louis University, Parks College of Eng.), Dr. Daniel M. Ferguson (Purdue University, West Lafayette), and Dr. Sridhar S. Condoor (Saint Louis University, Parks College of Eng.)

[T123·Issues in Engineering Technology Education](#)

Technical · Engineering Technology Division

Tue. June 16, 2015 7:00 AM to 8:30 AM

Sheraton Seattle, Issaquah

The presenters in this session focus on different issues related to engineering technology programs.

(Paper 5 of 5) Writing Proficiency in Engineering Technology Students and Skill Development in the Classroom Dr. Anne M Lucietto (Purdue University) and Nichole Ramirez (Purdue University)

[T210·Continuing Professional Development Division Technical Session 1](#)

Technical · Continuing Professional Development Division

Tue. June 16, 2015 8:45 AM to 10:15 AM

Washington State Convention Center, Room 616

Creatively and successfully engaging new challenges in meeting the continuing education needs of engineers.

Moderated by Mr. Kevin Curry

(Paper 3 of 3) Yes, We Teach Presentations Online and It Works: Methods for Teaching Technical Presentations to Practicing Engineers in an Online Environment Ms. Christine G. Nicometo (University of Wisconsin, Madison) and Dr. Traci M Nathans-Kelly (U of Wisconsin-Madison; Cornell University)

[T371·SPONSOR TECHNICAL SESSION: Helping Your Students Communicate Effectively - Presented by Purdue University](#)

Technical · Sponsored Sessions

Tue. June 16, 2015 10:00 AM to 12:00 PM

Washington State Convention Center, Room 606

Speaker: Joanne Lax, Graduate Student Technical Communication Specialist – Purdue University

Summary: This session is designed to help faculty and staff improve students' written and oral communications skills. It will be presented by Joanne Lax, Graduate Technical Communications Specialist in the College of Engineering at Purdue University.... In the last segment of the workshop, groups will report on a few best practices they discussed, identify some communications problems they have not been able to solve, and participate in a brainstorming session with Lax on ways to deal with those difficult problems.

[T536·Materials Division Technical Session 1](#)

Technical · Materials Division

Tue. June 16, 2015 2:15 PM to 3:45 PM

Washington State Convention Center, Room 620

Moderated by Dr. Surendra K. Gupta and Dr. Isaac L. Howard P.E.

(Paper 5 of 5) Writing, Speaking, and Communicating – Building Disciplinary Literacy in Materials Science Undergraduate Students Dr. Nancy Ruzycki (University of Florida)

[T534·Communication Across the Divisions II: Communication and Transdisciplinary Pedagogies](#)

Technical · Liberal Education/Engineering & Society Division, Civil Engineering Division, Mechanical Engineering Division, and Technological and Engineering Literacy/Philosophy of Engineering Division

Tue. June 16, 2015 2:15 PM to 3:45 PM

Sheraton Seattle, Willow B

Session Description

This special session is the second in the Communication Across the Divisions series. This session investigates diverse dimensions of communication and transdisciplinary pedagogies.

Moderated by Dr. Judith Shaul Norback

1. A Nod in the Right Direction? Designing a Study to Assess an Instructor's Ability to Interpret Student Comprehension from Nonverbal Communication Dr. Brock E. Barry P.E. (U.S. Military Academy), Major Daniel J. Fox (U.S. Military Academy), and Lt. Robert M. Wendel (U.S. Military Academy)
2. A Transdisciplinary Approach for Developing Effective Communication Skills in a First-year STEM Seminar Dr. Jeffrey J. Evans (Purdue University, West Lafayette), Prof. Amy

S. Van Epps (Purdue University, West Lafayette), Dr. Michael Thomas Smith (Affiliation unknown), Dr. Sorin Adam Matei (Purdue University Polytechnic Institute), and Dr. Esteban Garcia (Affiliation unknown)

3. Communication as Both the Ultimate Interdisciplinary Subject and a Field of Specialization Encompassing More Than Technical Writing: Communication Instruction Across Divisions Dr. Kathryn A. Neeley (University of Virginia)
4. Minding the Gap: How Engineering can Contribute to a Liberal Education Dr. Mark Valenzuela P.E. (University of Evansville) and Dr. Valerie A. Stein (University of Evansville)

Wednesday June 17, 2015

[W114: Communication and Literacy](#)

Technical · Educational Research and Methods Division

Wed. June 17, 2015 7:00 AM to 8:30 AM

Sheraton Seattle, Greenwood

Moderated by Dr. Lynn Albers and Mr. Brian E Faulkner

1. Determining Reliability of Scores from an Energy Literacy Rubric Dr. Chad M Gotch (Washington State University), Quinn Langfitt (Washington State University), Dr. Brian F French (Washington State University), and Dr. Liv Haselbach (Washington State University)
2. Improving Students' Technical Writing Skills: Abstracts in Introductory Solid Mechanics Kai Jun Chew (Stanford University Designing Education Lab) and Ms. Autumn Turpin (Stanford University)
3. Understanding Curricular Approaches to Communication as a Global Competency: An Interdisciplinary Study of the Teaching and Learning of Communication Dr. Christina Kay White (Massachusetts Institute of Technology), Dr. Lori Breslow (Massachusetts Institute of Technology), and Dr. Daniel E. Hastings (Massachusetts Institute of Technology)

[W105: Communication in the Chemical Engineering Curriculum](#)

Technical · Chemical Engineering Division

Wed. June 17, 2015 7:00 AM to 8:30 AM

Washington State Convention Center, Room 303

This session will explore the development of communication skills in chemical engineering students and applications of communication skills within chemical engineering courses.

Moderated by Dr. Cheryl A Bodnar

1. Improving Student Technical Communication via Self-reflection Mr. Kenneth P. Mineart (North Carolina State University) and Dr. Matthew Cooper (North Carolina State University)

2. Technical and Professional Communication for Chemical Engineers Elif Miskioglu (The Ohio State University)

[W222-Engineering Management Division Technical Session 5](#)

Technical · Engineering Management Division
Wed. June 17, 2015 8:45 AM to 10:15 AM
Washington State Convention Center, Room 613

Moderated by Dr. S. Jimmy Gandhi

(Paper 3 of 4) Improving Undergrad Presentation Skills Dr. Gene Dixon (East Carolina University) and Mr. Gordon Thomas Beverly III (East Carolina University)

[W241-Multidisciplinary Approaches for Enhancing Non-technical Skills](#)

Technical · Multidisciplinary Engineering Division
Wed. June 17, 2015 8:45 AM to 10:15 AM
Sheraton Seattle, Greenwood

This session will include presentations on a variety of techniques for improving student communication and critical thinking skills.

Moderated by Dr. Jennifer R Amos

1. Strategies to Integrate Writing in Problem-solving Courses: Promoting Learning Transfer in an Interdisciplinary Context Dr. Reneta Davina Lansiquot (New York City College of Technology) and Dr. Candido Cabo (New York City College of Technology)

[W234-Communication as Performance](#)

Technical · Liberal Education/Engineering & Society Division
Wed. June 17, 2015 8:45 AM to 10:15 AM
Sheraton Seattle, Willow B

This session includes papers exploring communication as performance, including theater exercises, memory maps, and presentation competitions.

Moderated by Mr. Michael Alley

1. Educating, Enlightening, and Entertaining: Audience Perceptions of the Educational Value of a Presentation Competition for Engineering Students Katherine Golder (British Columbia Institute of Technology) and Ms. Darlene B. Webb (British Columbia Institute of Technology)
2. Engineering a Humanities Education: Learning Like an Engineer in a Theatre Elective Ms. Lydia Wilkinson (University of Toronto)
3. Improving Engineering-Student Presentation Abilities with Theater Exercises Mr. John W. Brocato (Mississippi State University), Mrs. Amy Barton (Mississippi State)

University), Kelly Agee (Mississippi State University), Mr. Ed Dechert (Mississippi State University), and Greg Carlisle (Affiliation unknown)

4. Memory Maps: Helping Engineering Students Fashion Words on the Spot in Their Technical Presentations Mr. Michael Alley (The Pennsylvania State University), Lori B. Miraldi (The Pennsylvania State University), and Dr. Joanna K. Garner (Old Dominion University)

[W406: Civil Engineering Division Technical Session 7](#)

Technical · Civil Engineering Division

Wed. June 17, 2015 12:30 PM to 2:00 PM

Washington State Convention Center, Room 611

1. Student Communication Improvements during an Industry-Sponsored Civil Engineering Senior Design Course Dr. Ryan Fries P.E. (Southern Illinois University, Edwardsville), Dr. Brad Cross P.E. (Southern Illinois University, Edwardsville), Dr. Jianpeng Zhou (Southern Illinois University, Edwardsville), and Chad Verbais (Southern Illinois University, Edwardsville)

[W434: Communication Across the Divisions III: Writing as Social–Technical Integration](#)

Technical · Liberal Education/Engineering & Society Division and Computing & Information Technology Division

Wed. June 17, 2015 12:30 PM to 2:00 PM

Sheraton Seattle, Willow B

Session Description

This special session is the third in the Communication Across the Divisions series. This session includes research on the teaching and practice of writing as it connects across social and technical dimensions of engineering in academic and workplace contexts.

Moderated by Dr. Judith Shaul Norback

1. Comparatively Mapping Genres in Academic and Workplace Engineering Environments Dr. Vukica M. Jovanovic (Old Dominion University), Megan McKittrick (Old Dominion University), Dr. Pilar Pazos (Old Dominion University), Dr. Daniel Richards (Old Dominion University), and Dr. Julia Romberger (Affiliation unknown)
2. Focus on Social Learning in a First-year Technical Writing Class: A Canadian Case Study Prof. Tatiana Teslenko (University of British Columbia, Vancouver)
3. Something to Write Home(work) About: An Analysis of Writing Exercises in Fluid Mechanics Textbooks Natascha M. Trellinger (Purdue University, West Lafayette), Ms. Rebecca R. Essig (Purdue University, West Lafayette), Prof. Cary D. Troy (Purdue University, West Lafayette), Prof. Brent K. Jesiek (Purdue University, West Lafayette), and Prof. Josh Boyd (Purdue University, West Lafayette)

4. Writing-to-Learn-to-Program: Examining the Need for a New Genre in Programming Pedagogy Dr. Bryan A. Jones (Mississippi State University), Dr. M. Jean Mohammadi-Aragh (Mississippi State University), Ms. Amy K. Barton (Mississippi State University), Dr. Donna Reese (Mississippi State University), and Hejia Pan (Mississippi State University)