The Components of Communication – Analytic Assessment  
in the Technical Writing Classroom  
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Abstract  
This paper describes the development of an assessment process for the technical writing service course at New Jersey Institute of Technology. The process was developed over the period of one year and then the assessment was held successfully every semester for three years, generating data on the writing abilities of 555 students. The assessment model breaks communication down into eight components and tests each separately. Those variables, along with a holistic (overall) score, are generated for each portfolio by a minimum of two readers. Online portfolios are used as a temporary database from which to score. The assessment has provided interesting results, gleaned from the statistics. Although this assessment model is specific to technical communication, the method by which the model was made is transferable across disciplines.

Introduction  
The premise of this paper is that self assessment in all disciplines is possible. We do not need exterior assessment agencies, such as those intermittently suggested by various groups. In fact, any exterior assessment is likely to be partial and arbitrary, since the academic world is full of complex disciplines that change continually. The only valid assessment is a homegrown assessment, one that comes from within the discipline itself, since only its practitioners understand what is being taught and why. The ongoing question of accountability in colleges can only be answered by the colleges, within each department. However, time and money are required in this effort and those commodities are often hard to come by.

This paper demonstrates that it is possible to create an assessment model that is both reliable and statistically valid. In my case, I created a model for teaching technical writing. Over six semesters I collected a dataset (n=555) that can be mined to answer a variety of questions. The development of this model requires a good (and flexible) plan and the support of the department or institution. It is possible in all of the disciplines and it would be different in each. Only individual disciplines understand their methods, strategies and continually changing bodies of knowledge.

What follows is a narrative of how I created the analytic online portfolio assessment for the required technical writing course at New Jersey Institute of Technology. I did this because we have a leader in writing assessment – Norbert Elliot – at our university, and because I saw how valuable it was. I implemented the new assessment model over a period of four years with his help and the support of the department lecturers and chair. Between 2003 and 2006, we collected six semesters of data, the analytic analysis of the online portfolios of 555 students. From an analysis of the data, we can find some interesting patterns.
If you are interested in a more complete explication of the model, see “A Decade of Research: Assessing Change in the Technical Communication Classroom Using Online Portfolios” in *Journal of Technical Writing and Communication* (2006) and “The Analytic Assessment of Online Portfolios in Undergraduate Technical Communication: A Model,” *Journal of Engineering Education* (2006) 2, 3. Elliot wrote the comprehensive *On a Scale: A Social History of Writing Assessment in America* (2005) and there are other important books on writing assessment as well 4, 5. My specific model is not applicable to other disciplines, but the process of creating the assessment is. In this paper I will describe how we analyzed our goals, created a set of variables to test, and then created an assessment to see whether we were reaching our goals.

**Creating the model**

In the spring of 2003, I was made coordinator of the technical writing service course, English 352, at New Jersey Institute of Technology. Elliot was doing “best paper” readings and paper portfolio readings for the humanities capstones and other GURs (general university requirements). Elliot planned and conducted a best paper reading for technical communication that first year. Then I took his basic assessment model and began to expand it.

In the spring of 2004, I instituted required modules to be taught in the technical communication course. They were a manual, a proposal, a technical marketing brochure and the online portfolio website. I wrote directions for the other instructors to be able to teach their students how to create the websites, since they often did not know how to make websites themselves. I set up an online portfolio reading that first semester. We planned to use the old, holistic rubric but there was a computer virus and we couldn’t access the websites. Instead, I used the major idea from Bob Broad’s book, *What We Really Value* 6. The instructors and I discussed what we thought were the elements of technical communication – what should we read for? What should we score? After the initial discussion with the technical communication instructors, we held an online “Delphi,” in order to crystallize our new criteria for the technical communication service course 7. We defined the criteria that we were going to score – writing and editing, substance and content, audience awareness, document design, and textual attribution – and discussed it, in writing, among the faculty at New Jersey Institute of Technology. Years later we changed the last item to “information literacy” and added a score for the web page as well. The point is that we collected the group’s judgment and continued to do so, shifting the variables to reflect our teaching goals as accurately as possible.

In the fall of 2004, I held the first successful analytic online portfolio assessment. I got the instructors to do the extra work for free by a) having food and b) having the department chair present. Robert Lynch fully supported the effort and did many of the readings himself. Burt Kimmelman, the present chair, also supported the effort by joining the group and scoring.

The assessment continued every semester until, in the fall of 2006, we lowered the number of variables from twelve to eight: the effort to complete the scoring was becoming
difficult. Each criteria was scored on a scale from one to six by two readers and if the scores were not adjacent, it was given to a third reader to resolve the discrepancy (the two closest numbers were then used). This assured inter-reader reliability, but with the number of criteria we had, it also assured that there would be many discrepancies and much time spent resolving them. Therefore we jettisoned the criteria that were least important under each major heading, leaving the wording in the remaining criteria the same. This change was instigated by Jim Lipuma, a lecturer, who saw the difficulty in the process – it was not sustainable with thirteen different scores. Throughout this process I have often followed the advice of Jim Lipuma, as well as listened to others. Later we incorporated the advice of Davida Scharf, our reference librarian, on how to word the criteria for what we had been calling “textual attribution”; we expanded it into “information literacy.” Elliot has published other papers on this topic, one with our research librarian, Davida Scharf, focusing on the criteria of information literacy.

We continued to hold successful assessments every semester until spring of 2007. Presently we hold a scaled-down version of the assessment once per year, since it became more and more difficult to convince the instructors to spend an extra afternoon scoring portfolios for no reward. If colleges want to do their own assessment, it has to be institutionalized within the budget. There must be money available for the adjuncts and lecturers to be paid for their work. Otherwise, in the case of our service course at least, the effort is not sustainable. Perhaps institutions with more resources could take up this project and carry it forward; self-assessment could become an integral, cyclical part of every program, as described by ABET.

Partial analysis of the dataset

After the last fully-statistically sound assessment in spring of 2007, I analyzed the data to answer some long term questions that concerned our department. These are the results of an analysis of the longitudinal data (555 samples):

- There are no significant differences between the scores across semesters with the exception of information literacy, which we just introduced into the curriculum (it rose).
- There are no significant differences between the scores of students who learn in traditional (blackboard) classrooms and students who learn in computer-enabled PC labs.
- There are no significant differences between the scores of online (distance) and face-to-face students.
- There are no significant differences between the scores of FTFTFs (first-time, full-time freshmen) and transfer students from community colleges.

There were other results that were positive: the correlation between the grades and the portfolio scores grew between the semesters, as our grading of the student’s work became more predictable; we spent valuable time together, discussing our students’ work; and we proved that it is possible to do self-assessment, given the presence of a practitioner and the support of a department.
References


Biographical Information

Carol Siri Johnson is an assistant professor in the Humanities Department at New Jersey Institute of Technology. Her interdisciplinary research draws from her interests in art, science, technology, and writing. She has published articles on the history of technical communication and the relationship of art and science. As director of the required technical communication course at NJIT, she developed, in conjunction with Norbert Elliot, an online portfolio assessment that meets ABET (Accreditation Board for Engineering Technology) standards. Her book, *The Language of Work: Technical Communication at Lukens Steel, 1810 to 1925*, is forthcoming from Baywood Publishing in 2009.