"I thought it was pretty good": Student Perceptions of Communication Effectiveness

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Abstract

Engineering students, though technically, competent, are graduating without the necessary personal skills to be effective in the workplace. That is, they are lacking competence when it comes to communication skills. To improve engineering students' communication skills, interdisciplinary collaboration between faculty and graduate students in the College of Engineering and the College of Humanities fosters an atmosphere whereby students learn technical, engineering science through communication. Specifically, students are required to give oral presentations, write technical reports and proposals, and work in teams in an effort to hone interpersonal and leadership skills. With respect to oral presentations, students give formal team presentations in several different, required courses. The audience ranges from the course professor and graduate teaching assistants only, to the entire class of 60 plus students. All presentations are video-taped. Students are then required to meet with a communication consultant to view their video-taped presentation, and receive oral and written feedback. Through previous experiences providing said feedback, it has become apparent that students provide various attributions for behavior. Specifically, students are quick to offer external attributions (luck, task, situation) for unsatisfactory performance. The purpose of this research is to more closely examine students' expressed attributions for both satisfactory and unsatisfactory performance, and to determine, what, if any, relationship exists between students' perceptions of the feedback experience and expressed attributions. The results will facilitate understanding of how students make sense of individual and team performance, as well as how they perceive the offering of feedback. We will work toward understanding how these interpretations further influence student learning and future performance.

Introduction

Engineering students, though technically competent, are graduating without the necessary professional skills to be effective in the workplace. Specifically, new engineers entering the work force are lacking expertise with respect to communication skills. As a result, many campuses across the country have devoted time and effort to developing and incorporating a communication-based curriculum, including interpersonal communication, oral communication, written communication, and teamwork instruction.

Educators generally adopt one of four approaches to improving the communication competence of engineering undergraduates: (1) a required communication course, (2) a communication lab, designed to provide assistance to students on a voluntary basis, (3) integrated communication and engineering courses, or (4) an integrated communication and engineering degree program.

In the Department of Mechanical Engineering at the University of Utah, a series of engineering courses have been revised to include significant communication components, such that students will have received instruction in and practiced their oral, written, and interpersonal communication skills in at least one class in each of their four years as engineering undergraduates. Upon graduation, these students will be better prepared for the non-technical aspects of their engineering careers.

The purpose of this paper is to highlight one piece of mechanical engineering students' communication competence, oral communication. Students are required to demonstrate competence in formal presentation skills and to accomplish this goal, they receive direct instruction in the classroom and prepare and deliver a formal team presentation. These presentations are videotaped so that students are able to view their performance and engage in a face-to-face feedback session with a trained oral communication consultant. The purpose of the feedback sessions is twofold: to engage the students in making sense of their own and their team members' performance, and to facilitate improvement through the offering of guidance, tips, and techniques for professional oral communication.

Our goal in conducting this research, then, was to understand how students perceive their individual and team performance. Specifically, we were interested in learning students' perceptions, as well as the reasons for those perceptions. That is, through feedback session interactions, we discovered that students offered various attributions for positive and negative performance. We attempted to understand not only how students viewed their performance, but also understand why they felt they performed satisfactorily or unsatisfactorily.

Attribution Theory

Attribution theory has a long history in the psychological literature including psychotherapeutic and medical applications[1-4]. Developed from studies of person perception (those that emphasized concern about what people thought of one another and how they judged one another), attribution theory shifted the focus from people's ascriptions of personal qualities to causes for people's behaviors[1]. Heider provided the rationale for this shift through claiming that perceivers need to determine the causes of those things they see happening; he further explained that causes can be personal or environmental[2]. This principle of explanation has been formalized by numerous scholars through the development of attributional models that have subsequently been applied to both clinical and educational practice.

These applications draw on various attribution models including normative, process, and effects based models. Respectively, the aforementioned models use attribution theory as a means to explain what people can and should do, what they actually do, and what effects attributions have on such variables as affect, motivation, and performance. Attributions, the reasons people provide for their own and others' behaviors, are important because they reflect perceptions of causality, serve to protect and enhance self-esteem and impact motivation and expectations for future performance[5].

Several studies have linked attributions with ego, or self-concept[6-8] such that attributions serve to protect one's self-concept. In particular, the self-serving effect[9-11] has shown that individuals attribute success internally and failure externally. That is, individuals attribute success to effort or ability, while failures are attributed to the task or other circumstances beyond individual control. In addition, attributions have been linked to motivation[12-14]. Findings of these studies point to the impact attributions can have on motivation to put forth effort. That is, attributions influence motivation such that students who believe success depends more on effort and other internal attributes will be better learners and likely experience greater success[5].

Presentation Feedback

Oral communication is best taught through providing direct instruction in the classroom, providing students the opportunity to practice their skills, offering feedback and advice, and providing them with an opportunity to try again. It is not surprising that many students experience anxiety when faced with a formal oral communication assignment. As a result, it is imperative that students receive clear instructions and specific, constructive criticism regarding their performance. Much of the research on feedback (provided to students) has emphasized self-esteem and its impact on reactions to positive and negative feedback[8], the dimensions of feedback[15], the effectiveness of immediate and delayed feedback[16], and feedback and communication apprehension[9].

Stake (1982) investigated reactions to feedback based on individuals' self-esteem. Drawing from the idea that individuals either strive to maintain their self-image (consistency theory) or are motivated to enhance their self-evaluation (self-enhancement theory) he tested whether or not high self-esteem and low self-esteem individuals differed in their reactions to positive and negative feedback, where performance was concerned. Findings indicate that individuals' performance was facilitated more by feedback that was consistent with their self-concept. In other words, those with low self-esteem expected and responded better to performance improving feedback than those with high self-esteem. This suggests that feedback that is inconsistent with self-esteem level is confusing and can be disruptive to task performance even if the feedback is positive.

Other studies have investigated the dimensionality of feedback, specifically, characterizing the positive and negative feedback constructs[15]. The impetus for this research is a result of inconsistent reactions to feedback. That is, in studies of feedback's impact on performance, inconsistencies resulted such that participants receiving negative feedback regarded the information as helpful and adjusted performance accordingly.

Others, however, viewed the information as inappropriate and sometimes hurtful. So, the purpose of Geddes' and Linnehan's (1996) work was to understand the various dimensions of both positive and negative feedback, such that individuals receiving similar feedback (i.e. positive or negative) could react differently. Two dimensions were identified for positive feedback: no instruction/praise vs. instruction/guidance and process vs. product focus. Feedback messages at either end of this continuum suggest a need for improvement, demonstrated by the offering of suggestions or instructions, or no need for improvement, exemplified through the offering of praise for performance. In some contrast, negative feedback can be best understood through four dimensions: explicit vs. ambiguous, destructive vs. constructive criticism, low vs. high knowledge of conditions of performance, and mixed vs. clear standards of evaluation. This research points to the ways feedback messages are delivered, and thus received by both exceptional and poor performers.

As has been suggested through highlighting the two previous studies, most feedback research has emphasized post-performance comments. This is especially typical of feedback associated with speech criticism. It is still unclear, however, as a result of these studies, whether this type of feedback serves to increase motivation and improve performance or if it has no effect whatsoever. Thus, King et al. (2000) examined immediate and delayed feedback as they relate to public speaking performance. Findings demonstrate that immediate and delayed feedback are both useful, but for improving different aspects of the presentation. Specifically, rehearsal and immediate feedback are important for improving aspects of delivery, while delayed feedback is important to improving issues related to content such as organization and evidence.

Finally, one study coupled oral communication feedback with attribution theory[9]. Booth-Butterfield examined communication apprehension, feedback and attributions about feedback to determine how best to facilitate improvement in students' oral presentations. Findings suggest that communication apprehension has little impact on the attributions students make about feedback. Specifically, those who succeeded were likely to attribute the cause as internal and under their control (trait, ability, effort) while those who were unsuccessful attributed their performance to external circumstances (situation, task, luck), thus demonstrating a clear self-serving effect.

Present Case: Communication in Mechanical Engineering

To improve students' communication competence, the College of Humanities and the College of Engineering have collaborated to create a series of required engineering courses that contain an integrated communication component. Communication is integrated such that engineering undergraduates speak about and work on projects as they would in the workplace. Specifically, Mechanical Engineering 1000, An Introduction to Design, is a project based course in which students work in teams to learn the basics of design, computer programs, and communication fundamentals while competing against one another to design a device in accordance with various parameters and win the competition. As a part of this process, teams formally present their work twice throughout the semester. These presentations are delivered to the professor and

engineering teaching assistants (since this is a competition, they are unable to present to the entire class) and they are videotaped. One week after the presentations have been delivered, the teams meet with the oral communication consultant (a doctoral student from the Department of Communication) to view their tape and discuss their performance.

Communication consultants have worked with this course for several semesters and throughout these feedback sessions, it was noted that students were quick to offer reasons or explanations for why they performed in a particular way upon receiving feedback from the consultant. This is particularly true when students receive negative feedback. That is, when the consultant recommends improvement or criticizes students' performance, students are quick to respond with a reason as to why their presentation (or a particular aspect of it) was less than satisfactory. Most often, these attributions are external, relating to the self-serving effect[10-11] whereby individuals attribute success internally and failure externally. Because the goal of providing performance feedback is to enhance students' performances and learning, we are particularly concerned with the impact such attributions have on students' interpretations of feedback and how these interpretations influence learning and future presentations, since the usefulness of feedback is likely a function of the attributions students make about the messages rather than the exact messages themselves[9]. In other words, though students' external attributions may serve a defensive function, they do little to help students recognize the ways they can improve.

Research Questions

Since our goals in this study were to determine students' perceptions of their own and their team's performance, as well as their perceptions regarding the usefulness and effectiveness of the feedback they received from the communication consultants, we advanced the following research questions:

> RQ1: What types of attributions do students offer for performance?
> RQ2: How do students' perceptions of the feedback sessions relate to their expressed attributions?

Methods and Demographic Information

Surveys (Appendix A) were distributed to students enrolled in Mechanical Engineering 1000 in Spring and Fall semester 2004 to assess perceptions of their performance and of the feedback they received. 102 surveys were returned and analyzed.

Of the 102 students, 38 were enrolled in Spring 2004 and 64 were enrolled in Fall 2004. 95 students were male and four were female. The majority of students ranged in age from 18-27 (92.9%) and most were either Freshman or Sophomore in official class standing (76.8%) at the time they took this course. Finally, most were full-time students or worked as an employee in a non-engineering field (68.7%).

Results

RQ1: What types of attributions do students offer for performance?

We found that students offered one of four attributions for performance: internal attributions to effort, internal attributions to ability, external attributions to task, and external attributions to luck. Specifically, students offered mostly internal attributions (related to effort) for both individual and team performance (Table 1).

Table 1
Attributions for Individual and Team Performance

Attribution Offered	Individual Performance	Team Performance	Total
Internal - Ability	34	26	60
Internal - Effort	44	54	98
External - Task	4	6	10
External - Luck	1	0	1
Other	2	2	4
Missing	17	14	31
Total	102	102	204

RQ2: How do students' perceptions of the feedback sessions relate to their expressed attributions?

No significant difference was found through comparisons of feedback perceptions and expressed attributions. However, Table 2 highlights students' responses regarding feedback perceptions as indicated on 1-5 Likert-type scale. Specifically, students were asked to evaluate the feedback by circling a number 1-5, with 1 being strongly disagree and 5 being strongly agree. The items included on the survey included: (1) The suggestions for improvement regarding our oral presentation were clearly explained; (2) The successful aspects of our presentation were clearly explained; and (3) The oral communication consultant is a credible source to provide this feedback.

Table 2
Perceptions of Feedback

Value	Suggestions for Improvement	Successful Aspects of Presentation	Consultant as Credible Source	Total
1	0	1	2	3
2	2	3	1	6
3	14	19	11	44
4	40	35	34	109
5	42	40	50	132

These results indicate that although no significant relationship was found between perceptions of feedback effectiveness and expressed attributions, most students found the feedback sessions useful, with respect to clear explanations of suggestions for improvement and successful aspects of the presentation, and they also viewed the oral communication consultant as a credible feedback provider.

Discussion

The results of this study were surprising and due to the lack of statistically significant findings, we offer tentative conclusions. First, and contrary to our prediction, students offered more internal attributions than external attributions. Further, they were as likely to offer internal attributions for individual and team effort and for both exemplary and poor performance, refuting Booth-Butterfield's (1989) claim that poor performance will be attributed externally. Perhaps this is due to the fact that students realized that individual efforts contribute to overall team performance, as evidenced through the videotaped presentation. Also, students attributing performance internally to the effort they expended, rather than ability or trait, supports the notion that engineering students prioritize engineering assignments over communication assignments and thus, are not surprised when their performance on the oral presentation was less than satisfactory.

Second, most students viewed the feedback sessions and the feedback provider favorably and no difference was found between these perceptions and the attributions students offered. This leads us to believe that the students' viewing of the videotape and the consultant engaging them in a discussion about individual and team performance fostered a sense of ownership for the presentation's success or failure and facilitated thorough understanding of ways to enhance and improve future performances. In addition, we can speculate the feedback provided was delivered effectively with respect to the feedback dimensions offered by Geddes and Lennehan (1996), such that negative feedback was explicit and constructive, with clear standards of evaluation. These findings also point to the consistency exhibited through the feedback sessions and students' expectations of performance, thus supporting the work of Stake (1982). In other words, because these students attributed their performance to the effort the expended, feedback that reinforced this degree of effort was accepted positively.

Future Work

Since students attributed formal oral presentation performance to the effort they put forth, and had positive reactions to the feedback sessions, the next important step is to determine if this experience (and the realization that effort is required for successful oral presentations) will motivate students to perform better in the future. As a result, future work should track students' improvement as they progress through the integrated courses.

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