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Introduction

Research suggests that IS people have lower social needs than people in other occupations. Indeed, personal research on what motivates IS professionals reveals that interacting with other people and establishing relationships are some of the lower-rated motivational factors. Perhaps then, it should not be too surprising to learn that one of the most often heard complaints of IS majors relates to the inadequacy of their communication skills.

Corroborating evidence is abundant. For example, IS departments, consulting companies, and computer vendors often recruit people who do not major in IS. These firms instead overlook the best and brightest IS students to recruit non-IS students that have developed interpersonal skills through other means -- experience with student organizations, fraternities or sororities, or membership in student chapters of professional business societies on campus. When asked why this is the case, recruiters indicate that the ability to communicate effectively is a critical skill in their organizations, and that the interpersonal skills possessed by their candidates were fundamentally more important than the technical skills possessed by IS graduates. Recruiters feel that technical deficiencies possessed by their newly-hired employees can be overcome in training programs, whereas deficiencies in the ability to communicate effectively present a much larger training challenge. This is consistent with recent literature which reports that of all skills, the following are the most sought after by employers [1]:

- listening and oral communication
- group effectiveness: interpersonal skills, negotiation, and teamwork
- adaptability: creative thinking and problem solving
- personal management of career development

Consequently, we as IS educators owe it to our students to begin to consider developing these skills within the IS curriculum.

A Comparison of IS Practice and IS Education

We as IS faculty face a dilemma. We are under increasing pressure to provide more and more technical training to make sure students can get placed, but at the same time there is a critical need to address communication skills. Often, the response to this need is to add courses like technical writing to the IS curriculum. In our experience, these efforts have met with mixed results since the experiences that are offered in the classroom are typically unlike anything one might experience in industry.

So, how are we to address this dilemma? We suggest that the current IS education processes are in dire need of reengineering and cycle time reduction. To this end, we have been involved in a project to achieve advances in interpersonal communication skills and teaching effectiveness *in parallel* with material covered in the traditional IS curriculum [2, 3].

The courses we have focused our efforts on are MBA courses for IS majors -- Advanced Information Systems Development and MIS Management. Rather than traditional lectures, quizzes, exams, and term papers (all of which typically focus on technical course content), we have focused our efforts and those of our students on two dimensions: content and *process*.

It is the process portion of the courses that we feel adds a unique (and critical) component to our students' education. The process portion stresses to students the importance of being able to identify when the application of the content is appropriate, and how to communicate the content effectively to both IS and non-IS people.

In addition to reading assignments from textbooks and journal articles as would normally be the case, in order to provide a foundation for the interpersonal skills training (i.e., the process), students study from a text which provides a discussion of fundamental communication models [3]. The rationale for why and when to use the models, as well as a discussion of how to use them is included for the following communication challenges:

- effective explanation
- resolving doubt
- responding to questions or confusion
- dealing with indifference
- handling conflict and overcoming objections
- asking questions to uncover more information
- responding to supportive comments and gaining agreement
- bringing communication to an effective close
- the importance of non-verbal communication (i.e., body language)

The use of these models is driven home through the active learning method of role playing discussed next.

Active Learning Through Role Playing

Learning is not a spectator sport. Active learning helps students apply process skills to their daily lives and prepares them for future jobs. Role playing is an effective active learning method for the following reasons [4]:

- students practice what they've learned
- principles from the course can be illustrated
- students develop insights into human relations issues
- the role plays provide a concrete basis for follow-on discussion

- role plays arouse and maintain interest

The first class meeting begins with a discussion of the importance of technical skills and interpersonal communication in the IS industry. Since the course is usually unlike anything experienced by MBA students, it is important to take the time to explain the rationale for the course design. This gives the students an understanding of the purpose for the teaching methods, minimizes the feeling that the role plays are just an academic exercise, and shows the value that we as instructors place on the teaching methods. The first session ends with the students self-selecting into teams of three, to which they then give creative names. Sharing these typically humorous team names with the class helps to reinforce the constructive and fun atmosphere of the course and helps to lower the inhibition level of students (this is important for the impending role plays).

On subsequent class meetings, teams are randomly selected to participate in that session's role plays. In a typical class session of 90 minutes, three role plays can usually be conducted. The role plays consist of common IS "business as usual" scenarios. The student team may be meeting with a financial VP, CEO, CIO, an end-user, fellow programmer or whoever is appropriate for the particular situation. The student teams are then assigned the roles of newly-hired MBA systems analysts, applications developers, outside technical consultants, outside managerial consultants, etc. The teams are then given an objective to explain, persuade, or overcome objections to a particular problem. Some examples of problems or issues include: how to convert existing legacy applications to a client-server environment; what information architectures are, and why they are important; or how end-users might participate in prototyping or rapid application design. The students are expected to communicate (using the communication models from the text) the technical course content they have studied from their assigned readings that is appropriate for the particular role playing scenario.

This type of exercise requires the instructor to assume different roles and in essence show ignorance of the material. This forces the students to explain things. Students are required to communicate their position based upon good rationale and logic as opposed to saying, "According to the text book, it says that...," or, "According to article X that we've just read..." Essentially, they have to be able to develop an argument for someone who will debate the issue with them.

The scenarios created as well as the act of role playing can cause a great deal of intensity, excitement, stress, and amusement for all members of the class. This is not a bad thing. In fact, the intensity generated by role playing helps to increase the effectiveness of learning. Major "faux pas" made by the students are especially effective for generating "teachable moments." It is stressed heavily in class that mistakes are common in role playing and that it is better to make mistakes during the role play, rather than on the job later. At these times, the role play is stopped and a discussion between us, the role playing team, and the observing class ensues. Following this discussion the role play is backed up and replayed.

In addition to these discussions in real time, a short discussion follows each role play in which both the content and process of the team is analyzed. In addition to the discussions, each role play is videotaped. This allows the students to review the tape between class meetings and assess their performance. This is an especially effective form of feedback since students become their own critics on issues like body language, unusual mannerisms, the manner in which they present their ideas, etc. An additional benefit of videotaping is that it provides a chronicle of each student's progress in communicating effectively. The improvement in the students' communication abilities between their first and last role play is often dramatic.

Midway through the semester or quarter all students are required to form new teams. It is a good idea to again let them self-select teams. The only criteria we have is that they have to be on a team that does not include both of the two previous team members. This self-selection provides a subtle yet clear form of feedback in that the people who have a better reputation for effective performance in the role plays are quickly selected. Self-selection and feedback of this type is commonly found today in IS organizations employing self-directed work teams [5].

Writing Effectively for Business

It is important not to neglect written communication. As an overall approach to help students learn the difference between writing a research paper and a management report, students are required to pick any IS topic that has been covered in class and prepare a research paper on it. They are then required to convert their research papers into management reports, understanding the major differences between the two. For example, we stress that in management reports, all *recommendations* are located at the front of the paper, whereas in a research paper, *findings* are typically saved for the end. Writing assignments like this help students to make the transition from academic writing to the written communication style required in industry. In addition, for those few students that remain uncomfortable with verbal communication of role playing, these writing assignments offer an opportunity to buoy their course grades.

In-Class Executives: One Step Closer to Reality

Towards the end of the class term, in recognition of a term's worth of hard work and practice in effective communication, a particularity good strategy we employ is to invite one or two IS industry executives to the class to conduct a simulated staff meeting. Prior to their visit, we request that they provide us with a description or background information on a current problem or challenge facing them. The students then take this information as an assignment for which they develop potential solutions which can be presented for the upcoming staff meeting.

Reengineered Performance Evaluation

The purpose of traditional tests or quizzes, of course, is to have students study class material so that they will be prepared to pass the test or quiz. In the case of role playing,

students are perhaps are even more motivated to study the material because they know that they are going to have to sit down and do a role play in front of their peers. Grading consists of students conducting a peer evaluation of each session's role playing teams, as well as a self-appraisal by each team. The class evaluates each role player in terms of content and process. At the end of each class, each team that conducted a role play is then ranked by the class. Self-appraisals require each of the members on the team to rank each of their teammates in terms of their preparation and contribution to the team performance. All evaluations are anonymous, and scores (in aggregate only) are shared individually with each student at the next meeting of class. This again is a more realistic situation in that peer evaluation is often a very direct form of feedback. Also, the "luck of the draw" of the role playing assignment and how a student is interacting with his or her teammates on a particular evening are variables that can determine whether a team's performance is good or bad -- much like the real world. Luck of the draw, project assignments, which co-workers get assigned on teams, and ability to work in a team environment are all factors which affect the performance of IS workers in industry.

Concluding Thoughts

The net result of our "reengineering efforts" is that we typically end up with a class full of students which are highly motivated to be prepared to do well in class and create a unique learning experience. Our student surveys show that their interest level and overall satisfaction with the course has increased 0.4 to 0.6 points (on a five-point scale). In addition, comments from students -- from MBA students with little or no work experience, to Executive MBA students with several years' of management experience -- have been encouraging. Role playing in the classroom is an emotionally as well as cognitively demanding teaching method to employ. We often here from students that this course is one of the more demanding courses they have taken, but well worth the effort. It is important to understand that initially some students will be less comfortable with this mode of active learning than other students. Reassurance, as well as a good dose of humor from the instructor throughout the course go a long way in facilitating active learning through role playing and help to insure that students see the learning experience as enjoyable as well as beneficial.

End Notes

[1] ASTD. (1988). *The Skills Employers Want*. American Society for Training and Development.

[2] For a more complete treatment of our reengineered classroom, see Wetherbe, J. C. and Janz, B. D. (1994). Reengineering to Reality: A Parallel Processing approach to Achieve Communication Skills for IS Majors Without adding a Single Course, *Journal of Education for MIS,* 2(*1*), 5-24.

[3] The notion of parallel processing is central to cycle time reduction. See Wetherbe, J. C. (1995). Principles in Cycle Time Reduction: You Can Have Your Cake and Eat It Too. *Cycle Time Research,* 1(*1*), 1-24.

[4] Wetherbe, J.C., & Wetherbe, M.B. (1993). *So What's Your Point?* Minneapolis, MN: Mead Publishing.

[5] Refer to Wilbert McKeachie's, *Teaching Tips: Strategies, Research, and Theory for College and University Teachers*, ninth edition. Lexington, MA: D.C. Heath and Company, 1994.

[6] For an introduction to SDWTs in IS see Janz, B.D., & Wetherbe, J.C. (1994). Self-Directed Work Teams In IS: Insights Gained From A Multi-Method Approach, MISRC Working Paper Series, MISRC-WP-93-06, MIS Research Center, Minneapolis, MN.