

Engineering Co-ops In Writing Center “Coops”*

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Abstract

At a large university in the Midwest of the United States, the Writing Center frequently works with advanced undergraduate engineering students who must produce reports based on their work within organizations outside of the university. These co-op reports typically ask students to do little more than imitate previous co-op reports which are available to them. In stressing imitation, the School of Engineering loses an opportunity to help their students become better writers and more critical thinkers. The author offers several variations in the co-op report assignment which could contribute to these desirable goals.

Keywords: Engineering co-op reports, Writing Center work, frustration.

* URL: [http://ojs.aishe.org/index.php/aishe-j/article/view/\[98\]](http://ojs.aishe.org/index.php/aishe-j/article/view/[98])

The *Rhetoric* must lead us through . . . the flurries and flare-ups of the Human Barnyard.

(Kenneth Burke 1950: 23)

Introduction

In *Good Intentions: Writing Center Work for Postmodern Times*, Nancy Grimm (1990) explains that what she finds satisfying about Writing Center work is “figuring out the tacit expectations of academic literacy and making those expectations explicit for the students who want to ‘make it’” (xv). Writing Centers, after all, are there to help students “make it”—to help them become better prepared for the writing they will do in the university, in first-year composition and beyond, in the writing for their disciplines. And each discipline is defined by expectations, both tacit and explicit for—as Jacob Blumner (1995) reminds us—each discipline “is a distinct ‘community,’ a network of communication, a tradition, a particular set of values and beliefs, a domain, a mode of inquiry, and a conceptual structure” (35). Consequently, students must learn, practice, and produce disciplinary-specific writing in order to gain entrance into their academic communities. One way for them to learn is for individual departments to ask students to pay attention to the genres practiced by their disciplines, to read them critically, and to analyze and reproduce them thoughtfully. The Writing Center can help.

But sometimes this “help” can constrain us in frustrating ways—especially when departments seem to oversimplify the genres they privilege and to emphasize imitation of the genres over their critical reading and thoughtful production. As a result, the goals of some departments and the goals of the Writing Center can conflict. The mission of the Writing Center at my university, for instance, is to assist all students, faculty, and staff to “work on their writing.... In serving the University community, the Center complements and supplements classroom instructions by

promoting attitudes and activities essential to writing well, including. . . reflections” (Welcome to the University Writing Center). As good Writing Center consultants, we want to help students practice the discourses of their disciplines, but we also understand that writing well draws on complex and overlapping activities that should not be mindlessly followed. Loud squawks and grumblings come from the consultants’ office.

But perhaps we can be helpful in ways not always articulated by the various disciplines whose students we serve. Perhaps we can go beneath the surface and spotlight other discourse features than types of pronoun used and kinds of data collected; like Nancy Grimm, perhaps we can dig even more deeply and examine links between those features and the discipline. At the same time, we have to ask: while the results of this digging could make students better writers, would they make students better members of their academic communities?

One Type of Disciplinary Text: The Engineering Co-op Report at My University

Many engineering schools in universities in the United States assign some kind of writing component in order to meet an ABET requirement. (ABET, the Accreditation Board for Engineering and Technology, grants accreditation to post-secondary programs in engineering, a mark of program superiority.) One of the student outcomes identified by ABET is “an ability to communicate effectively” (Gunnink and Bernhardt 2002: F3H3). In part to meet this outcome, the engineering school at my university assigns final reports for each of the three required co-ops—semesters of cooperative education which provide opportunities for students to practice “hands-on” engineering while receiving a wage and academic credit. The “Forms” page, a sub-category of the academic area of the engineering school, provides a list and a link to “Co-op Report Documents”:

- Report Guidelines (PDF)
- Co-op Report Writing Sample (PDF)
- Co-op Report Template (Word)
- Student Performance Appraisal (Excel with pull-down rating scale)
- Student Performance Appraisal (Excel, visible rating scale)
- Writing Center Form (PDF), IE Students
- Co-op Survey Form (Word)

Some of this information is repeated in the Co-op Handbook for an engineering seminar popularly known as “Co-op 101.” These many and detailed guidelines for co-op reports and appraisals indicate an interest in helping students achieve communication that meets certain criteria, but the guidelines as well as the writing sample suggest that the engineering definition of “effective communication” is strongly linked to surface imitation of generic features. As a result, the guidelines seem to **discourage** students from practicing critical thinking.

Some of these guidelines specify formatting information, which implies the importance of a consistent appearance of the reports within the organization (the School of Engineering) and a loyalty to the tradition of paper over electronic texts:

1. Laser printed on white paper, Times Roman 12, double-spaced with a 1.5 inch left margin and one-inch top, bottom and right margins.
2. **Print single sided**
3. Headings: CENTERED, **BOLD**, and ALL CAPS.

4. Reports should be SPELL-CHECKED AND PROOF READ.

Writing tips also suggest the importance of writers demonstrating the kind of basic editing skills used by any academic writer:

1. Pay special attention to subject/verb agreement and verb tense, the two most common sentence-level problems in technical writing.
2. Favor short paragraphs over long ones in order to stay focused.
3. Build paragraphs around a central idea expressed in the topic sentence.
4. Use transition words (therefore, for example, similarly, but, however, nevertheless, furthermore, now, meanwhile, after that, then, next, finally) at the beginning of pivotal sentences and paragraphs, remembering that transition words are simple ways to guide the reader's thinking.
5. Rely on the active voice more than the passive
6. Use active verbs, thinking in terms of things you demonstrated, performed, defined, improved, mapped, programmed, organized, etc.
7. Avoid clichés, slang and colloquial language (used in conversations).
8. Use punctuation marks such as the comma, semicolon, colon and dash correctly. Both of these categories offer commands that can produce features that many of us might expect in conventional academic texts. Unfortunately, because many students do not know how to "use punctuation marks" or what to do about subject-verb and verb tense agreement errors, the grammar commands, in particular, are often ineffective.

The guidelines also identify general physical requirements of the report: “a black jacket with clear vinyl front cover with either a **sliding lock (preferred)** or a three-hole fastener” (Co-op Report Guidelines, 1), the Report Evaluation Form, the Body of the Report, and a copy of the student’s performance review completed by the co-op employer. In addition, the guidelines break down each part of the body of the report and list questions to help students discover what they need to write, what kinds of material they need to use, and how long each section should be.

Thus, the co-op report has four sections: quantified information about the co-op employer (1 page written in 3rd person), description of major duties of co-op student (2-3 pages written in 3rd person), quantified information about the benefits of the co-op to the employer (1 page written in 3rd person), and an analysis of the benefits of the co-op to the student (1 page written in 1st person in a question-answer format). In the first section, for example, student writers focus on the co-op employer.

The last two sections of the four-part report include a page each on quantified benefits to the employer and on benefits to the student; the content of these sections is similarly directed by specific questions, with the Student Benefits section also focusing on topics related to ABET learning outcomes. Attention in the ABET Learning Outcomes is directed to two writing activities, with the student told to “discuss” and to “give examples”; the introduction to those outcomes also indicates that the student “should **describe** what [he/she] learned” (emphasis added). This section ends by directing the student to the sample co-op report linked to the school’s website.

The second and largest section of the report, **MAJOR RESPONSIBILITIES AND DUTIES**, requires the student to describe major projects undertaken during the co-op. These descriptions, according to the guidelines, need to demonstrate the student’s ability to use

“Critical Thinking Skills” by including certain kinds of information:

Purpose – what was the fundamental purpose and goal of the project or problem? You are seeking [to display] *Clarity, Significance* and *Accuracy*.

Questions and Assumptions – what were the fundamental questions associated with the problem? Are they *Clearly* and *Precisely* stated? Are they *Relevant* and *Complete*? How did your **Assumptions** affect your problem solution?

Points of View, Knowledge and Concepts – you should identify different *points of view* and be *objective* in the assessment of these viewpoints. You should have enough information to assess the key concepts for *Clarity* and consider all possibilities (*Depth* and *Breadth*).

Inferences and Implications – The solution selected should be a *logical conclusion* – *consistent and relevant*. (“Co-op Report Guidelines,” 1-2)

The italicized words at the end of the four categories above identify what qualities the student needs to demonstrate here; they also identify the qualities that designated engineering faculty will use to evaluate this section of the report. Asking the student to identify underlying questions and his/her own assumptions, to examine multiple viewpoints, to assess and establish consistency and relevance in their solutions—all show attention to analysis and reflexivity which are part of critical thinking as the student develops content. At the same time, invoking highly generalized terms like “relevant” and “precisely,” terms whose meanings could change from context to context, suggests a numbing of those critical thinking faculties

Those of us who work in the Writing Center with experience teaching writing see a larger, overriding problem in the co-op guidelines: they present no information about rhetorical issues which come before content choice and development, and which give writing a function beyond

fulfilling an assignment or answering a series of questions. In other words, they fail to give attention to “audience” and “purpose.” In fact, the absence of commands, advice, or encouragement to consider “audience” and “purpose” suggests their unimportance for engineers, which is far from the case. As a result, the co-op reports many of these students produce may be carefully proofread and may have the required parts, but they are often similar and often deadly because they tend to be surface imitations. And I suspect the coop students know this: many of them who come to the Writing Center—industrial engineering students are required to come and leave with reports from the consultant (Forms - Writing Center reports)—have little investment in their reports and little, if any, desire to work on them. Writing Center consultants have said that co-op students only want them to check punctuation and to make sure all required parts of the report are in their documents, as these representative excerpts from consultant notes indicate:

- We spent a good part of the session working on punctuation, parallel structure, verb tenses, and paragraph breaks.
- He was having trouble avoiding the first person.
- He was missing some of the details required in one section.
- We spent most of our time restructuring the content to meet the specifications of the assignment.

To pick up on a metaphor used by Derek Owens (2008), these coop reports often result in college writing that “is as empty as . . . abandoned tenement buildings . . . because of poorly designed assignments and low expectations The result is often a homogenous prose that ‘works’ for faculty and student, but is ultimately as forgettable as yesterday’s lunch” (72). The low expectations of the School of Engineering are evidenced in the sample report made available to students. For instance, consider the STUDENT BENEFITS section where directions state that details have to respond to appropriate “learning outcomes” established by ABET in a “Q/Answer format”:

Discuss how you applied math/science/engineering knowledge [in your co-op].

I had to apply science and engineering knowledge during the characterization of materials used in the carbon test seal samples. (“Co-operative Education Report”).

Clearly, there is no Q/A format here. And “discuss” does not describe the student’s short response. Is this a faulty model, or does “discuss” mean “state briefly” in the engineering community? While the School of Engineering is to be applauded for requiring writing projects, something is wrong when the projects lead students to surface imitation without critical reflection.

What to do?

To begin, Writing Centers could work to create bridges to the engineering and other schools. In the specific case discussed above, Writing Center administrators could meet with those in charge of the Co-op Program to ascertain what they see as the purposes of the co-op report and, with tact, identify additional uses the writing might serve besides fulfilling an ABET requirement. While writing to display “objective” quantities and measurable activities can be useful for engineers, and while being able to follow specifications—as in the specifications for the coop assignment—is essential to what engineers do, writing can be useful in other ways as well. Writing can be a way of learning. In this case, for instance, students can learn through a series of informal reflections on what shaped their sense of the companies they worked for, or what projects they would like to follow up on and why, or how the report features constrained what they wrote, or what they learned about writing through creating the co-op reports.

In addition, meeting with representatives of the engineering school might lead to co-op reports that are defined with different audiences and purposes. The first report, for example, could be aimed at an audience of future students thinking about co-ops in that company; the purpose, to inform and advise them. The second co-op report might be targeted to the student's faculty supervisor; the purpose, to show to what degree real world experience confirms school learning. And since co-ops often lead to offers of employment, the third report could be addressed to the co-op employer to identify in some detail what the student learned or how the student could fit into the organization. Report writers would then have to understand how a defined audience and purpose affects what they can say and how they can say it, and the specific formal requirements of the reports would have to change. But students would discover something important about "real world" writing. (And "real world" writing does have a place in the University.)

We in the Writing Center could also survey benchmark institutions to determine whether their engineering schools require writing related to co-ops and what forms and purposes those writings might take. For example, at least two of the benchmarks for the engineering school of my university ask for something different from the co-op reports compulsory here: in addition to a report, one school requires each student to create "a student spotlight form" that briefly and informally describes the co-op experience and that might find itself on the Career Services and Professional Development site of the university (Indiana University- Purdue University Indianapolis) Another requires the co-op student to present both written and oral reports, the oral presented to the management of the participating company (State University of New York, Buffalo. This kind of information from the benchmark institutions could help all rethink the co-op report.

Finally, and this is the grandest suggestion of all, we could work with the engineering school to follow several recent rhetoric studies that move in a different direction—a more analytical direction, one that invites students to think about what the co-op report as defined says about

the discipline of engineering. In “Addressing Genre in the Writing Center,” Irene Clark (1999) argues that we can help students learn “that academic genres are not culturally neutral”; and with that knowledge, students can “critique and challenge” the underlying values of their disciplines. Writing Center workers, she suggests, can lead students to these critiques and challenges by asking questions about the purposes of the academic genre used in their disciplines, the features of the genre, the relation between features and purposes, and the interests the genre serves. Here Stephen Toulmin’s work (1958) on data and warrants might be a helpful tool. Moreover, she recommends that students both work and play with generic conventions because, as she says, “genres become more effective when the formal properties are altered slightly” (12). Imagine helpful and playful work with co-op reports—a report of images and cartoons, of dialogues and debates, of multiple voices and skeptical asides.

Like Clark, in “Postcolonialism and the Idea of a Writing Center,” Anis Bawarshi and Stephanie Pelkowski (1999) similarly urge Writing Center workers to help students examine “what assumptions lie behind the limits [of] . . . conventions, [and] what social and power relations are served by such conventions” (92). Further, with some study and thought, with hard work and collaboration, we and the engineering students who come to work on whatever co-op projects come to be might discover “insight into why certain conventions exist for certain discourses. . . [because] knowing not only what writing does, but also why and where it does it, allows these student writers to make informed choices” (92-3).

Similarly, in *A Geopolitics of Academic Writing*, Suresh Canagarajah (2002) writes that because “discourse conventions . . . assume specific ways of perceiving and representing reality . . . , [they] are not merely tools of communication” but they are also “active mechanisms for imposing desired ways of thinking.” He goes on: “they are not only ways of achieving textual coherence but instruments for filtering knowledge. They are not only rules for achieving harmonious communication but methods of gatekeeping. They are not just the medium but the message” (83-85). While he writes specifically about how discourse conventions can oppress

non-Western writers, they can also manipulate inexperienced writers (and readers) anywhere. He goes on to recommend that faculty members “look for creative, original, and challenging modes of textuality that *add* something to the discourse, rather than demanding texts that slavishly mimic” (296). We could return to Nancy Grimm, who sees the Writing Center as not only an aid for students who want to become part of the university community but an “agent of change” (79):

I am not recommending that [Writing Center] tutors tell students to repudiate all routine practices and authority. Rather, I am recommending that they de-naturalize the practices so that students can make decisions about the extent to which they want to conform to the design, to acknowledge the norm encoded in the design, or even depart from it or create a new design. (79)

While Writing Centers exist to help students become better writers and not just better imitators, particularly when it comes to disciplinary writing, we cannot act alone. Like the contact zones that Mary Louise Pratt (1992) writes about—and the engineering reports I described—we often find ourselves MENTALLY meeting, clashing, and grappling with unfamiliar (academic) cultures. If we want to affect change, however, we have to do more than clash and vent and squawk . We have to be willing to “rub off” against each other, to meet each other head-on, to work together, and, perhaps, then to experience some of those “exhilarating moments of wonder and revelation, mutual understanding, and new wisdom” that Pratt describes.

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