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ITP4949

Integrating Writing Requirements into MIS Courses

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ABSTRACT

This paper argues for integrating writing in the MIS/IT curriculum as an important and achievable goal for the overall development of our students and illustrates some examples of how writing assignments can be used in all of the MIS classes we teach.

INTRODUCTION

The goals of a university information technology (IT) education are multi-faceted. We want our students to excel in understanding hardware, software, communication technologies, database management, and so on. Perhaps more importantly, however, we should strive to help develop IT/MIS students from a liberal education standpoint. In other words, MIS students need to graduate with skills that allow them to be successful in whatever paths their lives and careers may take. The purpose of this paper is to argue that integrating writing in the MIS curriculum is an important and achievable goal for further developing our students and to illustrate some examples of how writing is now required in all of the MIS classes I teach, including both undergraduate and graduate courses. While I recognize that much of the following discussion is culturally specific to Western societies and especially to the United States (as discussed by Fox, 1994), I believe that anyone, regardless of nationality, who is interested in developing well-rounded graduates from their institutions may benefit from this paper.

IMPORTANCE OF WRITING REQUIREMENTS IN TECHNOLOGY COURSES

The decline in communication skills of college students is perhaps the most glaring need for including writing requirements in courses that traditionally do not have a writing component, such as in IT. Many educators lament that many (or most) students cannot express themselves well (e.g., Anderson, Cairns & Townsend, 2003; Bean, 2001; Epstein, 1999; Plutsky & Wilson, 2001), and this phenomenon threatens a nation's ability to develop citizens who can fully participate in political and economic processes. Moreover, when one cannot write well, it is often a symptom of a failure to think critically, which is probably more damaging than just a lack of communication skills (especially for IT workers). Bean argues that writing is a key way to develop critical thinking abilities and problem solving skills and notes that "integrating writing and other critical thinking activities into a course increases students' learning while teaching them thinking skills for posing questions, proposing hypotheses, gathering and analyzing data, and making arguments" (p. 1). Bean provides examples of effective writing assignments in several diverse disciplines, including physics, business writing, chemistry, economics and finance, engineering, and psychology. Moreover, Tynjala, Mason and Lonka (2001, p. 17) argue that "[w]riting is a tool for thinking and a tool for learning." Bonwell and Eison (1991) add that informal in-class writing exercises, which can even be used in large class sections, can assist in student acquisition of course content.

Hence, an argument can be made that improving a MIS student's writing abilities by requiring and guiding written assignments can enhance their communication skills and critical thinking abilities while simultaneously assisting their acquisition of the key concepts of a given course. Indeed a movement has developed in academia called "writing-across-the-curriculum" (in the U.S.) and "language-across-the curriculum" (in Canada and Great Britain) that calls for the inclusion of writing requirements in courses throughout a student's college curriculum (Bean, 2001). Moreover, this movement argues that the development of writing competence is a shared responsibility between the various disciplines and the language departments within a college or university (Tynjala *et al.*, 2001; Weimer, 2001). Accordingly, in the spirit of this crusade, I argue that those of us responsible for educating tomorrow's information resources managers should share in the development of these future leaders' writing and critical thinking abilities by incorporating writing requirements throughout our MIS/IT curriculums. This argument is supported by Nelson (1992) who contends that the development of key learning skills, including critical thinking and problems-solving abilities, is imperative in order for technical workers to keep up with rapid technological innovations.

CHALLENGES OF REQUIRING WRITING ASSIGNMENTS

Bean (2001) details some of the challenges related to incorporating writing into our courses, including some issues that are of particular interest to MIS educators. These issues include designing problem-oriented assignments, coaching students to be better writers and critical thinkers, commenting on and grading assignments, and dealing with grammar and sentence correctness. Bean also provides effective arguments to dissuade four possible misconceptions of requiring writing assignments: that time is taken away from coverage of content; that writing assignments are not appropriate for certain types of courses; that writing assignments will bury the instructor in paper grading; and that the professor might feel inadequate and not knowledgeable enough to be able to provide appropriate coaching on writing and grammar (a thought echoed by the faulty surveyed by Plutsky and Wilson, 2001).

In order to maximize the effectiveness of writing assignments, the instructor must carefully design problem-based assignments that generate in-depth analysis of the course content and develop critical thinking skills while creating a finished product that can be fairly graded in a manageable fashion. Carnes, Jennings, Vice and Wiedmaier (2001) present a checklist for creating writing assignments. This checklist includes: carefully planning the assignment and grading criteria; detailing the assignment in writing; explaining the grading criteria, preferably with a checklist; stating the details of when the assignment is due and in what format; providing opportunities for interim feedback; and using a detailed evaluation sheet that is very similar to the assignment grading criteria checklist. Gelinas, Rama and Skelton (1997) echo the importance of careful planning by identifying three critical planning decisions for integrating writing across the curriculum programs in a specific discipline: defining measurements of quality for student writing, selecting forms of communication appropriate for the discipline (such as a report to a manager), and selecting the appropriate mix of communication skills to teach in class.

Bean (2001) provides a detailed discussion of the importance of coaching the writing process, of writing appropriate comments on papers (e.g., positive feedback whenever possible) and of explicating and adhering to detailed grading criteria. The goal in coaching the writing process is to efficiently assist in the development of students' writing abilities by guiding the process without becoming overly burdened by

grading requirements. Bean (p. 237) notes the traditional means of coaching writing by making "copious, red-penciled comments on finished student products [is] almost universally regarded among composition specialists as an inefficient use of teacher energy." Rather, the instructor should identify potential problem writers as early in the process as possible by having them submit early drafts to peers and/or to the instructor for feedback. Another idea in guiding the process is to refer students to a university writing center, assuming one exists. Once the writing process is near completion, the instructor can make high-level comments that require revision for a final draft. Once the final draft has been turned in, the instructor should make minimal comments because the students will unlikely benefit from this unless they are required to make revisions. Instead of making detailed notes on the paper to justify a grade, an instructor should use a grading or scoring scale (also called a scoring rubric), preferably based on the same scale that was presented to the student at the beginning of the assignment as criteria for evaluating their work.

EXAMPLES OF WRITING ASSIGNMENTS

Bean (2001) classifies writing assignments as formal, or as informal, exploratory assignments. The use of informal assignments, such as in-class writing, journals, reading logs, creativity exercises, practice essay exams, early drafts of essays, and memos to oneself (e.g., to explain a process), can serve as a writing component in any course without burdening the instructor with a heavy grading requirement. The goal of these assignments is to get the student thinking about the key concepts of the course. Bean (p. 118) argues that "exploratory writing, focusing on the process rather than the product of thinking, deepens most students' engagement with course materials while enhancing learning and developing critical thinking."

Brief writing assignments during class time are one way to engage students in an active manner and seem to be appropriate for all types of courses, including in IT education. For example, when teaching data modeling, we could require our students to think about and summarize their thoughts on the process of creating a well-designed data model rather than just grading their finished product (such as their entity relationship model). Such an assignment might help the student to realize that data modeling is a creative process that often requires iteration and that the finished product should constantly be challenged as to its robustness. Even if an individual student did not actually make these exact points, an ensuing class discussion (perhaps in lieu of grading their writing) could help the student to understand that data modeling is just as much a process as it is an end product.

Formal writing assignments include short write-to-learn assignments (also called microthemes), thesis-based term papers, formal exploratory essays, reflection papers, and a variety of other assignments that can be tailored to specific disciplines, such as poetry in psychology or creating word problems for mathematics class (Bean, 2001). Microthemes can be an effective way to assess how well the class as a whole is learning (or not learning) the key conceptual material in a course. Bean provides an example of a psychology professor presenting a scenario of cats reacting to being fed and asks the students to write an essay where the student applies several behavioral theories from psychology to explain the scene. Similarly, in a database course, we could ask our students to critique a database design that has several faults, such as not being properly normalized and/or omitting relationships between entities that would be needed to facilitate certain key queries.

Thesis-based term papers seem to be very appropriate for MIS courses that survey the various information technologies and discuss the implications of these technologies from different perspectives, such as from a strategic, managerial and organizational standpoint. In thesis-driven papers, the thesis is usually presented near the beginning of the paper where the purpose of the remainder of the essay is to present appropriate evidence and make persuasive (i.e., logical) arguments in support of the thesis. Assignments requiring a thesis are usually superior to simply asking students to write about a general topic appropriate for the class. Such a general course-related assignment would likely not require the student to develop the deep analysis and synthesis that is normally the product of effectively developing and defending a specific thesis about a topic. An example of a thesis-governed assignment I plan to use in a graduate course will be presented in the next section of this paper.

EXAMPLES OF WRITING ASSIGNMENTS IN MIS COURSES

I have been teaching MIS courses for over seven years, and I have always required some type of writing assignment. For MIS survey courses at the undergraduate and MBA-level, the assignment has been in the form in the form of a semester term paper. For undergraduate systems analysis and database courses, I have required a semester group project with a final report write-up. More recently, I taught a graduate-level database course that required both a semester group project report and an individual term paper. While I have always been satisfied that I was making the appropriate decision to require written assignments, I often wondered if I was creating and evaluating these assignments appropriately to maximize their effectiveness for student learning and to meet my objectives for the course.

When the university where I work advertised a campus-wide writing workshop (Anderson *et al.*, 2003), I seized the opportunity to learn more about incorporating written assignments into the courses I teach. Many of the ideas presented in this paper were introduced in the Bean (2001) text and incubated during the four day workshop. As a result, I have revised my syllabus for the fall semester of 2003 in a graduate-level management of IT course (for MBA students) to require an enhanced version of the semester term paper assignment that I used previously. Moreover, I have completely revamped the syllabus for the undergraduate data management course to require both a semester group project (and written report) and an individual short paper. These assignments will be outlined in the remainder of this paper.

The objectives of the short paper requirement in the undergraduate database course are to give the students more practice in writing, in critiquing their peers' writing and to encourage their participation in extra-curricular activities. Students will be required to attend at least one of the many outside speaker presentations sponsored by the Miami University Business School during a semester. Some of these events have very enlightening speakers, but the sessions are often sparsely attended because the students do not often perceive the benefits of voluntarily attending events that do not give them classroom credit. Requiring them to attend one of these educational events and to write about their experience should help in their overall personal development. The students will write a short 300-400 word review of the specific event they attend that includes a synopsis of the presentation, an analysis of the speaker's thesis, and some personal reflection about how the speaker's topic was relevant to their business school education. Moreover, it is hoped that some students will be so enlightened by these presentations that they will plan to attend more outside speaker events in the future (especially since this is a sophomore-level course).

The objective of the semester group project report requirement in the undergraduate database course is to require the students to think about the business purpose for investing in data management systems and to consider the organizational context of the problem domain for which they are designing a database. I will give them explicit guidelines of the types of issues they must discuss and will deduct a significant amount off their project grade if they fail to address this requirement. While the main focus of their semester project is to properly design an effective relational database, this requirement will force them to think about how communications are part of every systems development project. I do realize that this written part of the project package (which will also include data models, query results, etc.) will likely be composed by only one (or maybe a couple) of the team members. Hence, they will also be required to present their project to the class, which will at least require them to practice their oral communication skills (because each member will be required to talk).

The objective of the graduate-level management of IT course is to require students to research an appropriate IT topic over and beyond what is covered in their textbook and to focus on the strategic, managerial, organizational and social implications of investments in IT. The previous sentence is essentially the essence of the assignments I used

in prior graduate course term paper assignments, but the current assignment will also require the student to develop and defend a clearly defined thesis in their paper. The requirement of a thesis will force the student to think in terms of research questions rather than just creating a "data dump" (Bean, 2001, p. 90). In essence, this format requires a deep analysis and synthesis, the type of higher-order thinking we should strive for in all of our IT courses.

In addition to a thesis, the assignment requires a sequence of deliverables that force students to work on the paper throughout the entire term. The first deliverable is to propose a topic and problem statement early in the semester that includes a discussion of the process of how they formulated their problem statement. Requiring students to write about how they formed their problem statements will force them to think about the development of a problem statement as process rather than as a finished product. Moreover, it provides feedback so I can guide and coach their problem development as a process of asking researchable questions and even helps to prevent plagiarism because the student will not be able to simply borrow (e.g., copy and paste from the Internet) or purchase a problem statement. I will review and make detailed, written comments about this topic and problem statement that will have to be resubmitted with all subsequent submissions.

The second deliverable due around mid-semester requires an informal outline, a draft of their introductory paragraph(s) that includes a thesis statement, and submission of all drafts created thus far in their writing process (as further protection against plagiarism). Once again I will make written comments that must be addressed in later submissions. The third deliverable due two weeks before their final submission is a draft of their complete paper for a fellow student to review and critique within the following week. The first student (i.e., the author) then has one week to attend to their cohort's comments (either in the paper or on a separate response sheet) before turning in their final draft for my grading. This final draft must be part of a package of all prior submissions that I have reviewed, including my comments.

By requiring all previous drafts and submissions, I can assess whether they made an honest effort to improve their product as they went through this process. I am confident that this explicit sequence of steps and deliverables will result in a deeper analysis of their chosen topic, which inevitably will enhance their learning of IT while helping to develop their writing and argumentation skills. Moreover, as suggested by writing advocates (e.g., Bean, 2001; Carnes *et al.*, 2001), I will provide a detailed set of grading criteria with the assignment outlining the requirements for an "A" paper and a grading rubric that provides the checklist I will use for a quick and clear assessment of the paper as I read it to determine their grade. Thus the student will know up front what is expected from them. For example, one of the criteria is a statement that "the problem statement is well-developed." On the rubric, I can check "yes" or "no" or "maybe" and provide a brief explanation for answers other than "yes." Another key criterion is that "the evidence to support the thesis statement is relevant and convincing." This method is likely to be a much more effective means of assessing each paper rather than making detailed notes in the margins noting relatively minor issues, such as clarity and grammar.

CONCLUSION

This paper argues that writing assignments are appropriate and beneficial in MIS and IT courses, and some specific examples of writing assignments are discussed. Plutsky and Wilson (2001) suggest some critical success factors for writing across the curriculum, including developing standards for writing and assessment and providing training programs for faculty. Hence, I call for other IT educators to share their experiences in requiring written assignments, perhaps via panel discussions at conferences and by creating a shared knowledge repository (such as with a Web site). Moreover, by the time this paper is presented at the next IRMA conference, I will have completed two more semesters of integrating writing in my courses and I will be able to discuss these experiences.

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