

## Providing pathways through writing

by Kay Harley

Mike Rose in *Lives on the Boundary* states:

Every day in our schools and colleges, young people confront reading and writing tasks that seem hard or unusual, that confuse them, that they fail. But if you can get close enough to their failure, you'll find knowledge that the assignment didn't tap, ineffective rules and strategies that have a logic of their own; you'll find clues, as well, to the complexities between literacy and culture, to the tremendous difficulties our children face as they attempt to find their places in the American educational system.... They know more than their tests reveal but haven't been taught how to weave that knowledge into coherent patterns. (8)

Rose suggests that "faculty, for the most part, do not provide freshmen with instruction on how to use knowledge creatively—and then penalize them when they cannot do so." (191) At SVSU, faculty frequently see students failing at writing tasks that seem simple and straightforward to us; students, however, say "teachers are asking me to do things I don't know how to do."

As this and the previous issue of *Literacy Link* demonstrate, faculty in many departments at SVSU are addressing this issue: they are teaching students how to weave knowledge into coherent patterns. Writing activities such as those described herein show students what they need to do to explore issues thoroughly and to communicate the results of this investigation. The acts of writing contribute both to students' understanding of the subject matter of, say, a course in mathematics or management, and to their development as clear and effective written and oral communicators, skills integral to success in most fields, be they mechanical engineering or public administration.

Other faculty at SVSU likewise should deliberately identify the conceptual activities students need to engage in as they try to understand and write about specific sets of data that are included in particular courses

in our disciplines. If we can identify these activities, we may be able to become much more helpful to students when we ask them to explore and write about the content of our courses.

While it may be appropriate to ask students to do things they don't know how to do, we also need to provide them the pathways. We want them to do well in the educational system and the professions they seek to enter; writing is crucial to both. Rose's accusation that we fail to show students how to use knowledge creatively is one we'd all do well to ponder. The examples our colleagues have shared in *Literacy Link* may provide strategies we could use.

### Work Cited

Mike Rose, *Lives on the Boundary: A Moving Account of the Struggles and Achievements of America's Educational Underclass*. New York: Penguin, 1990.

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# Developing writing skills in management

by Gail Sype

In recent years, the popular business literature has indicated over and over again that business students need to develop more effective communication skills, with both written and oral fluency badly needed. In an effort to provide students with the opportunity to develop writing skills in a context similar to that which they might encounter on the job, I am requiring students in my Organizational Behavior courses (Management 328) to do a project which requires both an oral in-class presentation and the submission of a group paper.

What I am requiring students to do is to choose one topic related to the course and conduct an in-depth analysis of that topic. Groups may choose their own topics; I encourage them to do so because they will work more enthusiastically if the subject matter interests them. Each group must clear its topic with me (to ensure that the subject chosen is accurately within the purview of the course) before developing its presentation or paper.

The group is expected to give a short presentation (approximately thirty minutes plus a question-and-answer period) in class and to submit at the same time a group paper (maximum length of eight double-spaced pages) which complements the oral presentation and which cites references. I indicate to the students that I expect the paper to be a coherent whole, with similar style throughout, rather than a "stacking up" of individual members' written contributions.

A primary goal of this assignment is to require students to independently analyze a body of material, synthesize the findings, and report them to an outside group. I ask for a group paper rather than individual reports because I feel it is a useful experience for students to generate a single output, such as a task force or committee might be asked to do within an organization. I also feel it is useful to set a page limit in order to teach students to prioritize the information and to be concise in its presentation. Asking them to create oral and

written presentations which complement each other requires them to think about the material they have identified and determine which media is best suited to the transmission of different types of information. This also makes them think about their peers and what might be the most interesting way of presenting that material to the "audience"!

## Case studies, writing and public administration

by Bradley J. Miller

In a recent conversation with a friend employed by the United States Department of State, I was not surprised to hear that the number one problem with new hires centered around communication. Most important were the problems caused by an alarming lack of writing skills among entry level employees. These problems are not new, nor are they unique to the public sector. They are, however, extremely important in a field where communication is key to successful decision making and successful decision making invariably involves actors that are separated by status, by function and by distance.

In the Public Administration concentration offered in the Department of Political Science here at SVSU, written communications have been given top priority in several classes. While it is important that theories and concepts be understood and mastered, without the ability to communicate this understanding through the written word, theoretical mastery may be wasted. Therefore, the type of writing that is emphasized is that which not only shows mastery of a topic, but the ability to present that mastery to another audience. The use of case studies in courses such as Public Personnel Administration will help illustrate this point.

Public Personnel Administration uses a series of 3-5 "real world" case studies as learning tools. Each of the case studies presents a problem scenario that could plausibly occur in the public sector. The student is instructed to

I have done such assignments as a student or committee member and found them useful (albeit frustrating at times), but this is the first time I have used the combined paper and presentation format in a class. Consequently, I do not have feedback or results to report at this time, but I will be glad to share them when the semester is over.

"play" a certain role, most often that of the personnel director. In undertaking this role, the student must demonstrate knowledge of the subject area being dealt with, come to a solution or decision to be implemented, and explain why he or she would take this path to solving the problem.

Initially, students are encouraged to take as much written space as necessary to discuss their decision, the process by which they came to this decision, the key issues, etc. However, as the course goes on, the student is forced to revisit these sometimes long answers and work toward summarizing them to a much shorter length. In fact, by the time the exercises are done, the student will be expected to be able to present any information to a "co-worker," "superior," or "subordinate" in a space limited to an 8 1/2" by 11" sheet of paper. The reason for this is simple: people are not as likely to read long memos in the public sector. As a former administrative superior said to me, "If you can't explain it in a page, it's too complicated for me to ever think about implementing."

This is not an easy thing to attempt to teach, nor is it easy for students. Students usually smile when told that they have a one page assignment. They are not smiling when they realize that it is much easier to be long-winded than it is to be concise and to the point. But it is necessary for our P.A. students to be confronted with this sort of writing if they hope to survive in the bureaucratic world.

## In mathematics, why ask why?

by Garry Johns

Since mathematics is such a sequential topic, a student must understand more than how to merely calculate answers to isolated problems; he or she must also know the thinking behind the calculation. A person who is uncomfortable with the terminology and unfamiliar with the mathematical processes will struggle as the subject develops. For this reason, I often ask students to explain why something is true. For example, "Why is the product of two negative numbers always greater than zero?" To illustrate this importance on understanding "why," William Dunham, in his book, *Journey Through Genius*, credits Thales of Miletus (ca 640 - ca 546 B.C.) as the "earliest known mathematician" because he was "the first scholar who supplied the 'why' along with the 'how'" (6).

There are three positive features for this approach of asking "why."

- 1) It allows students to see relationships in the material. For instance, an appropriate response to the question, "Why can you not divide 5 by 0?" is, "If there were a numerical solution, then the product of this number and 0 would be 5, an impossibility." An inappropriate response is, "Because that's the rule."
- 2) It can be used at all levels as illustrated by the following sequence of questions:
  - a) Why are common denominators needed to add fractions?
  - b) Why is  $x^0 = 1$  when  $x$  is a non-zero real number?
  - c) When solving for  $x$ , why do we isolate  $x$  in  $2x + 1 = 5$  but factor  $x^3 + x^2 + x = -1$ ?
  - d) Why is the mean more affected by outliers than the median or the mode?

- e) Derive the formula for Newton's bisection method for approximating roots.
  - f) Why is there no first real number after zero?
- 3) It develops proof-writing skills, an area with which students struggle in the upper level courses.

This idea is not new in the sense that many contemporary texts include appropriate explanations and many conscientious instructors discuss them in their lectures; unfortunately, many college students ignore material which is not on the test. Thus, in spite of the messages to "just do it!" and "why ask why?," writing can be used to hold students accountable for their own understanding.

### Work Cited

Dunham, William: *Journey Through Genius: The Great Theorems of Mathematics*. New York: Wiley, 1990.

## Formal report writing in mechanical engineering

by Enayat Mahajerin

Report writing is an integral part of all of my Mechanical Engineering classes. To be successful in such writing, students must be able to (a) use the library to locate supporting data,

(b) know how to document sources, (c) synthesize the data they find, and (d) write clearly. Although equations, graphs, tables, figures, and computer programs comprise most of a report, the presence of these alone won't adequately communicate the problem and its solution. The report is not *just* equations and illustrations: the writer must, through clear *written* language, describe the problem he or she has investigated and explain the results. A successful report should make the reader feel that the writer is the kind of person that is good to do business with. It must be clear, grammatically correct, neat, easy to read, and organized.

Reports written for Mechanical Engineering typically contain the following sections:

- Title;
- Name of Writer, Writer's Affiliation, and Date;
- Abstract;
- Introduction;
- Analysis;
- Examples;
- Discussion of Results;
- Conclusions;
- Appendices (if any);
- and References (if any).

In some cases one or more of these items may be deleted; however, the abstract and conclusions appear in every report. The abstract serves to give a general overview of the report and to get the attention of the reader, while the conclusions let the reader know what observations have been made about the subject which the writer investigated.

Completed reports are graded by looking at the quality of the report (normally 50%), grammar and presentation (normally 30%), and the accuracy of the results (normally 20%). By quality, I mean that the subject of the report must be substantial and suitable for the class.

It is preferred that the report be based on a real, quantifiable problem in the field of Mechanical Engineering, such as choosing the types of materials that will go into the manufacture of some part of an automobile. By grammar, I mean the clarity of the sentences and paragraphs—the equations and illustrations are not helpful without a written explanation. Presentation deals with how clearly and neatly the paper is written; a poorly written report does not deliver the intended message. By accuracy of results, I mean that the writer's conclusions must logically grow out of his investigations and be acceptable to a Mechanical Engineering professional.

Students who want models for written reports are urged to go to the Mechanical Engineering literature. Written reports and case histories in Mechanical Engineering, then, must be thoroughly researched, neatly formatted, and clearly written. These activities are important since students learn to disseminate information and communicate it effectively to technical and non-technical readers.

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