
SHARING PROFESSIONAL EXPERIENCE:

ITS IMPACT ON PROFESSIONAL DEVELOPMENT

Dr. John A. Ross*  
The Ontario Institute For Studies In Education  
Trent Valley Centre  

Dr. Ellen Regan  
The Ontario Institute For Studies In Education  
Department of Applied Psychology

The authors contributed equally to the writing of this article.

*Dr. Ross will be handling correspondence for the authors:  
OISE Trent Valley Centre  
Box 719, 150 O'Carroll Avenue  
PETERBOROUGH, Ontario, K9J 7A1

RUNNING HEAD: SHARING PROFESSIONAL EXPERIENCE
ABSTRACT

Provision for teachers to share professional experiences is a core element of contemporary in-service design, even though few systematic attempts to observe the impact of sharing on professional growth have been reported. An argument for the value of professional sharing was developed from a constructivist model of professional development. Data from an in-service program for district consultants (audio tapes of deliberations and pre/post interviews) were used to test two hypotheses about the effects of interrupting narratives. The first was supported: listening to descriptions of professional experience had a positive effect on the growth of listeners who interacted with narrators. There was some support, to a lesser degree, for the second: Professional sharing had a weak effect on the development of narrators, unless the reports were punctuated by metacognitions or challenged by other group members.
SHARING PROFESSIONAL EXPERIENCE:
ITS IMPACT ON PROFESSIONAL DEVELOPMENT

Sharing professional experiences is such an essential element of professional growth that it has become axiomatic that in-service events should provide opportunities for participants to describe their experiences, reflect on the meanings of personal practice and exchange interpretations with colleagues (e.g., Fullan & Connelly, 1990; Grimmett & Erickson, 1988; Kemessis, 1987). Despite the near universal enthusiasm for this approach, there have been few systematic observations of it. In this article we shall describe a framework for investigating professional sharing and use the results of a study of district consultant in-service to examine one aspect of the model. In this study audio tapes of consultant deliberations and pre/post interviews were used to examine and reject the claim of Knights (1985) that interrupting accounts of professional experience disrupts reflection.

Theoretical Framework

Research Orientation

We define professional development as changes in understandings, affects and actions that increase effectiveness in a role. Until recently training approaches derived from a quantitative research model predominated; (see reviews by Bennett, 1987 and Wade, 1984). Trainers identify specific behaviours to be adopted; use direct instruction techniques to isolate and demonstrate the target outcomes; reinforce learner imitations of the demonstrated ideas with planned practice and measure changes that occur in the target population in terms of implementation fidelity. The training approach has been criticized on empirical grounds (e.g., Brophy, 1988 cautioned against making causal generalizations from correlational data provided by studies of effective schools) and on substantive grounds (e.g., Sachs & Logan, 1990 argued that training deskills teachers by removing their control of curriculum decision making). In contrast is the learning to teach approach (Richardson, 1990a) derived from a qualitative research model. This approach focuses on cognitions rather than behaviours, uses
images of growth rather than change, celebrates introspection, highlights the interaction of persons within contexts and emphasizes learner control of professional development processes.

Advocates of the learning to teach approach have been critical of attempts to combine the two methods. For example, Richardson (1990b) described the use of a positivist approach to the exploration of teacher reflection as a "threat to the development of reflection-in-action programs" [p.14]. Kagan (1990), though less critical, argued that the "inadvertent mixing of two paradigms represents more than a simple lapse in logic. It symbolizes a problem in most of the research on teacher cognition" [p.429]. In Kagan's view, it would be appropriate to use a process-product model to find correlations between cognitions and effective actions only if certain conditions were met, including defining effectiveness by a credible model of mature performance rather than by a checklist of atomized behaviours. But Kagan's reservations about blending the paradigms would remain even if these conditions were met. From her perspective, it would be an "ironic paradox [if] the molar, abstract, covert pieces of inference that constitute the data on teacher cognition [were] squeezed into the rhetoric of precise science" [p.461].

We are more sanguine about the possible benefits of combining the paradigms and point to program evaluation as a field in which qualitative and quantitative research orientations have been routinely and productively integrated. In the study to be described below we used a process-product framework to search for correlations between reflective processes, as represented by dialogue among learners during an in-service program, and outcomes, as represented by beliefs and actions within a particular role, in this instance, that of district consultant.

Model of Professional Development

Schon (1987) observed that growth of the reflective practitioner occurs through dialogue in which master and learner reframe experience and conduct experiments to improve practice. In formal professional development settings Schon's attention to reflection in action has been largely supplanted by reflection on action. A variety of
alternative definitions of reflection have been proposed; Calderhead (1989), Grimmett & Erickson (1988) Weiss & Louden (1989) and Zeichner (1991) each provide taxonomies. We define reflection as an individual process containing two elements: metacognitions (awareness of the strategies, theories and feelings that underlie one's professional problem solving) and appraisals (judgments about performance). We see reflection as a central element in each of the stages in the constructivist model of professional development displayed in Figure 1. In this model, stimulated by studies of conceptual change in children's learning, professional development is viewed as either a modest or radical restructuring of existing knowledge.

**Figure 1 About Here**

*Dissonance*, the first step in the model, contains three elements. The first is self-awareness of current beliefs, attitudes or actions. Second is dissatisfaction with the current state and third is the recognition of an alternate with features which are potentially more attractive. Reflection during this stage is typically recollective: the practitioner is trying to make sense of past experience. In some roles there may be interactive reflection; (i.e., reflection during the professional experience itself). *Synthesis* is an attempted resolution of discrepancies between current and desired states consisting of a short-term conceptual change process in which there is mutual adaptation of current practice with selected elements of the valued alternative in a uniquely personal mental structure. Reflection at this stage is anticipatory: the practitioner is considering courses of action for new instances of previously encountered situations. *Experimentation* is a short-term behavioural change process in which the action implications of the conceptual synthesis are piloted and outcomes are appraised. Recollective reflection predominates, with instances of interactive reflection in roles which are less frenetic than teaching. *Integration* refers to further adaptations of the synthesis in long-term conceptual and behavioural internalization. This final stage again embodies anticipatory reflection.

The model proposes that individual characteristics of learners will have an impact on professional growth processes. Beliefs about personal efficacy have been empirically linked to changes in the instructional practices of teachers (McLaughlin & Marsh, 1978; Ross, in press; Smylie, 1988; Stein & Wang, 1988). Stages of adult
development (Oja, 1989) and of career experience (Fuller, 1969; Huberman, 1988; Larsson, 1987; Rutherford & Hall, 1990) have also been identified as predictors of professional change. Other personal variables likely to have an effect that have not been investigated in terms of professional development are role responsibility, cognitive flexibility and sex.

Figure 1 further proposes that contextual variables will influence professional development processes. Rosenholtz (1989) identified a variety of factors (such as shared goal setting) that contribute to the development of learning enriched as opposed to learning impoverished schools. Other studies found that professional growth was affected by school leadership (Leithwood & Jantzi, 1990), collaborative norms (Louis & Dentler, 1988) and quality of in-service (Ingvarson & Mackenzie, 1988), including partner characteristics when learning in pairs (Richert, 1990).

Contributions of Professional Sharing to Professional Growth

We define professional sharing as the reciprocal exchange of reports of professional experience by practitioners. Each of the four stages displayed in Figure 1 may be enhanced by sharing professional experiences in collegial groups.

At stage 1 (dissonance), professional sharing requires that covert beliefs be made public, thereby bringing them to conscious scrutiny. Sharing also provides opportunities to hear other viewpoints which might be represented as desirable alternatives to one’s own practice. However, research on conceptual change in children (Doise & Mugny, 1979; Doise, Mugny, & Perret-Clermont, 1976; Glachan & Light, 1982; Mugny & Doise, 1978) suggests that conflict between alternate views is more likely than the presence of better answers to be the central mechanism in professional growth. By defending their positions in response to peer criticism, practitioners recognize gaps and limitations in their conceptions (Bargh & Schul, 1980). In social settings attempts to avoid conceptual conflict might be reduced by norms of reciprocity: the views of others must be taken seriously.

At stage 2 (synthesis), colleagues may stimulate reconceptualization if they respond to professional stories by giving specific advice to the narrators on how perceived deficiencies in their beliefs about practice might be
remediated. Discussion might encourage learners to elaborate, revise and integrate their understandings with other views because in social situations we must satisfy others, as well as ourselves, of the reasonableness of our positions (Bearison, 1982). Colleagues might also provide emotional support; re-examining one's fundamental premises can entail psychological costs. The affective benefits of interpersonal engagement might encourage learners to attend to the task longer in a social setting.

At stage 3 (experimentation), collaboration might contribute to practitioner's willingness to apply new conceptions in the field by sympathetically recognizing the disruption of change and by creating expectations that results of field applications will be reported. Colleagues might also contribute by suggesting criteria that could be used to judge outcomes.

At stage 4 (integration), the experiences of other practitioners might provide additional cases to assist the learner in generalizing from his or her field experiment. Colleagues might also contribute by giving advice on how to deal with unintended consequences.

**Predictions About Professional Sharing**

Despite the pervasive support for sharing professional experience in preservice and in-service programs, we are aware of no empirical research on the characteristics of effective sharing. Prescriptions for program designers are plentiful and include such advice as establish a trusting environment (Pearson & Smith, 1985) and control the amount of air time taken by each participant (Heron, 1985). Most of the discussion of the effects of professional sharing addresses the benefits for practitioners when they are in the story telling mode with little attention given to the impact of such stories when they are listeners. Yet the preceding discussion suggests that listeners who are actively processing the reports of other practitioners are likely to benefit. Although the detection of active processing is a thorny measurement issue which needs to be addressed (and will be below) we predict that:

**H1.** Listening to descriptions of others' professional experiences will have a positive effect on the professional development of listeners who interact with the narrator.
A practical issue that has not been systematically addressed is whether listeners should break in to accounts of professional experience as opposed to waiting courteously until the narrator is finished. Knights (1985) argued forcefully in favour of the latter, claiming that interruptions disrupt reflection. Knights recommended a "free attention" technique in which other group members listen with attention but without interrupting. The preceding discussion suggests that interruptions might be beneficial if they represent constructive dissonance. We predict that

H2. Describing one's professional experience will have a weak impact on the professional development of the narrator, unless the report is punctuated with metacognitions (self-awareness and judgments) or is challenged by other group members.

Professional Development of District Consultants

Definition of Effectiveness

A variety of terms are used to describe consultants (resource teacher, curriculum coordinator, change agent, program advisor, etc.) and there is no consistency in the job descriptions attached to these labels (Fullan & Stiegelbauer, 1991). We define consultant as an educator who helps teachers and other staff achieve job related objectives. In the Canadian province in which this study was conducted the function of consultants is to "assist teachers in maintaining standards and improving instruction" (Ontario, 1984). The positions are funded by individual districts, rather than by the province or an external funding agency. Depending upon district size they will be assigned to all the schools in the district or to a specific group (family) of schools or in some instances to a single school (which is often combined with a partial teaching load). Most consultants in Ontario are teachers who are in the role for brief periods (two or three years); they return to the classroom at the end of their terms or seek positions of added responsibility such as a vice-principalship. The job descriptions vary within and between districts and are constantly changing. About half are special education consultants who help teachers program in all subjects for students with special needs. The remainder are curriculum consultants who help teachers program for all students in a group of subjects for a large number of schools (specialists) or for all students in all subjects for
a limited number of schools (generalists).

In a review of the research on consulting, Ross & Regan (1990) found few empirical attempts to identify the characteristics of effective consultants, although evidence that consultants have a positive impact on teachers (and students) was ample. Berman & McLaughlin (1977) and Loadman & Mahan (1972) found that effective consultants spent more time in modelling activities, especially demonstration teaching. Firestone & Corbett (1981) were not able to identify any consultant activities that consistently produced change; similar findings were reported by Louis & Kell (1981). Miles, Saxl & Lieberman (1988) attempted to distinguish between the strategies used by external consultants who were rated as outstanding by project managers and those who were rated average: the differences were small and inconsistent.

Ross & Regan (1990) conducted a series of semi-structured interviews with 12 curriculum consultants from two large school districts, 6 senior administrators from the same districts and 6 additional consultants from a third district with significantly different characteristics. Categories of analysis were generated from the data using grounded theory techniques. Although similarities in beliefs about the consulting process were found, there were striking differences between experienced and inexperienced consultants in their methods for helping teachers. The delivery and evaluation strategies used by relative experts suggested a reflective approach to consultation not demonstrated by the novices. Idealized models representing expert and novice consultant orientations were constructed from the data.

Figure 2 models the strategic deliberations of the expert consultant. The key element in the figure is the box representing the reflectiveness of an actor who consciously plans, experiments and evaluates in the role (step 1). These consultants generated their discrete actions from an explicit framework which was informed by long term goals, mechanisms for negotiating specific objectives, knowledge of planned change procedures, and constant self-appraisal leading to tactical realignment. Prior to the initiation of a particular consultation, the experts developed an image of what should be, derived from district priorities and government regulations (step 2). They interpreted requests for help from teachers and other staff (step 3a) and placed independent consultant initiatives
(step 3b) within the curriculum environment of the district. A prime source of information about teacher needs (step 4) was provided by indicators of student and teacher performance (step 6), especially data on the gap between desired and actual practice represented by placements on program profiles (step 5). The differentiated objectives that emerged from such needs assessments narrowly targeted the learning requirements of individuals and groups (step 7). These objectives were addressed by consultant teams in sessions that provided for demonstration (step 8) and for practice within (step 9) and between consultant visits (step 10). Each step of the process was formatively and summatively appraised and integrated into the evolving framework of the reflective consultant.

**Figure 2 About Here**

The raw data and interpretive models from Ross & Regan (1990) were used to construct the profile of consultant development, displayed in Figure 3. Each of the eleven dimensions in the figure is a continuum containing four levels of performance as incremental steps toward effectiveness in the role. Level 1 describes the typical practice of an inexperienced but competent consultant; level 4 approximates the sophisticated strategies of the expert. Claims about the validity of the hierarchies were based on reviews of the school change literature; these claims are elaborated in Regan & Ross (1991).

**Figure 3 About Here**

The Consultant Development Profile provides a definition of effectiveness but is not itself a measurement instrument. The ideal way to place individuals on the profile would be to triangulate observations of consultants working with teachers and other staff with interviews designed to elicit consultants’ cognitions about their work. But we know of no feasible way to conduct such observations. Even job shadowing involves risks of observer bias, threats to teacher privacy and high researcher costs. The alternatives involve some form of self-report interview in which the practitioner responds to a hypothetical situation provided by the researcher or describes what he or she does using self-selected examples from recent practice. We view the latter as having greater ecological validity, although we are very much aware that the self-report interview is susceptible to social desirability and other validity concerns (D’Onofrio, 1989; Hook & Rosenshine, 1979; Nisbett & Wilson, 1977).
The specific technique we use is a 45 to 60 minute individual interview (provided in Regan & Ross, 1991). Subjects are asked to describe two recent consultations, one in which they were working with individuals and the other with groups. Subsequent questions probe the specific strategies embodied in these examples and attempt to determine whether they represent typical practice. The interviews are audio taped and responses are classified in terms of the dimensions of the Consultant Profile. Coders are required to infer from the specific examples of current behaviour the best placement, a task that is particularly difficult when consultants are familiar with the Profile. Their use of terms or phrases from the Profile, along with ambiguity between actual activities as opposed to events which are merely planned, demands the use of two independent coders with disagreements (typically 10% of all codes) being resolved through discussion. Regan & Ross (in press) found that scores on the interview guide correlated positively with teacher rankings of consultant effectiveness ($r = .67$) in a small sample of cases ($n=15$).

**Professional Development Programs**

Few studies of consultant in-service (or preservice) have been reported in the literature. Most articles merely provide a rationale for offering consultant training or prescribe its characteristics without assessing effects. The few empirical studies that have been reported are flawed. For example, Broskowski, Khajavi & Mehryar (1973) claimed positive effects for a twelve week training program but the nature of the treatment was only briefly sketched; the effects were assessed by vague self-report measures and there was no comparison group. Goodwin and Coates (1973) provided lectures on theory with simulations and guided practice in lab and school contexts. They found large changes in consultants' behaviour, which were associated with effects on teachers and students, but again there was no control group.

Regan & Ross (in press) reported a study of an in-service program which was assessed by measuring pre/post changes in the placement of practitioners on the Consultant Development Profile (Figure 3). In the first implementation year, the treatment group significantly outperformed a control sample. In the replication in the second year a new treatment sample outperformed both first year groups. Since the program has been published...
(Regan & Ross, 1991), it will be only briefly described here.

The program was designed to enhance the professional development processes in Figure 1. There were 30 hours of contact time delivered over an eight month period. All in-service sessions were conducted in district teams based on participants’ work assignments. After some preliminary goal setting procedures there were four learning cycles, each containing four sets of activities. In the first set of exercises practitioners analyzed two case studies describing the actions of novice consultants working with individuals and groups of teachers. These case studies highlighted two dimensions of consulting. Excerpts from the Profile and summaries of relevant research literature outlining the probable impact of various methods were distributed. The purpose of these exercises was to help practitioners recognize and rank different consultant strategies. In the second set of activities participants identified their current practice with respect to the two target dimensions, determined what level of performance they would like to move to and devised a specific plan for applying new strategies in their jobs. The purpose of these exercises was to create dissonance and resolve it with a short-term conceptual synthesis. The third set of activities occurred between sessions as consultants implemented their action plans in their daily routines. In these events participants experimented with new courses of action. In the final activities consultants assessed the results of their experiments and determined how they would address similar events in the future. These activities promoted integration which is the long-term consolidation of conceptual and behavioural changes.

**Methods**

The data used to test the hypotheses about professional sharing were taken from a two year evaluation of the consultant in-service program described above. Previous reports have described the overall effects of the program (Regan & Ross, in press) and the antecedent conditions affecting individual learning (Ross & Regan, 1991). The observational data on consultant deliberations to be described here have not been previously reported.

**Sample**

The in-service program was delivered to two separate groups. In the first year (1989) there were 18 consultants from 2 districts; in the second year (1990) there were 35 consultants from 10 districts. All were
volunteers who were viewed as competent by their supervisors. Most were very experienced teachers (mean = 17 years) with relatively little consulting experience (mean = 3 years). There was great variety in their consultant assignments. Half were identified as special education consultants with responsibilities for helping special education or regular classroom teachers meet the needs of all special children or those of specific populations (e.g., intellectually challenged, the gifted, physically handicapped, behavioural disabilities). The remainder were curriculum consultants with responsibilities distinguished by the level of the school system in which they worked (e.g., primary specialist, primary/junior, secondary, Kindergarten-Senior) and/or by subject (e.g., language arts, vocational education, visual and performing arts, physical education, computers, etc.). The school districts were all located in east central Ontario in mixed urban/rural settings, (the largest city had a population of 60,000); the districts ranged in size from 6,800 to 52,600 students.

Personal characteristics and, to a lesser extent, district variables influenced consultant learning. Greatest gains were obtained by those who were relatively inexperienced as consultants, who were confident about their own ability to bring about change in students and who attached more importance to the administrative aspects of consultancy (Ross & Regan, 1991).

Instruments

The interview guide described above was administered by a single interviewer at the beginning and end of the program to measure the outcomes of the in-service. Two trained research assistants (one of whom was the interviewer) independently coded the taped interviews and disagreements were resolved through discussion. The between-rater reliability (proportion of exact agreement) prior to discussion was .90 in both years. The instrument produced individual scores for each consultant on each of the eleven dimensions of the Consultant Profile. Two items were dropped due to missing data so that the Profile score was the average on the nine remaining items. Specific probes addressing dimension 11 (reflecting within the role) had not been included in the version of the guide used in the first year pretest and attempts to recapture performance on this dimension by examining responses to other items failed. In the second year there were a large number of uninterpretable reactions to the
questions on dimension 8 (response to teacher feedback during delivery). In-service learning was represented as the mean residual variance remaining after the variance attributable to pretest performance had been removed by regressing post over pre scores.

Professional development processes were measured by audio taping consultants while they were working in small groups on in-service tasks. In the first year of the project, each of the six groups was recorded on two occasions: while they were developing an action plan to be implemented in their home boards and in the subsequent session in which they were reflecting on the outcomes of the implementation. Each subject was given a lapel mike which was connected to a separate channel of a Sony BM-346 Confer-coder. The sessions were 45-60 minutes long. Twenty-nine consultants were recorded. Verbatim transcripts were made of the 12 tapes and were coded by two trained research assistants. Disagreements were resolved through discussion. The inter-rater reliability (proportion of exact agreement) prior to discussion was .79.

In the second year of the project, six of the ten groups were randomly selected for audio recording. Each group was recorded on two occasions: during action planning and subsequently during the reflection on implementation session. Twenty-five consultants were recorded. Taping procedures were the same as in year one. Each of the 12 transcripts was coded by the same trained coders and disagreements were resolved through discussion. The inter-rater reliability prior to discussion was .76.

The professional development model in Figure 1 describes internal processes that are not visible to observers and are not the subjects of explicit discussion. Consequently the coding scheme was derived from the data, rather than being imposed a priori. It evolved through several iterations. Two transcripts were purposefully selected to represent a breadth of group behaviours. One transcript was from a group that was observed to be especially productive; the second was observed to be less so. One taping was made while the group was developing action plans; the other consisted of the group's deliberations after their action plans were implemented. The two sessions selected addressed different dimensions of the Consultant Profile. Materials, procedures and field notes for the selected sessions were reviewed and both transcripts were read in their entirety by one researcher [Regan].
This investigator then developed an initial coding scheme for one transcript based on field notes taken during the session. After feedback from the other members of the research team, the same investigator produced a manual containing the revised scheme with each category illustrated with excerpts from one of the transcripts. This scheme was applied to two transcripts by this investigator, leading to a further revision. Three members of the research team then independently coded a third transcript; this coding was used to produce the final version summarized in Table 1.

**Table 1 About Here**

The first level of coding was concerned with classifying chunks of dialogue into broad categories in order to isolate instances of specific task-talk (i.e., discussions of consultant beliefs and actions concerning issues addressed by one or more of the eleven dimensions of the Profile). Following Meichenbaum & Biemiller (1990), only material containing specific task-talk was analyzed further. The second level classified these utterances into nine categories, grouped in three clusters. The first cluster contained stories of professional experience, including descriptive reports and three kinds of reflective interpolations by the narrator about the meaning of these events. The second cluster contained responses by colleagues, including substantive feedback, affective feedback, procedural directions and references to the in-service materials. The third cluster consisted of a residual category of utterances that were usually spoken by responders but in some instances were self-interruptions of speakers.

**Analysis Procedures**

The transcripts and codings were entered into TAP (Text Analysis Package), a qualitative data analysis software program that was selected because it allows sequences of codes to be entered and tabulated (Drass, 1986). A series of system files containing frequencies of codes was created. The first file contained separate cases for the two session types (action planning and reflection on results) for each consultant.

Since task-talk scores were correlated with session length, particularly in the second year ($r = .57$), the frequencies were adjusted in the second file. The scores for each individual were divided by the length of the tape and then multiplied by 1,000 to eliminate fractions. This file contained, for each consultant, the adjusted
frequency of the nine main categories and the frequency of all possible sequences of the categories.

Previous-current sequences focused on the response to a narrative; this process combination was linked to the achievement (in-service outcome) of the person who responded to a peer's account of professional experience. Current-subsequent sequences focused on the narrative; this process combination was linked to outcomes for the consultant who shared his or her professional experience.

In the third system file the data from the two sessions were pooled and combined with the consultant achievement information. It was used to find out which categories and sequences were associated with in-service learning. In this analysis the unit of analysis was the subject for whom complete data were available (n = 38).

**Results**

There were a total of 4,098 instances of task-talk in the interaction transcripts. The most frequently occurring categories were reporting of experiences (27% of all utterances), providing substantive feedback (24%) and short interpolations of various kinds (21%). Each of the remaining categories occurred far less frequently. There was a great deal of variation between speakers: the standard deviations were in most instances larger than the means.

The small group activities that were recorded typically began with each consultant describing a personal case. In the planning session this was an unfolding set of intentions and less commonly a rehearsal of the past; in the feedback sessions it was an account of what happened when they implemented their plans. Consultants took turns reporting their stories; these passages tended to be the longest in the transcripts. The overall correlation between professional sharing and speaker's achievement was nonsignificant (r = .18, n = 38, p<.135). Those who more frequently shared their professional experiences were no more or less likely to be affected by the in-service.

The reports were classified in terms of the immediate responses they received. When these interaction sequences were examined, two significant findings emerged, as shown in Table 2. Narrators who interrupted their narratives with speculations about the relationship between their actions to specific dimensions of the Consultant Profile were more likely to be high achievers than those who did not. Similarly when reports of experience were
interrupted (usually by a peer although there were some instances of self-interruptions in this category) with references to the in-service materials, there was a modest positive impact on the achievement of the narrators. But when multiple comparisons are being made there is a danger that the purported relationships may be spurious. To guard against Type I error (false positives) the Bonferroni procedure of dividing the alpha by the number of comparisons was followed. This more stringent criterion required a p<.006, a standard not met by any of the findings.

Table 2 About Here

Table 2 also shows that feedback from peers had no significant impact on speakers' achievement, regardless of whether the feedback took the form of a substantive comment, affective reaction or initiation of their own reports. This was a surprising finding, particularly for the substantive feedback category. Much of this type of feedback consisted of short questions or clarifying responses in which the listener paraphrased what was said or asked of the narrator to elaborate. These responses had the potential to encourage story tellers to clarify their current practices (contributing to synthesis and integration). There were also passages in which colleagues gave detailed advice that could have contributed to the recognition of the value of alternative approaches (an element of dissonance) or to the formulation of new strategies (synthesis). But substantive feedback would have such benefits only if the advice was appropriate to the recipient's level of understanding and there was some evidence in the audio tapes, illustrated below, that this was not the case.

Table 3 About Here

Although reporting had minimal impact on speakers' achievement, it did have a substantial impact on active listeners' achievement. By active listeners we are referring to consultants who followed a report of professional experience with a response of their own. The correlations between professional sharing sequences and the achievement of those who responded to their accounts are displayed in Table 3. The stringent standard for guarding against Type I error for six comparisons (p<.008) was reached by four sequences. The strongest correlations occurred when a listener responded to a narrative with a substantive comment that attempted to probe
or elaborate the narrative. The following example was typical. In it the listeners (S01 and S32) became actively involved in processing information about the case and attempted to relate the report to a broader theme addressed in the in-service, using in-school resources (such as expert teachers) to help teachers learn about district programs, as well as using experts from outside the school.

S93: We're having a ministry expert, we're having the drug education experts [deliver the message] . . . [RPD]
S32: Okay. So, is it expert focus at this point? [SFB]
S93: Well, half the day is and then we want to move them. [RPD]
S01: But, again, you're doing the sharing, you're doing the planning yourself, right? [SFB]
S93: We're planning sharing. [RPD]

This type of interaction contributed to the listeners' learning in that the report gave them an opportunity to test their understanding of a strategy recommended in the in-service; that is, S32 and S01 were trying to find out if S93's plan should be classified as a high level strategy in which the consultant makes use of teachers in the school in the planning and delivery of the workshop. The dialogue also suggests why reporting alone was unrelated to achievement: S93 did not pick up on the significance of their questions and responded at a surface level.

Listeners also benefitted from hearing a peer describe his or her consultation if the listener responded with affective feedback. In these sequences, the listener's reassurance did nothing for the learning of the consultant who was reporting the case, but it indicates that the listener was tuned in to the account. In the following illustration S22 was attentive to S21's report and sympathized with her plight, but S22's feedback had the effect of encouraging the narrator to avoid the problem.

S22: I had planned on phoning Janet [pseudonym] and phoning some teachers, and just that, finding out what I will address. Obviously I can't cover five top subject areas in one workshop. So I don't know. [RPD]
S21: No. No. Well, let's leave that for now, okay? [AFB]
Sure, that's fine with me. [N]

In a similar way listeners who responded to reports by repeating elements, giving nonevaluative acknowledgements of what was said or uninterpretable mutterings (represented in Table 3 as residual comments) also learned more in the in-service. It may be that these utterances indicate that the listeners were paying attention and processing the information about their peer's consultation.

Hearing one of their peers recount a consultation or an anticipated experience also had a positive effect on listeners' achievement (although it reached statistical significance only on the less stringent criterion) if it stimulated them to think of and relate an incident from their own experience or to share their recollection of the same event. In the following typical passage, hearing about the particular objectives to be addressed in S08's consultation stimulated S09 and S13 to recall the objectives of their consultations, and in the case of S13, the needs identification strategy she used.

S08: . . . it was teacher evaluation plus student evaluation, both were addressed. [RPD]

S09: My need was . . . the needs of individual geography teachers with respect to software and there were also needs with respect to how the whole computer facility was being managed at the school . . . . [RPD]

S13: In my particular situation when I started out I . . . talked to the vice-principal and tried to get a perception of where she thought the teachers were with this and one of the first things I did, at the first session I asked them how they approached [it] . . . I saw that they were probably using an approach that may or may not be effective and decided to spend a little more time on that. [RPD]

Professional sharing also had a substantial impact on listeners who responded with comments about the in-service materials. This sequence was one of the two in which there was modest evidence of speaker benefits. The following passage suggests why. The initial report by S40 stimulated the listener's (S39) examination of task materials, which in turn enriched the development of the plan, thereby contributing to the learning of the speaker and listener.

S40: We were going to make up a workshop based on what the system said we were supposed to
be doing. [RPD]

S39: But if we're doing [reading from the Profile] "3a: response to expressed needs of teachers based on limited data" . . . . [UTM]

S40: Right. We have to get them to express their needs to us. [RPD]

These findings indicate that professional sharing was significantly associated with the in-service learning of the consultants who responded to case reports, and to a lesser degree, of those who shared them. These correlations do not in themselves demonstrate that "talk caused achievement"; the reverse, "achievement caused talk", might also be possible. But if the latter, we would expect to find that those who were higher achievers on entry would be more frequent speakers. This was not the case; the correlations between entry achievement and process variables were near zero. Other possibilities, which cannot be addressed in this data bank, included: those who were learning more might have been encouraged to speak more frequently; the correlations might have been the result of the effect of a third, unmeasured, set of variables; the relationship might have been reciprocal with talk and achievement reinforcing one another.

**Discussion**

The first hypothesis was supported. The study found that listeners who interrupted professional sharing derived greater benefit from the in-service activities than those who did not. The most effective interruptions, from the standpoint of listeners, were substantive and affective feedback, references to the in-service materials and short interpolations that were at times unintelligible to outside observers.

The most likely explanation for the productive effect of substantive feedback is that asking questions of narrators, interpreting what was said and giving specific advice on how to proceed, reflected and enhanced attempts by responders to clarify their own understandings of consultant practice. Similarly responses that focused on the in-service materials could be interpreted as attempts by responders to illuminate the meanings of new concepts and strategies. In each case we are inferring that the observed speech was a manifestation of the conceptual change processes outlined in the professional development model of Figure 1 and that articulation
contributed further to these processes.

The explanation for the findings concerning the impact of affective feedback and the short interpolations that made up the residual category is slightly different. One source of impact might be labelled "withitness": those who interrupted with expressions of concern for the feelings of the narrator or with short comments showing they were paying attention, probably were. They were tuned in to the deliberations of the group and were at least trying to make sense of the facts being presented, or at most, were coming to grips with the concepts and principles described in the dimensions of the Profile. These exchanges may also have had the effect of strengthening the social cohesion of the group by acknowledging the contributions of members and quietly celebrating shared experiences. Strengthening affiliative ties within the consultant teams may have bolstered the dissonance and reconstruction processes of Figure 1 by supporting a climate that encouraged risk taking, help seeking and nonwithdrawal.

There was some support for the second hypothesis. The study found that overall professional sharing had a weak impact on the professional development of narrators. The most likely explanation for the finding is that recounting the events of professional practice is insufficient for conceptual change to occur.

There were also modest indications that the impact of sharing increased if narrators interrupted themselves with metacognitions, specifically attempts by the narrator to relate his or her strategies to the dimensions and levels of the Profile. These reflective interpretations might be viewed as indications that consultants were recognizing discrepancies between current and desired practices and attempting to reconcile them in a mutual adaptation. Two other sequences combining reporting with reflective categories had no effect. Reflective comparisons in which narrators made explicit comparisons between the case they were reporting and other experiences were so infrequent that relationships with in-service learning could not be drawn. There was a different problem with reflective explanations, a category concerned with consultants' identification of factors that affected the outcomes of their on the job experiments. These factors were of two types: obstacles arising from system problems and those arising from the consultant's behaviour. Attributions of success or failure to factors
within the control of the consultant may indicate a mastery control orientation which has been consistently linked with achievement (Harter, 1981). In contrast external attributions may indicate a dependency orientation negatively linked to learning. The combination of both in the same category may account for the failure of these sequences to correlate with in-service learning.

The study found little evidence to support the hypothesis that narrators who were challenged by peer feedback would learn more. In only one of the feedback categories was there a correlation with narrators’ achievement and even in this the stringent statistical criterion was not met. The most likely explanation is that professional sharers did not receive the kind of help they needed from their colleagues. Webb (1989), in reviewing studies of children learning in small groups, found that the fit between help given and learner need was crucial. Help which was below the conceptual level required by the learner provided no benefit to the recipient, particularly if help seekers asked for explanations and were given short answer responses or were ignored.

These findings lend support to those who advocate the use of professional sharing as a mechanism for professional growth and suggest that interruptions played a central role in effective sharing. Schon (1987) characterized dialogue between the master architect and apprentice as a "two tiered conversation" constantly moving between details of the particular design and the process of designing. This study suggests that interruptions are a mechanism for promoting multi-levelled discourse and that it is as essential to reflection on action as it is to reflection in action.

**Directions for Further Research**

One of the most intriguing findings in the study was that substantive feedback did not influence the effects of sharing. Subsequent research might focus on the characteristics of feedback, using interviews and observations to address such questions as: What kind of feedback do narrators expect and prefer in professional development settings? What sort of feedback is offered and what is its impact on professional growth? This line of research might go on to examine whether there are personal characteristics (experience and professional self-confidence come immediately to mind) that are related to the feedback given in professional sharing settings. Institutional
characteristics (such as collaborative norms) might also influence feedback procedures. Although it is reasonable to speculate that feedback which contributes to the learning of responders also contributes to the learning of narrators, it may be that some feedback has a differential effect. Future researchers might also investigate the effect of professional sharing and feedback on the learning of silent listeners.

To provide persuasive answers to these questions, observations of professional sharing episodes need to be supplemented with additional data. The most useful would be retrospective interviews in which participants described the subjective meanings they attached to the utterances they made and received. Expanding the data bank to include participant cognitions would provide researchers with a clearer grasp of learners' motivations, beliefs and perceptions that would further illuminate the link between professional sharing and career growth.
References


improvement (pp. 73-90). East Sussex, UK: Falmer Press.


Nisbett, R., & Wilson, T. (1977). Telling more than we can know: Verbal reports on mental processes.
Psychological Review, 84, 231-259.


Chicago, IL.


TABLE 1

Summary of Categories for Coding Interaction Data

Level One

1. **Specific task-talk**: discussion of an issue addressed in a profile dimension in terms of planning actions and/or reflecting on actions

2. **Recording information**: filling out forms, usually following substantive discussions or discussion of task procedures

3. **Deep background**: discussion of people, places and events (including war stories) that make up the context in which consultants work

4. **Left overs**: uninterpretable comments or confusion when team is getting settled in for the task

**Level Two - Specific Task-Talk**

**Narrator Utterances**

**RPD - Reporting, Discussion, Description**: narration of personal experience: description of goals, plans, and outcomes.

**FLX - Reflective Interpretation**: attempts by the reporter of a case to place his/her own behaviour on the Consultant Profile.

**FX1 - Reflective Explanation**: references by a reporter to problems arising from system obstacles or from himself/herself that affected his/her case

**FX2 - Reflective Comparison**: reporter's linkage of his/her case to other experiences

**Responder Utterances**

**SFB - Substantive Feedback**: team member comments and questions that probe a description of plans and events or elaborate on the description

**AFB - Affective Feedback**: team member comments that approve of the narrator's experience or interpretation of it
UTM - Using Task Materials: explicit reference to task materials to focus or redirect discussion

PQC - Procedural: brief procedural interpolations, e.g., who's next

Other Utterances

N - Nonsense: confusion and uninterpretable comments, as well as nonevaluative grunts and repetitions of what was said; these are brief interpolations unlike category 4 of level one coding
## TABLE 2

**CORRELATIONS OF PROFESSIONAL SHARING SEQUENCES (ADJUSTED FOR SESSION LENGTH) AND NARRATOR ACHIEVEMENT**

(n=38)

<table>
<thead>
<tr>
<th>Professional Sharing Sequences</th>
<th>Sequence Frequency</th>
<th>r</th>
<th>p&lt;</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Self Interruptions</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RPD - reflective interpretation</td>
<td>43</td>
<td>.44</td>
<td>.003**</td>
</tr>
<tr>
<td>RPD - reflective explanation</td>
<td>71</td>
<td>.14</td>
<td>.204</td>
</tr>
<tr>
<td>RPD - reflective comparison</td>
<td>16</td>
<td>.23</td>
<td>.084</td>
</tr>
<tr>
<td><strong>Peer Feedback</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RPD - substantive feedback</td>
<td>444</td>
<td>-.25</td>
<td>.069</td>
</tr>
<tr>
<td>RPD - affective feedback</td>
<td>85</td>
<td>-.02</td>
<td>.453</td>
</tr>
<tr>
<td>RPD - RPD</td>
<td>132</td>
<td>.23</td>
<td>.081</td>
</tr>
<tr>
<td>RPD - procedural direction</td>
<td>32</td>
<td>.01</td>
<td>.484</td>
</tr>
<tr>
<td>RPD - in-service materials</td>
<td>83</td>
<td>.33</td>
<td>.021*</td>
</tr>
<tr>
<td>RPD - residual comments</td>
<td>207</td>
<td>.08</td>
<td>.317</td>
</tr>
</tbody>
</table>
TABLE 3
CORRELATIONS OF PROFESSIONAL SHARING SEQUENCES (ADJUSTED FOR SESSION LENGTH) AND LISTENER ACHIEVEMENT

<table>
<thead>
<tr>
<th>Professional Sharing Sequences</th>
<th>Frequency</th>
<th>r</th>
<th>p&lt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peer Feedback</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RPD: RPD</td>
<td>130</td>
<td>.32</td>
<td>.026*</td>
</tr>
<tr>
<td>RPD: substantive feedback</td>
<td>449</td>
<td>.61</td>
<td>.001***</td>
</tr>
<tr>
<td>RPD: affective feedback</td>
<td>86</td>
<td>.60</td>
<td>.001***</td>
</tr>
<tr>
<td>RPD: procedural direction</td>
<td>33</td>
<td>.16</td>
<td>.165</td>
</tr>
<tr>
<td>RPD: in-service materials</td>
<td>87</td>
<td>.57</td>
<td>.001***</td>
</tr>
<tr>
<td>Other Dialogue</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RPD: residual comments</td>
<td>207</td>
<td>.49</td>
<td>.001***</td>
</tr>
</tbody>
</table>