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Teachers' emotions and test feedback

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A qualitative methodology, grounded theory, was used to examine the thoughts and emotions of teachers who delivered test feedback to students. The goal of this study was to develop a conceptual model of test-feedback processes that was grounded in observational and interview data. Seven college teachers were interviewed and observed as they planned and conducted test-feedback sessions. During the test-feedback sessions, these teachers experienced a variety of negative emotions when they encountered challenges from students in the classroom. Strategies developed by these teachers reflected their attempts to organize test feedback in ways that were consistent with their goals and beliefs, but that also limited their negative emotions and stress during the feedback session. These findings are discussed in terms of their contribution to existing research on teachers' interactive thought and emotion and on the ways that teachers cope with stress in the classroom.

Introduction

Testing is a ubiquitous, and often dreaded, part of college courses in the United States. Following testing, many college teachers allocate additional class time to test feedback. The objectives of the feedback session, in most cases, are to provide information about student performance and to provide the student with an opportunity to learn from his/her mistakes on the exam. Recent studies (Kulhavy & Stock, 1989; Mory, 1992), however, have found that such feedback has limited effects on subsequent student achievement. Other investigators (Gagné et al., 1987; You & Schallert, 1992) have suggested that students' emotional responses might interfere with processing a teacher's verbal comments and feedback. Moreover, the emotional arousal that students experience in response to test-feedback sessions may produce reciprocal effects on teachers, especially if students express their emotions publicly (Stough, 1993).

Tests are commonly perceived by students as stressful, and student test anxiety has been the focus of study of many investigations (e.g., Sarason, 1980, 1984; Weinstein, Cubberly, & Richardson, 1982; Wine, 1980, 1982). However, *teacher* anxiety about administering tests or delivering test feedback has not been investigated. Little research has probed the causes and consequences of teacher emotion. Studies of teacher thought and decision making have primarily focused on planning, cognition, and classroom management strategies.

We chose to study test feedback because of our interest in teachers' affective processes. Also, our experiences as teachers, as well as conversations with other teachers, had indicated that such sessions might be a rich data source. Testing is a problematic experience for teachers as well as students, requiring teachers to reflect upon the adequacy of the tests that they administer, the emphasis that they place upon testing, and the subtle shifting in class dynamics that occurs when the teacher takes up his or her

role as an evaluator of student performance. Moreover, most research on testing has focused on its impact on students (cf. Crooks, 1988), leaving the teacher's role in testing relatively unexplored. Observing how teachers manage test-feedback sessions could, thus, have practical implications in determining what type of feedback structure is generally most helpful to students.

The goal of our study was to develop a conceptual model of test-feedback processes that was grounded in observational and interview data. As suggested by Strauss and Corbin (1990), we selected initial research questions to direct our data collection and analysis. These general research questions were framed broadly in order to give us adequate flexibility to investigate emerging phenomena:

1. What kinds of beliefs do teachers have about test feedback?
2. How do past experiences and beliefs shape test-feedback practices?
3. What emotions do teachers experience as they prepare for and conduct test feedback and what effects do these emotions have upon the feedback session?
4. How are teachers' responses affected by student reactions?
5. What, if any, coping strategies do teachers use to manage their own emotions and those of their students?

Theoretical background

As is common in qualitative research, several rather disparate lines of research informed our study's perspective on test feedback processes. Because our investigation was the first, to our knowledge, to examine teachers' emotionality in testing situations, we drew broadly from these areas, using them as a general outline, rather than a linear conceptual framework, to guide us theoretically. First, we considered models of students' processing of exam feedback (e.g., Bangert-Drowns, Kulik, Kulik, & Morgan, 1991; Kulhavy & Stock, 1989; McGinn & Winne, 1994) that identified influences on feedback effectiveness. In this body of research, specific feedback characteristics have been found to influence students' knowledge gains. Intentional feedback, in which the student is informed about the appropriateness (quality, correctness, etc.) of his or her performance, typifies most traditional instructional settings (Bangert-Drowns et al., 1991). In addition, the amount of delay before a student is given feedback (Kulik & Kulik, 1988; Webb, Stock, & McCarthy, 1994), whether the feedback was self-referenced or norm referenced (Bender & Standage, 1992), and the amount of elaboration communicated in the feedback (Pridemore & Klein, 1992) have also been found to influence students' learning. However, these studies center exclusively on the *students'* reaction to feedback; the teacher's role in these feedback situations is left unexamined.

Second, we found numerous studies that examined the effect of students' test anxiety on subsequent academic performance (e.g., Sarason, 1980; Wine, 1980). The majority of these studies have demonstrated that test-anxious students have debilitated levels of performance under conditions of high evaluative emphasis, but, when evaluative emphasis is minimal, these same test-anxious students perform at a slightly higher level than their low-anxious peers. While this line of research focused on anxiety about *test taking*, we believed that student anxiety would also be present in the *test-feedback* situations that we wished to observe.

Third, we were interested in studies of teachers' emotions about testing in general. While students have been widely reported as having negative associations about testing,

Smith (1991) found that teachers, as well, experience negative emotions about tests. In her qualitative study, teachers expressed emotions such as shame, embarrassment, guilt, and anger after their students' standardized test scores were made publicly available. Smith also found that during the actual testing process, "many teachers themselves feel anxious, worrying about whether they have adequately prepared their pupils for the test ... and whether there will be incidents of emotional distress" (p. 9). In addition, research on teacher cognition has highlighted thoughts that teachers have about their students in instructional settings. For example, Clark and Peterson (1986) indicated that teachers focus most of their attention on what their students are understanding and how they are reacting to instruction. It seemed to us that, similarly, teachers would be concerned with students' understanding and reactions in a test-feedback situation.

Finally, we were interested in Lazarus's (1984) observation that there is a wide variation in how people respond to threatening and potentially stressful events. In his primarily cognitive view of the stress and coping process, Lazarus posits that an individual appraises a potentially stressful event, considers possible coping strategies, and reviews past attempts to cope. The individual then engages in either problem-focused coping, which is a behavioral strategy that attempts to reduce the threat itself, or emotion-focused coping. Broadening his theory to encompass emotions in general, Lazarus (1991, 1993) regards the appraisal of potential harms and benefits as determining which particular emotions are aroused by some event. Emotion is thus determined by cognitive states, the meanings that individuals make of their environment and situation (Reisenzein & Spielhofer, 1994). To understand how the teachers in this study coped with negative emotions, and then to determine the impact of those emotions, required that we consider the complex set of factors that might contribute to these emotions.

Given the interactive nature of teacher cognition in the classroom, it seemed likely that teachers would monitor students' responses to the test feedback that they gave in class. Although research is limited with respect to teacher affect, we believed that testing situations were emotionally charged for both student and teacher. We predicted that when teachers delivered test feedback to students, a potentially stressful situation, they would engage in strategies to cope with both their own and their students' emotions.

Method

The research questions of this study are concerned with teachers' thoughts about test feedback and their emotions, behaviors, and strategies when delivering feedback to students. As Lazarus (1991) has argued, emotion is both a response to individual interpretations of events as well as a generator of subsequent cognitions, emotions, and behaviors. The purpose of the study, therefore, dictated the use of a methodology that could explore and describe a dynamic set of relationships. For this reason, we chose a qualitative methodology, grounded theory (Glaser & Strauss, 1967; Strauss & Corbin, 1990), as the basis for our data collection and analysis. Grounded theory is a methodology derived from the qualitative tradition of symbolic interactionism (cf., Jacob, 1987, for a description and comparison of various qualitative traditions). It is a systematic approach to qualitative data collection and analysis that guides the development of a model to explain the observed phenomena.

Using a grounded theory approach, the researcher uses initial data to generate concepts and propositions that guide the subsequent data collection and analysis. Data analysis then proceeds by comparing new data with previous cases, so that concepts and

explanations are revised and refined as the study proceeds. Data collection, coding, and analysis are continually intermingled throughout the analysis process. In the end, the research can yield an inductively derived model for understanding a phenomenon that is grounded in the data. Although models derived by such a manner are not tested using standard statistical procedures, they are empirically derived and might be used, for example, as the basis for generating further research using other, more quantitative traditions. Following these grounded theory methods, we used data gathered in an initial semester to guide our data collection and analysis during a second semester. Cases observed during the second semester of the study were added to the cases collected during the first semester to strengthen the findings of the study as a whole.

Context and participants

Seven college teachers participated in this study. All of the teachers had master's degrees and were graduate students in a doctoral program in Educational Psychology. Their ages ranged from 30 to 47, with a mean age of 36. Two of the teachers had prior teaching experience in elementary schools, and one had been a teacher at a community college. Four of the teachers were female; three were male. Each taught one or two sections of 25 to 30 undergraduate students enrolled in an introductory course in Educational Psychology. We deliberately chose teachers of this course as participants as the first author had had several years of experience in teaching the same course. She had observed that test-feedback sessions seemed particularly difficult for her colleagues to conduct and quite often resulted in conflictive interactions between teacher and student. As a result, these sessions were often approached with apprehension, making them, we felt, an appropriate context in which to investigate teacher emotion in the classroom.

The focus of the Educational Psychology course that we observed was on learning strategies. The classes were highly participatory in nature in that the teachers of these classes encouraged active, verbal participation from their students, provided application-oriented activities, and frequently had students complete class activities in small groups. Students were required to complete an individualized project in which they analyzed their own learning strategies, targeted their areas of weaknesses, and proposed a plan for making their learning more efficient and effective. However, each teacher covered the same course content, used the same text, and used the same exams in their individual sections of the course.

Exams consisted of multiple-choice and short-essay items and were administered twice during the semester, in addition to a final exam. To develop the exams, teachers of the same course met as a group to review and revise items from an item pool and to construct new items. Exams thus reflected a consensus among the teachers. Within a week after an exam was given, the teachers graded and returned the exams to the students during a designated test-feedback session. These class sessions were deliberately set aside as "labs" to review test items and discuss the results. Because one of the purposes of the course was to help students incorporate new learning strategies into their repertoire of study skills, these test-feedback sessions were viewed as an integral course activity.

Our study took place during two consecutive spring semesters. In the first semester of this study, four teachers were interviewed and observed. Two of these teachers were considered experienced, in that one had previously taught the course for nine semesters, while the other had taught the course for seven semesters. The other two teachers were

relatively inexperienced; one had taught the course only once, while the other teacher had not previously taught the course. In each set of teachers, one was male and one was female.

In the second semester of this study, “Ron”, the first-year male teacher from the first semester of the study, again participated, along with three additional teachers. Two of the new teachers (one male, the other female) in this second semester sample were considered experienced teachers, having taught the course for more than three semesters. The other teacher, a woman, had not previously taught the course.

Procedures

During both semesters, all teachers were interviewed before the first exam of the semester. All interviews were audiotaped and then transcribed. Each teacher was asked the same set of interview questions before they administered the first test of the semester. Probes were also used to clarify responses and to elicit more information from the teachers. Questions during this first interview included the following:

1. You are administering a test this week. What thoughts, feelings do you have about that?
2. How about the test-feedback session? What thoughts, feelings do you have about that?
3. What is the general format that you think you will choose to use during the test-feedback session on Monday?
4. What has happened in the past during test-feedback sessions?
5. (Dependent upon whether the instructor talked about emotions with regard to the feedback session):
 - a. How do you cope with your feelings of _____?
 - b. When do you feel especially _____?
 - c. To what extent do you feel _____?
 - d. Why do you think you feel this way?

Observations then were made of each of the classes both prior to and during each test-feedback session. We observed both regular classroom sessions as well as the review session immediately proceeding each feedback session. During our observations, we wrote notes, which we later compiled with the aid of the audiotapes of the sessions, into a narrative record of each observation. In these records we attempted to preserve the sequence of classroom activities and relevant teacher–student interactions. As soon as possible after each classroom observation, the teachers were again interviewed about their perceptions of and reactions to the class session using a semi-structured interview format. Questions focused on the teachers' thoughts about the session and, in the interviews following the test-feedback sessions, their level of satisfaction with the session. Teachers additionally were asked about specific interactions that they had with students during the feedback session and to comment on the interactions. The interviewers then asked teachers about their preparation for the feedback session and the ways that the classroom interactions might affect their future planning of feedback sessions. When teachers talked about their emotions concerning the session, the interviewers again probed the teachers about how they managed these emotions and the origin of these emotions.

During the first semester of this study, we also interviewed at least two students from each class by telephone. These students were selected on the basis of their verbal

participation during the test-feedback session. One student who had been highly verbal and one student who had made no verbal contributions at all were solicited from each class immediately following the observation. These interviews, which lasted from 10 to 35 minutes, focused on these students' thoughts and feelings concerning the test-feedback session and their perception of their teachers' level of emotionality during the session.

The analysis of the first semester's data sharpened the study's focus in that we were able to develop tentative categories and to build an initial conceptual model. In examining these data we determined that additional participants were needed in order to more clearly define and enrich our tentative categories. We also wished to observe each of the participants conduct more than one feedback session so that we might note any changes in how these teachers conducted sessions over the course of a semester. Therefore, during the second semester of our study, we observed each teacher and class during two different test-feedback sessions. We also observed the review session that immediately preceded the second test of the semester. Then, preceding the second test for the semester, teachers were asked questions similar to those asked before the first test, and additionally asked if they planned to change the way in which they conducted the feedback session.

The second test-feedback session held by each instructor was observed and recorded in the same manner as was the first feedback session, and, as soon as possible following the session, each teacher was again asked about his or her reactions to the session. In addition, teachers were asked to compare the second feedback session they had conducted with the first, to reflect on instances when they had chosen to stop class discussion of an item, to indicate if they had spoken with other teachers about their class's test grade, and to respond to the question "What would your ideal test-feedback session be like?" We chose these additional questions based on our analysis of the first sessions that these teachers had held, believing that they would clarify questions that had arisen during our analysis.

Analysis

All interview transcripts were first analyzed using open coding wherein data were examined, compared, conceptualized, and categorized (Strauss & Corbin, 1990). In open coding, events or verbal phrases are coded using labels that describe them at a higher level of abstraction. For example, when during an interview Robert said "I feel some anxiety" or Maria responded "I think part of it was I was angry that I couldn't pay attention," we coded these comments as "emotion." The interview transcripts were analyzed using a line-by-line analysis. Observational transcripts were analyzed as a whole by examining the types of activities and the action and interaction patterns within the classroom. We noted the content of the comments made by both teachers and students; their effects on subsequent communication; the kinds of emotions, if any, that were displayed; and any reactions to these emotions.

Initially, each teacher's interview transcripts and observational notes were analyzed separately. The conceptual labels obtained from open coding were sorted and then compiled. These conceptual labels were grouped together to form tentative categories. Axial coding was then used to determine category dimensions and connections among these categories. A category was considered for inclusion in our model only if it were consistently present across observations and participant interviews and noted by each of the researchers after reviewing the data.

Several tentative central phenomena emerged from this initial analysis. These phenomena included students' affective responses to the feedback session, teachers' procedures developed for the sessions, teacher's management of students' emotions, and teachers' emotions toward feedback sessions. A central phenomenon (core category) is defined by Strauss and Corbin (1990) as being "the central idea, event, happening, incident about which a set of actions or interactions are directed at managing, handling, or to which the set of actions is related" (p. 96). As we had anticipated, the phenomenon of *teachers' emotions* emerged from the data as the *central* category, both in terms of frequency of references to it made by the teachers and as the phenomenon with the richest source of characteristics. At this point, we focused our analysis on "teacher's emotions concerning test-feedback sessions" as the central phenomenon.

Selective coding was used to confirm this core category of teacher emotions and to build a model to organize the results. In selective coding the categories established in open coding were placed in the paradigm model suggested by Strauss and Corbin (1990) by identifying them as antecedent conditions, contexts, action/interaction strategies, intervening conditions, or consequences of the phenomena of teachers' emotions. For example, the category of *past experiences* was classified as being an antecedent condition, while the *level of student participation* was a result of the strategies that each teacher used to manage his or her classroom. The story line of the central phenomenon was then developed in which the primary categories developed in axial coding were conceptually related to the core category of teachers' emotions. This final conceptual arrangement of the categories provided us with a grounded theory of Teachers' Emotions about Test-feedback Sessions.

Results

The following sections describe the major categories that emerged from the data and the relationship of these categories to the central phenomenon of teachers' emotions. Figure 1 presents the major categories that we discuss here and their relationship to one another in a schematic diagram. This diagram details teachers' beliefs and appraisals about the feedback session, teachers' goals for feedback sessions, and strategies used by teachers, along with the subcategories that pertain to these major categories. The arrows in our diagram indicate the temporal sequence of how these categories emerged as teachers planned for and conducted feedback sessions. While it certainly could be the case that other categories, for example, the educational philosophies of these teachers, might be influential in shaping test-feedback sessions, the categories that we display in Figure 1 are those that emerged from our observations and interviews of the particular participants in this study. These categories are arranged in Figure 1 to provide a visual representation of the categories that emerged below.

Past experiences with feedback sessions

Our initial interviews with teachers before the feedback sessions took place revealed that they were strongly influenced by their prior experiences with feedback sessions and that they had strong emotions about these sessions. Many of the past experiences cited by the teachers were negative and dealt with students' hostile or oppositional reactions. As Robert commented, "I'm actually pretty nervous about it just because I was pretty confident last time and they [the students] just ripped me to shreds" (semester two, second pre-feedback interview). Cindy, our most experienced teacher, was also

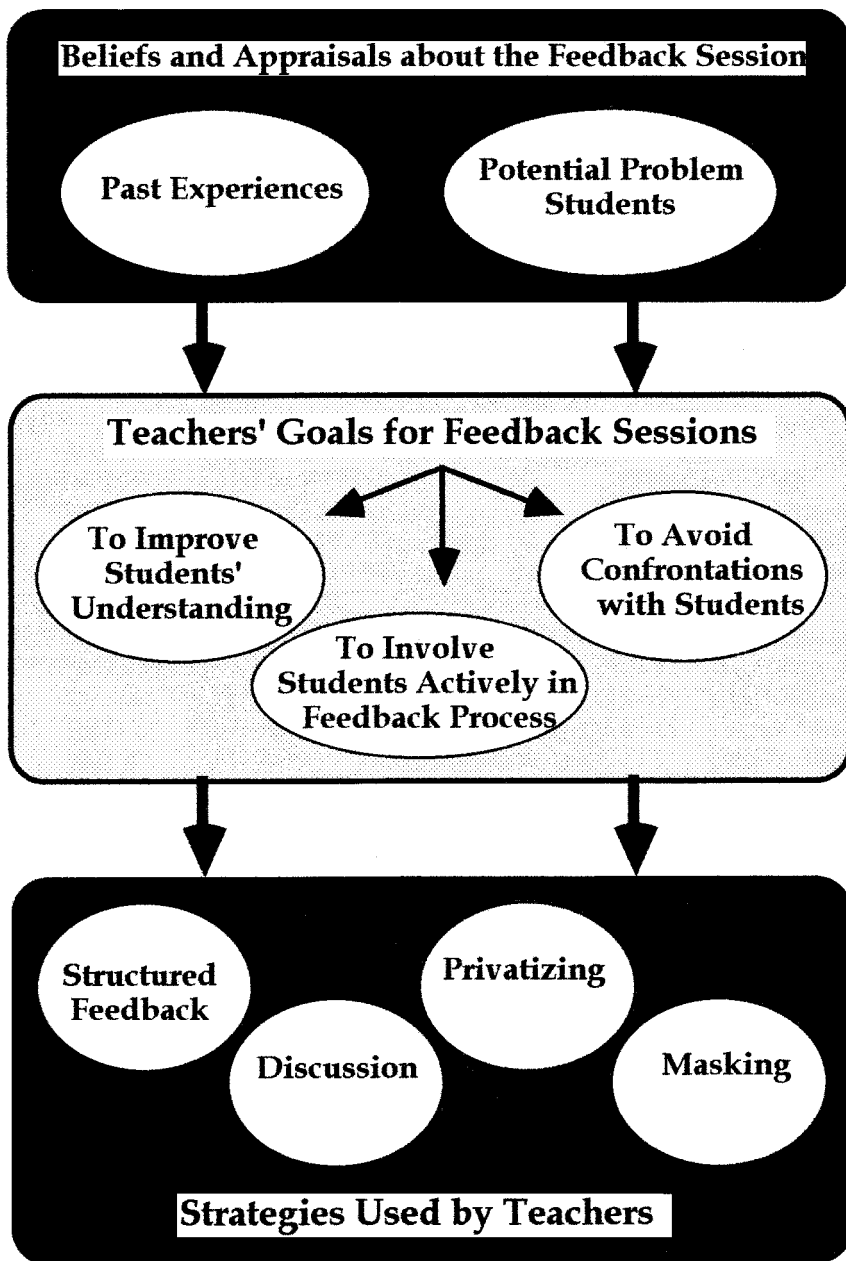


Figure 1. Major conceptual categories derived from the analysis of the data.

expressive saying “I hate test-feedback day, I really do” (semester one, first pre-feedback interview).

Teachers often referred to confrontations that they had had with students during a past test-feedback session:

Lewis: Judging what they’ve been like in the past, I think I know what to expect. And, what I expect are some students who are unhappy with the questions. (semester one, pre-feedback interview)

Cindy: I had one guy who was just positively belligerent and argued most every question and got the whole class going and so I decided that wasn't going to work either. (semester one, pre-feedback interview)

Even inexperienced teachers participated vicariously in these past experiences, and mentioned comments that they had heard from other teachers:

Maria: I just didn't know what to expect – other than this view of, “Watch out – they, they grow teeth!” (semester one, pre-feedback interview)

Ron: Some people talked about ... about slamming doors ... so I've kind of got a flavor for what sorts of things might happen. (semester one, pre-feedback interview)

Part of the salience, though, of the prior experiences for some teachers was the apparent correlation of the feedback sessions with end-of-semester student evaluations. Experienced teachers talked about comments they had received in the past on course evaluations from students regarding the way in which they graded test items:

Lewis: Well, they stayed angry to the end, and I mean it showed up on the course evaluations. (semester one, pre-feedback interview)

Cindy: I think that I grade harder than everybody else does. In fact, I had several comments on that the last evaluation on how I graded the essay. (semester one, pre-feedback interview)

Potential problem students

The teachers we interviewed were very attuned to the possibility of negative reactions from particular students. Most of these teachers believed that students whose performance was low would be unhappy and likely to react adversely during feedback. This adverse reaction was usually anticipated to be one of argumentative opposition. Especially dreaded by teachers was group-supported opposition, in which a subgroup of students would support a point raised by a single student.

Interestingly, the students that were perceived by teachers as being potentially problematic were not only those whose performance was low on the test but also students who usually were high achievers and had received a grade lower than their typical level of performance. These students were seen as being potentially more problematic both because of their ability to argue cogently as well as their unwillingness to accept the teacher's explanations:

Robert: Like the guy I was arguing with is probably my favorite student. He's really bright, he's really engaged. And I told him after the class, “The trouble I have with you is that you're bright enough to justify anything. You could debate anything and find an argument for being right.” (semester two, post-feedback interview)

Faith: But, uh, as far as, I would suspect that the ones that generally speak in class right now more often would be the ones that might bring up questions about it just because they seem to be more motivated to get on track with, with their studies. (semester two, first pre-feedback interview)

Each of the teachers we interviewed predicted that at least one of their students might be argumentative during the feedback session and based this prediction on which of their students usually participated verbally in class.

Teacher beliefs and appraisals

Another category that influenced the teachers' level of emotion, and also their strategies for delivering test feedback, was their set of beliefs and appraisals. These reflected their underlying values about the nature of teaching, the teacher–student relationship, and the role of emotionality during the feedback session.

Several types of beliefs were expressed by teachers, in varying degrees. Most teachers commented on their belief that the feedback process was a learning tool. Ron said, “I do believe there is a lot to be learned from taking a test and finding out what you did” (semester one, pre-feedback interview). Moreover, student learning was sometimes cited as a reason for using a particular strategy during feedback:

Christi: I think it's really important for students to understand why, why they missed a question. And so part of defending your answer is working those things out, uh, for yourself and that's why I allow that much expression in the test-feedback session. (semester two, first post-feedback interview)

Faith: If I can do something that will help them to see where they could have done it, how they could have done it differently, or thought about it differently, by talking to a peer, then maybe I don't have to throw that final justification of, “Well, that's life, life in the big university” – which does no- ... nothing for them except keep them somewhat frustrated. (semester two, second pre-feedback interview)

However, teacher beliefs about learning opportunities did not necessarily match those of their interviewed students, most of whom did not believe that they had learned anything from the feedback sessions they attended. At times these students expressed the belief that their emotionality inhibited their learning. As one of Maria's students stated:

No. I really honestly don't think I did [learn]. I think part of it was I was so angry that I couldn't pay attention. I know what I got wrong, but I really didn't concentrate more. I think it will be better when I can go in and I am calmer. Maybe a little about how to take the test, right now I haven't really thought about it. If I had examples I couldn't tell you. It is really frustrating. (semester one, post-feedback interview)

The view was supported by a student of Lewis's who stated:

I don't think I learned anything about the content at all. Usually I get a lot out of feedback sessions, but I just got confused. Along with a lot of the other students I started arguing, and all of the other students were just as confused as I was. (semester one, post-feedback interview)

A teacher belief, which was consistent with these students' reports, was that students' negative emotions interfered with learning. Intense, negative, and/or escalating emotions were seen as interfering with students' abilities to process the information that they had received in the feedback sessions. Teachers believed that, in a confrontation with a student, the student might be impaired in his or her ability to “argue their point.” As Cindy noted, “I think that it [meeting privately with the teacher after class] gives them an advantage because it gives them a chance to cool down and to think about what they think is the right answer and they present themselves better than if they are angry” (semester one, pre-feedback interview).

A related belief, which was shared by all teachers, was that it was inappropriate or

counterproductive for them to express their own negative emotions to students. Teachers believed that their *own* negative emotional states interfered with communication. For the most part the teachers' behavior matched their beliefs: few instances were noted in our observations of verbal expressions of negative affect, and most of our observation comments on the facial expressions of the teachers indicated neutral or positive affect being exhibited. Students verified that this masking of emotion was done successfully; they did not report observing their teachers becoming strongly emotional during the sessions.

Maria: He was getting angrier and angrier, and the rest of the class was just sitting there ... I said, "Write it down." And then he did, he backed off, but I was also being, but I had on my best power suit on, and was being very business-like, very managerial. (semester one, post-feedback interview)

Comment from Maria's student: She was just the same. (semester one, post-feedback interview)

Lewis: ... I was thinking, "I'm becoming more nervous." I noticed, I never sweat - I mean I sweat under my arms but never where it shows through my shirt, and I was, I was sweating through my shirt, and I attribute that to being nervous. (semester one, post-feedback interview)

Comment from Lewis's student: He was really cool and didn't get upset and everyone could state their point of view. (semester one, post-feedback interview)

A final belief that affected these teachers was the degree to which the teacher felt ownership for the exam. As noted earlier, the exam was developed jointly by all course teachers. This led to varying commitments:

Cindy: ... I don't feel any ownership over these exams at all, they're not mine, and maybe if they were mine I would, I would, be able to argue more strongly for them ... (semester one, pre-feedback interview)

Ron: I'm detached kind of from someone else blowing up over something that I'm not personalizing. I just don't really own this test. Like I say, for better or worse, it's just not mine. (semester one, pre-feedback interview)

Robert: I feel real good about it this time. I had input on the writing of this test, so I felt like it was fair. I felt almost I was fighting with some of the other instructors about what items to include and what was fair to ask them. And I really feel this test asks questions it's important to know the answers to. (semester two, second pre-feedback interview)

The degree of teacher acceptance of ownership was important in influencing the strategies that they adopted when facing student challenges about an item, and also in determining their emotional reaction in having to defend such items. When teachers themselves questioned the validity of an exam that they administered they became particularly sensitive to criticisms that students expressed during the feedback session.

Goals

Along with teacher expectations about student reactions and teacher beliefs and appraisals, a final category – the teachers' goals for the feedback session – influenced the feedback strategies and the nature of evoked emotions. One goal was to provide test feedback *to improve student understanding*. Most often, this goal was focused on the students

who had lower scores on the exam: “I think it’s really important for students to understand why, why they missed a question,” (Christi, semester two, first post-feedback interview). This goal is clearly a manifestation of the belief that feedback sessions should enhance student knowledge and understanding.

A second goal was to *avoid confrontations with students*. All teachers wished to avoid highly negative interchanges with students, and interview comments made by teachers about these negative interchanges were frequently accompanied by considerable affect. Maria commented “I don’t deal real well with anger, OK? That’s, that’s part of it – I am very conflict averse [laughs] and I just don’t like that conflict...” (semester one, post-feedback interview). Incidents that teachers reported as being negative contained elements of intensity and escalation. Teachers wanted to avoid situations in which students would become belligerent or hostile, or situations in which several students at a time would confront them:

Lewis: ... that was, I guess, an example of when the whole class begins to say, [in agreement with a female student] “Yeah she said this, she said this, she said this,” and so then, all of a sudden, you do have your 30 angry students, you know, bitching first about that one question, then about any other one that they missed points on. So it actually turned quite ugly. (semester one, pre-feedback interview)
 Faith: ... the composition of that class, I think, was one of those that, thank goodness you don’t get very often, but had some instigators and then some other kind of students who were more than willing to chime in after that. And so, I guess part of it might have been, uh, maybe I wasn’t there to give back that first test and maybe they thought that they could, you know, wangle something out of the sub maybe, and so they got kind of wild. And then I came in they already had been that way and so they continued, continued to – we couldn’t even get through the entire test – every question they argued with me and it was two girls and two guys – either pair would bring up the problem with it, the other pair would shortly thereafter chime in and then the rest of the class would go, “Well, yeah, what, you know, why, why –.” (semester two, first pre-feedback interview)

Despite their desire to deliver test feedback without confrontations, the teachers were not satisfied with test-feedback sessions in which there were no interactions with students. A third goal, therefore, was to *involve students actively in the feedback process*. They repeatedly questioned their students during the sessions, requesting input from their students, and their reactions to the exam.

Robert: It got them active, it got them doing something, so they weren’t just sitting there looking at their grade. Hopefully, a lot of them were talking. (semester two, second post-feedback interview)

Ron: They can definitely ask [questions]. That’s the whole point really ... I want them to be involved, in understanding why one answer is considered correct and the others are not. (semester two, second pre-feedback interview)

Strategies and their consequences

Teachers adopted a variety of strategies to manage the feedback sessions, which included *structured feedback*, *discussion*, *privatizing the interaction*, and *masking*. These strategies were directed at structuring the feedback, managing the emotions that

occurred in the session, and often were used in combination. While the labels for these strategies are ours, evidence for each was abundant in each of the classroom observations and in our interviews.

Structured feedback was directed at providing a high level of information to students about the test. Teachers prepared extensively for these sessions. Their preparation included reviewing results of the exam to identify problematic items, listing specific criteria used when grading essay responses, and calculating the descriptive statistics on the test for the class. These teachers were then able to structure their feedback session and explain difficult items with greater precision. In some feedback sessions, a worksheet was given to students to predict their test results and to reflect on their study strategies. Cindy, who was our most experienced teacher, commented:

... I get defensive and then I can't answer the questions logically, you know, I can't think clearly about what they are asking me so I, so I finally just decided that I would give them the answers, I would tell them how I graded the essay, I would let them look at them and if they had questions they can come talk to me during office hours ... (semester one, pre-session interview)

During structured feedback sessions, teachers typically used a more businesslike, assertive demeanor.

Ron: I was far more serious today than I usually am in class. Because there was a need, because of the things going on, there was need to exert more control – to say things to them. Like, “stop talking,” some of them I had to say “stop talking,” some of them I had to do this and that. And I usually don't have to do that. (semester one, postfeedback interview)

Teachers wasted little time in making a transition from introductory remarks about the exam to initiating comments about the exam content. They typically followed a set routine for discussing items and moved smoothly from item to item in reviewing the multiple-choice section of the exams. Teachers usually planned these sessions in advance:

Maria: ... I'll use the same format, which was distribute the tests, tell them up front that we're going to go through all the answers, if there is a question about a particular answer, I'll try to answer it briefly, but there is a major dissension about it then if you think your answer is better than the correct answer then you need to put it down in writing and give it to me later. (semester one, pre-feedback interview)

Robert: What I would like to do, for the essay question, is to write out the answers, to not have to go through and explain the grading. In advance, I guess as I grade, have a very clear sense of what I'm looking for and have it be as unambiguous as possible. I will work more carefully with the test ... (second semester, postfeedback interview)

Structured feedback sessions were those in which there was a clear sense of group focus and a proportionately higher amount of class time spent on *teacher* discussion of the exam. A consequence of this strategy was to provide a maximum amount of information in an organized format, allowing most or all items of the test to be reviewed to some degree by the teacher. Because the activity was highly teacher directed, student input was usually limited to asking questions and challenging particular items. These sessions, according to the first semester interviews with students, tended to have higher student

satisfaction and little exhibition of student hostility or escalation of negative emotions. In contrast, structured feedback sessions that had higher levels of *student* involvement were viewed more positively by teachers. When a feedback had low levels of student involvement, teachers tended to be less satisfied with the session:

Faith: ... it bothers me a little bit that that particular class was kind of dead, and there just was hardly anything. The second one, the 10:00, uh there was a little bit more. But honestly those kids just looked like they were asleep. (semester two, post-feedback interview)

However, even in sessions with a high degree of structured feedback, student challenges at times threatened the pace of this activity, especially when students refused to accept that their answers were incorrect and persevered in challenging an item.

Discussion was directed at generating a high level of student involvement in the test-feedback process. Two forms of this strategy, whole-class and group discussion, were used by the teachers, either exclusively, or in combination. In a *whole-class discussion* format, teachers invited student questions or comments about the test or about particular items. Then teachers would attempt to guide the ensuing comments to encourage students to reflect upon and attain a greater understanding of the item content or of their test-taking strategies. Compared with *structured feedback*, *discussion* appeared less organized and managed. Although this strategy usually produced high student involvement, it was also frequently accompanied by student challenges, resulting in teacher defensiveness and discomfort. Another problem with the discussion strategy was that student involvement tended to be limited to a subgroup of students. The discussion would often get “stuck” on a few items, preventing a comprehensive review of the test.

A second form of the discussion strategy observed was a *group-based discussion*. When using this strategy, teachers seated students in groups. At the beginning of the activity, students were instructed to review incorrect items within the group and to obtain assistance from other students in understanding items they had missed. The teacher’s role was to monitor the group activity and provide individual feedback or clarification. This strategy was generally successful in producing widespread involvement, although some groups were observed as less active than others. For teachers, the strategy also had the advantage of limiting the venue for challenges to smaller groups of students. Disadvantages of the strategy were that the groups tended to cover items unevenly and that it reduced direct teacher feedback. However, when we saw this strategy being used, teachers managed it well; that is, they gave clear directions to students about what was expected and were consistent in maintaining their role when working with the class. Thus, even with the strategy’s limitations regarding feedback, it was an orderly activity and teachers felt successful after using it.

Privatizing the interaction was usually used in combination with other discussion strategies to escape from a dead-end confrontation or disagreement over an item. When an interaction with a student became too heated or prolonged, the teachers typically privatized the interaction, either by suggesting that the student come by their office to continue the discussion, or by asking that the student write down his or her comments so that the point could be considered out of class. One teacher, however, Cindy, used this strategy to prevent any type of student participation in the feedback session, “so I finally just decided that I’d rather just have them come in and talk to me if they had a question” (semester one, pre-feedback interview). Occasionally these suggestions were accompanied by a remark about the need to “move on” or the limitations of time the

class had for discussing the exam. For some teachers this strategy was used rather quickly during an interchange, seemingly as an escape from the discomfort of the negative emotions aroused by a student challenge. Faith described using the strategy when she had a problem with a particular student, "I didn't want to have to defend that kind of an issue in the class setting, I'd rather do it in a small group ..." (second semester, post-feedback session).

Privatizing the interaction reflected the discomfort felt by teachers when they experienced anger, frustration, annoyance, or anxiety during a confrontation, or when they perceived that students' negative emotions were interfering with their ability to profit from and accept the teacher's feedback. The teachers were sensitive to the public nature of the feedback sessions. When this occurred, communication ceased and so a possible feedback opportunity was lost. Other teachers tended to "stay with" the student longer before resorting to the *privatizing* strategy, and in some cases were able to clarify the item in question. At times, however, even the most resolute of teachers was unable to shake the student from a commitment to an incorrect conception, and in that case, summoned up the strategy.

Masking was a strategy used to cope with negative emotions aroused during interchanges with oppositional and challenging students. Masking meant retaining a calm, deliberative persona in the face of student complaints, objections, and negative emotions. The teachers tried to avoid revealing their own frustration, irritation, anxiety, or unhappiness, and instead attempted to project a serious, interested, intellectual stance. Based on our observations and on student comments, the effort was usually successful. Sometimes this was a planned effort to manage reactions to students: "I have to watch how I react back 'cause I want to come back across as just calm and deliberative" (Ron, semester two, first pre-feedback interview). At other times, the strategy was observed during interchanges with challenging students. The teacher would often review item content, reasons for correct and incorrect answers, probe the student's reasoning, and recall relevant material from lectures and text. The teacher would discuss the content of the item using a calm, deliberate manner, betraying little or no emotion. When asked later about the incident, however, the teacher's response would reveal considerable affect had been present during the session. In the following excerpt, Robert is conducting his second feedback session, immediately following a very confrontational class the hour before:

Robert: Oh, god. One thing, in the one o'clock class, [they] summarily attacked me. It was a mutiny. I was scared. (laughs a little)

Interviewer: That's the one with the football players, right?

Robert: Right. And one of the football players, near the end of class said, [stridently] "This is bullshit, we don't learn anything in this class. Nnhannanh ..." And I was just like, I felt attacked. I mean, I was attacked and I felt really, I was already on the edge when this class filed in, and that's probably why I gave them a fifteen minute – maybe not so long – kind of a defense before I handed them out the test. 'Cause I handed them the test in the first class and I started getting attacked. So I was real aware of how volatile it was for them. I was trying to defuse it a little bit by, that was why I spent so much time before I handed out the test. (semester two, postfeedback interview)

Robert explained during the interview that he was anxious and used strategies to prevent another confrontation with students in this second class. However, observational notes during this same classroom sequence state, "The teacher's tactic seems to

be that of a good listener and helper as opposed to defender of the test, up to this point. The teacher stands in the middle of the U of the tables, his hands in his pockets, looking directly at the students when they comment. He moves around a little, and he keeps pretty good contact with the remainder of the class” (semester one observational notes, first feedback session). While Robert may have been experiencing discomfort, he did not display it publicly in the classroom.

On a few occasions, when teachers responded in a way that suggested their irritation or frustration (for example, expressing mild sarcasm toward the students), they later expressed considerable regret in the interviews:

Interviewer: ... you said to him, “What *you* don’t understand about this is ...” Do you have any comments about that?

Robert: It was an inappropriate thing to say as a teacher.

Interviewer: Why is that?

Robert: It was insulting, sarcastic, it was, it personalized it. I could have, it would have been much more effective, first of all, it wasn’t, it’s not, what I think I wanted to convey, was that this was a particular problem for him and that just wasn’t true. It was a problem for all the students. And it would have been more effective, more respectful, more instructive, more honest to say, “This is the thing that most people have trouble with. It’s a fine distinction, but it’s an important distinction to get as we go on, and that’s why we ask about it.” I was talking out of my anxiety. (second semester, postfeedback interview)

The discrepancy between affect and action undoubtedly reflects culturally ingrained attitudes regarding the expression of negative emotions by teachers toward students, as well as the teachers’ beliefs that the feedback process should be focused on student learning. Moreover, teachers wished to avoid confrontations and believed that negative student emotions would detract from learning. These beliefs and goals, along with the absence of effective strategies for expressing negative emotions, provided strong motivation for the strategy of *masking*.

Summary

The categories we have described interacted to produce the test-feedback sessions that we observed. The central shaping phenomenon was the emotion that these teachers felt about these sessions, and the overriding belief they held that the expression of these emotions in the classroom should be controlled. In order to show dynamically the interaction among many of these categories and their relationship to the central phenomenon, we include the following transcribed interview:

Interviewer: How have your test-feedback sessions gone in the past?

Cindy: I get too emotional. I’ve tried it [conducting feedback sessions] so many different ways. You know, when I first came they [the other teachers] said, “Split them into groups, let them argue it out among themselves.” That didn’t work for me because they either don’t talk in the groups or, even when they are through with the groups, they still want to argue, or nobody in the group can figure out who’s got the right answer [laughs] and so that, that didn’t work... One particular semester I had one guy who was just positively belligerent and argued most every question and got the whole class going. So I decided that that wasn’t going to work either because I get defensive and then I can’t answer the questions

logically. I can't think clearly about what they are asking me so I finally just decided that I would give them the answers. I would tell them how I graded the essay. I would let them look at them [the tests] and if they had questions they can come talk to me during office hours ... I decided that I'd rather just have them come in and talk to me if they had a question. It gives them time to cool off and then when they come in, then it does two things. I guess it gives me a little of an advantage because we are one-on-one, and we are in my territory, but also I think that it gives them an advantage because it gives them a chance to cool down and to think about what they think is the right answer. They present themselves better to me than if they are angry because when they are angry at me or when they are belligerent or whatever, they're not helping themselves any either. They are hurting all chances of my listening to them straightforward. I usually explain all of that to them. The reason I do this is because it is good for both of us. (semester one, pre-feedback interview)

In order to summarize at a more conceptual level how Cindy and her colleagues confronted the task of delivering feedback, we present here our analytic theoretical story line. A story line is the conceptualization of a descriptive story about the central phenomenon (Strauss & Corbin, 1990). This theoretical story line describes the categories that we have developed and arranges them according to their paradigmatic relationships. In this sense, our grounded "theory" is not a context-free theory, rather it is the integration of categories to form a substantive theory in one particular situational context. Again, Figure 1 illustrates most of the categories of the following story line in a schematic format:

When facing the task of giving test feedback to students, most teachers began the process with an initial goal of providing information and contributing to their students' understanding of the course content. Then, as teachers anticipated and/or encountered student reactions, and as they coped with their own emotions, other goals became more salient. Even though teachers believed test-feedback sessions could be a learning experience for their students, their interview comments often reflected more self-focused, affective concerns rather than student achievement or learning concerns. Depending upon the past experiences that a teacher had in giving feedback to other classes, along with prior experience in their present class, the teacher formed expectations about the potential for adverse student reactions during an upcoming test-feedback session. These expectations, along with beliefs the teachers had about the exam, and the goals that they had for the test-feedback session, interacted to affect their emotions and influenced the way that they prepared, the procedures they used in the class, and the type and tone of their communication with their students. Teacher strategies and actions then affected the amount of student interaction and affect displayed during the feedback sessions. When students were dissatisfied with the feedback they received, they sometimes confronted the teacher, and, depending on the teacher's ability to manage the interaction, the problem was resolved, students' expression of negative affect was suppressed, or the conflict escalated.

Discussion

We found that teachers were influenced by a variety of goals, beliefs, and expectations when they prepared to deliver test-feedback sessions. Often these factors did not seem to sum to a clear, direct, incontestable path to a single strategy. Rather, the teachers in this

study strove to balance their own conflicting goals for the session and the exigencies of responding to students who had a personal stake in the outcome of the session. These teachers viewed feedback sessions as an opportunity to communicate knowledge and to improve student understanding in areas revealed as weak by the test. They also believed that students profited from being involved in the process and therefore they encouraged student participation. Their prior experience, however, demonstrated that students who made errors on exams often would, if allowed the opportunity, challenge the teacher and exhibit considerable resistance. Dealing with such challenges aroused a variety of negative emotions in these teachers, especially when students persisted, displayed emotion, refused to admit their own lack of understanding, or were supported by other students. The strategies developed by teachers in our study reflected their attempts to organize feedback sessions in ways that were consistent with their goals and beliefs, and yet that limited their own frustration, annoyance, anger, anxiety, and related stress in response to the feedback session.

The teachers in this study reported a high level of interactive thought about their students, consistent with much of the research reported in Clark and Peterson's (1986) review. In contrast with many of those reviewed studies, however, the teachers frequently commented on affective factors. This discrepancy, we believe, is more a reflection of earlier studies' primary focus on cognition, to the virtual exclusion of emotion, rather than any uniqueness in our sample of teachers or our own interest in emotion. It is also possible that testing carries with it extra affectivity, compared with some other classroom events and activities. Our findings were also consistent with Smith's (1991) findings in that teachers, as well as students, experienced negative emotions in conjunction with testing situations.

The negative emotions and attendant stress felt by the teachers seemed focused on the potential for argumentative, challenging, emotional behavior from students. Lazarus and Folkman's (1984) model of coping with stress and the extension of the model to emotions in general (Lazarus, 1993) seems appropriate for interpreting how teachers in this study managed their emotions. Specifically, teachers appraised upcoming feedback sessions in terms of their potential for oppositional student behavior, which was viewed as a threat or harm. Many of the strategies subsequently adopted by the teachers, including structured feedback, privatizing, masking, and, to a lesser extent, group-based discussion, either limited the potential for such student behavior or allowed the teacher to cope with these behaviors in the classroom context. These teacher strategies appear to involve both problem-focused coping as well as emotion-based coping. On the one hand, the test-feedback session was a required part of this course and the teacher's role in the classroom required action. Hence, the teacher utilized problem-focused coping strategies. On the other hand, the teachers experienced strong emotions which had to be managed to prevent their manifestation in unacceptable ways. The approaches chosen by the teachers, in part, helped neutralize their negative emotions in preparation for the anticipated social interactions during feedback, in addition to minimizing the potential for conflict in the classroom. These forms of coping are consistent with research showing that adults in our culture generally try to neutralize their presentation of emotions preparatory to social interaction (Erber, Wegner, & Theriault, 1996), and to prefer negotiation and disengagement tactics more often than power-assertive strategies (Graziano, Jensen-Campbell, & Hair, 1996).

In interviews that were conducted with students during the first semester of this study, many students expressed negative emotions connected with the feedback sessions. Even some students who were not verbal during the feedback sessions later expressed

being “angry,” or “too upset to talk at all.” While one of the goals that teachers had for the test-feedback session was to increase students’ knowledge in the content area, many students claimed that they learned little content knowledge during the feedback sessions, although they did believe that knowledge of the test format would help them be more successful on subsequent exams in the class. A possible explanation might be, as was found by Gagné et al. (1987) and You and Schallert (1992), that the strong emotions these students experienced during the feedback session interfered with their ability to learn from the teacher’s comments during the session. Our findings suggest that there is a need to reexamine the role of providing extensive test feedback and particularly to conduct further research on students’ emotional reactions to different types of feedback formats. Assuming that high levels of negative emotions are counterproductive for both students and teachers, strategies for minimizing such emotional interference and maximizing learning during test feedback would be useful. While other researchers (eg. Kulik & Kulik, 1988) have found benefits in providing immediate feedback to students in classroom situations, our study suggests that considering the emotional context in which feedback is delivered is equally of importance. Students who experience strong negative emotions during a test-feedback session may require *more* time to process feedback information. When this is the case, these students may benefit from an alternative feedback format, such as meeting individually with their teacher to discuss the test.

Our findings also suggest that teachers learn and implement new ways to structure their feedback sessions through experience. More experienced teachers in our study tended to plan more extensively for feedback sessions and to anticipate student questions about particular test items. In particular, they anticipated student misconceptions and, in turn, were able more precisely to respond to students’ questions about the test and content information. Teachers who are aware of successful strategies to deliver test-feedback sessions are more likely to structure these sessions so that students can learn from them. Novice teachers would benefit from learning from their more experienced peers which of these strategies have been most successful in the past, given the structure and content of the class. A practical implication would be to include information about managing test feedback in teacher training courses. Teachers should recognize that there are alternative ways to give feedback to students and that, as is illustrated in this study, there are instructional consequences for selecting particular feedback strategies in that they affect student learning.

It should be noted that the teachers who participated in this study were graduate students in doctoral programs. As they did not hold tenured status as faculty members, it may be argued that these teachers were particularly subject to the stress that accompanied these test-feedback sessions. We believe, however, that the negative emotions that they experienced in the classroom and the resultant strategies that they used to manage these emotions were affected more by these teachers’ experience level rather than their status as nontenured faculty members. For example, Ron used more structured classroom strategies to manage test-feedback sessions after having had a year of experience than he did during his first semester as an instructor. This structure resulted in a lower level of stress experienced by him during the test-feedback sessions. Similarly, our more experienced teachers seemed to be more prepared and strategic in planning their feedback sessions than did the less experienced teachers.

Another limitation of our study was our presence as observers, which may have made the teacher or even some of the students feel as if they needed to “save face” when discussing items of controversy. However, we attempted to be as unobtrusive as possible

when observing sessions and found that students and teacher alike quickly ignored us. In addition, we observed each class multiple times before and after feedback sessions in an attempt to habituate participants to our presence. While we did observe that our participants were conscious of the publicness of their interactions during feedback sessions, their audience seemed to be the other students in the classroom.

This study indicates that the test-feedback process is an emotionally charged one for both teachers and students. Teachers seem particularly influenced by student behaviors that elicit strong negative emotions. The anticipation of these behaviors and their accompanying emotions can result in teachers constructing a variety of strategies to manage a feedback session. Teachers in this study were attuned to students' behaviors during the feedback session that had the potential for negative emotional arousal, and took action to manage such behaviors to prevent their escalation or contagion. Teachers' emotions concerning feedback sessions thus was an important factor in both instructional planning and interactive teacher decision making.

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