THE COMMUNICATION FACTOR

Creating First Impressions for Your Course

If you order Apple Pie á la Mode, it doesn't matter whether you first taste the crust, the apples, or the ice cream—you know what you're eating. Students enter the first class session with expectations, too, usually from years of being in other classes. A course that offers a new learning experience needs to create an important first impression so that students will expect "four-cheese pizza," not "Pie á la Mode," and look forward to the change. Otherwise, they may resent leaving a pattern that has made them successful—or at least comfortable—in the past. Integrating communication instruction into a science or engineering course creates a challenge in introducing changes. First impressions affect student satisfaction and student learning, so think ahead about setting positive expectations.

The Name Counts

A title can go beyond subject matter and signal what will be exciting or different about the learning experience. Consider how a student might feel signing up for courses with these titles: "Winning Contracts with Plant Designs," (instead of "Senior Design") or "Starring with Competitive Designs, Presentations, and Proposals for

The theme of this issue is capturing the advantages at the beginning of every communication moment.

New Products" (instead of "Product Design"). The longer titles imply that the course is about students and their valued activities, not just a topic to be studied.

The Syllabus

Students may not be fully aware of the design or structure of a course. They may keep their focus so close to daily work that they fail to see the larger picture or pattern in their work. Two patterns of course design that include communication instruction in the science or engineering course have been discussed in other newsletters and can be viewed at the Cain Project website:

- Integrated lectures, tests, and group reports on new applications (Bennett, June 2003)
- A "Drill-Down" first-year seminar syllabus for group learning and communication development (Smalley and Schuler, Summer 2004)

The Course Web Presence

Science and engineering students may feel comfortable with online resources and use them routinely more than other university students do, but explicitly introducing the students to the web page and its contents during the first class can help set expectations. Demonstrate how you expect students to use the site, and provide a handout that summarizes the moves you're making on a screen.

Integrating activities and resources on your course web page can increase use. For example, if you periodically put up quizzes for completing online or downloading of homework at a particular day and time (for example, available 5 p.m. Wednesday and due 9 a.m. Friday), students will become familiar with visiting the course Web site. Another possibility is requiring students to post comments to a discussion on the site once weekly the first month of the course.

Create a web presence for your course and demonstrate how you expect students to use the site.

First Impressions: Writing a Good Abstract   by Jan Hewitt

Because an abstract often determines if a published paper or dissertation will be read or ignored, a writer needs to pack persuasive information into a few words. In the Thesis-writing groups, I teach that if an abstract answers the following Seven Key Questions, it is likely to be complete and enticing.

Seven Key Questions:
1. **Clear Focus**. Does the abstract make clear what work needed to be done, what problem needed to be solved?
2. **Method(s).** What method(s) were applied to address the problem? Why these particular methods?
3. **Importance**. Why should we care about this research?
4. **Context.** How does this work fit in with other work in the field?
5. **Results**. What, specifically, are the results? What evidence is given to convince us of those results?
6. **Unique Contribution**. What does this work report that is new?
7. **Possible Applications**. In what ways might this work be useful, either theoretically or practically?

A single sentence may answer or signal the answer to more than one of the seven questions. For example, Importance, Contribution, and Application may well be covered in the same few words, and a clear elucidation of the problem may well include other aspects.

Annotated Sample Abstract

This abstract is from "Directional Hypercomplex Wavelets for Multidimensional Signal Analysis and Processing" by Wai Lam Chan, Hyeokho Choi, and Richard G. Baraniuk, all in the ECE Department at Rice. The sentences are numbered for easier reference in the comments on the right.

1. We extend the wavelet transform to handle multidimensional signals that are smooth save for singularities along lower-dimensional manifolds. 2. We first generalize the complex wavelet transform to higher dimensions using a multidimensional Hilbert transform. 3. Then, using the resulting hypercomplex wavelet transform (HWT) as a building block, we construct new classes of nearly shift-invariant wavelet frames that are oriented along lower-dimensional subspaces. 4. The HWT can be computed efficiently using a 1-D dual-tree complex wavelet transform along each signal axis. 5. We demonstrate how the HWT can be used for fast line detection in 3-D.

Comments on Each Sentence

1. Instead of writing the all-too-common passive construction, "The wavelet transform is extended to handle….," these authors take possession of and responsibility for the work with the opening word, "We." (Those authors who cannot bring themselves to use "we" even in a multiple-author paper could use "This paper extends" as an alternative.)

   The verb "extend" not only precisely says what the work does, but also signals context. Clearly, this paper is based on specific prior work on "the wavelet transform" and expands possible applications of the earlier work to specific multidimensional signals. The problem is defined; applications are signaled. As one student said, "There's a lot riding on that word *extend,*" and he's right. Consider what would be lost if the word were the more common (and imprecise) "study" or "discuss."

2. "First" clearly signals to the reader that there will be more than one step in the method. The rest of the sentence gives details about what was done and links the sentence with the "multidimensional" in the title and in the first sentence.

3. This second step in the sequence is clearly signaled and then precisely defined. Though the details are left for the body of the paper, enough is given here to illustrate the actual process.

4. The shift to passive voice works here because it includes the reader as a possible user of this new technique. "Efficiently" is an important inclusion in any computer-driven research project, in which saving time translates to "saving money."

5. "Demonstrate" clearly signals results, evidence, and applications, as well as suggesting importance of the work. Repetition of "HWT" reinforces what has newly been added to the field, and "for fast line detection in 3-D" illustrates the promise of the title or a "multidimensional " application of the wavelet transform.

Verb choice in the five sentences illustrates a powerful writing technique. *Extend, generalize, construct, computed*, and *demonstrate* are precise and varied. Each verb signals an exact action necessary for the persuasive progression of the argument.

In summary, this brief abstract defines the focus of the paper, suggests its context, identifies and applies the methods used, shows why those methods work, gives specific results that echo the promise of the title, indicates what is new, and in the final sentence signals evidence for possible applications of this new technique. Impressive and persuasive in only 95 words!

First Impressions: When You Step into the Spotlight

Presenters in Action

Start Strong

Audiences have high expectations in the opening minutes of a presentation, so it's important for a speaker to capitalize on that moment by engaging the audience's interest and crafting an introduction that addresses the audience's needs and expectations. Presenters also need to project a positive ethos of being knowledgeable, trustworthy and prepared. For that to be the case, a speaker's message must be in sync with his or her body language and tone of voice. We recommend memorizing the opening sentences of the introduction in order to get off to a smooth start. This enables speakers to focus more of their attention on the audience instead of trying to think of what to say.

Lackluster First-Impressions

"Today I'm gonna talk about _____" is one of the *most common* and *least effective* opening statements with which to begin a presentation. Another poor choice is to lead off with an apology about how the presentation would have been better if the speaker had had more time to prepare. Likewise, presenters who start off with a statement about how much they despise or fear public speaking do not inspire confidence.

Stance, Posture, and Proximity to Audience

Speakers should strive for an open, stable stance by turning their bodies to face the audience as opposed to standing at an angle turned towards the projection screen. Chin should be up. Feet should be about shoulder-width apart and aligned with hips. Shoulders should be down and relaxed. Arms should hang comfortably at sides. Avoid holding hands behind back, clutching them together, or placing them in the fig leaf position. Presenters should consider moving out from behind the podium and towards the audience to establish rapport.

Eye Contact

A speaker should make direct eye contact with people in the opening seconds of talk because it creates the impression of being credible and confident. Make an effort to sustain eye contact with people seated in different parts of the room. Avoid the tendency to glance back repeatedly at the title slide displayed on the screen, or worse yet, the tendency to read the information on the title side instead of focusing on the audience.

Voice Quality

Use your voice to energize the audience and to capture people's attention. Speak in a natural, authoritative tone. Speak to be heard by people seated in the most distant part of the room, but don't shout. Avoid mumbling to the screen or speaking down into your chest. Try not to speak too quickly and rush through the introduction.

Preparation Is Key

Speakers should scope out the venue where they will be presenting in advance to get a sense of the overall configuration of the space, test out the equipment, and figure out an appropriate position from which to speak. If at all possible, they should practice in the rooms where they will give their presentations.

Assignments

In traditional engineering courses, assignments that involve presentations or writing may give no instruction on the process that should or could be used to complete the assignment. Here are tips to convey your expectations and create first impressions at the same time:

- It seems almost too basic to mention, but WRITING OUT YOUR ASSIGNMENT and having it online as well as in in a paper handout increases the chances that students will follow your instructions when they work on the task.
- Having the Cain Project create supporting materials for your course or linking to existing Cain Project materials on poster design or giving presentations can beef up an assignment with guidance on how to complete it.
- Checklists and grading criteria can help students know what will be expected. Integrate these into the assignment or post them alongside the assignment on the Web site.
- Successfully completed assignments from other semesters can give students models of the "deliverables" they're to produce.
- Assignments can have names, too. Imagine the difference in students' reaction to seeing "Digital Dazzle: End of Semester Poster Show of Digital Design Projects." instead of "Final Projects" Consider COMP 440's "Pizza and PacWar: The Final Competition," which might otherwise have been "Comparison of Team Projects." What's exciting and suggestive of communication aspects that can create a positive impression?

Make Course Criteria Explicit

If from the first day students know that you're expecting students' communication performance to be part of their engineering or scientific work, you can use these objectives to guide feedback on their homework or projects as well as their written reports or oral presentations. At RPI, Professors Lee Odell (communi-cation) and Bert Swersey (mechanical engineering) use the following questions to structure the semester project handout, the feedback on design work, and the feed-back on student teams' written reports:

- What is the problem you're addressing?
- For whom is it a problem?
- Why does it seem a significant problem?
- What are the limitations of the state of the art technology?
- What alternative technologies exist?

- What are the limitations of these technologies?
- From the perspective of a potential user, what characteristics would a good solution to the problem need to have?
- From the perspective of a user, how might an existing technology be improved?
  ("Reinventing Invention: Writing across the Curriculum without WAC." *Language and Learning Across the Disciplines*. This article is available on-line at http://wac.colostate.edu/llad/v6n3/odell.pdf)

Use questions you want your students to answer through their projects and homeworks as the basis for evaluating work AND communication.

You can link to the Cain Project checklists on the course web site and highlight them on the first day to help establish the standards for projects and reports.

Take Advantage of Alumni and Industry Practitioners as Mentors to Coach Students in the New Experience

Announcing a panel discussion with alumni or industry practitioners for the first week of class can bring in an affirmative chorus of voices that encourage students to accept communication goals as well as technical goals.

Cain Project

The Cain Project in Engineering and Professional Communication helps Rice students become expert speakers and writers. Because of Gordon and Mary Cain's generous gift, undergraduate and graduate students in science and engineering are developing the communication skills necessary for successful professional leadership.

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