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ABSTRACT

This report discusses the results of a study of 21 special education teachers from urban, mid-sized, and rural school districts that investigated whether teacher cognition would differ according to the characteristics of students in a classroom and the social environment in which teaching takes place. In the study, a stimulated recall procedure was used in which teachers viewed videotapes of their instruction to stimulate thoughts and decisions that were occurring during the instructional episode. Using this procedure, the study examined the reflections of identified "expert" special educators. Results indicate that many of the teachers made frequent use of "instructional diagnosis," in which the teachers used extensive content knowledge and their particular knowledge of the student to arrive at a diagnosis. Immediately following their diagnosis, they applied a modification to remedy the learning difficulty that the student was encountering. The instructional diagnosis did not seem to rely on the category assigned to a student. Teachers were also observed engaging in frequent consultations with regular education teachers. The consultations were brief and spontaneous, and required the special education teacher to manage the consultation along with her instruction in the classroom. Implications of the findings are discussed. Appended are the teacher interview questions and three tables presenting the data. (Contains 36 references.) (CR)

Special Thinking in Special Settings

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Providing a free, appropriate public education for all students with a disability has been a national issue for over 20 years. The availability of qualified educators and related service personnel has been identified as a necessary prerequisite to providing this "appropriate" education (IDEA; PL 101-476, Turnbull, 1993). Unfortunately, there is a lack of clarity as to what it means to be a "qualified" special educator. For example, as only a small proportion of special education teachers remain in the field for longer than four or five years (Brownell & Smith, 1992), many students with disabilities recieve services from teachers who are certified but have had limited experience in the classroom. In addition, due to the limited availability of special education teachers, the number of alternative teacher certification programs with few prerequisite or training requirements has increased in recent years (Buck, Polloway & Robb, 1995). There are concerns that many teachers participating in these programs may be inadequately prepared to meet the instructional needs of their students (Buck et al., 1995; Sindelar & Marks, 1993). Furthermore, even though a number of competencies have been identified that are purportedly needed by special education teachers (e.g., Council for Exceptional Children, 1995; Graves, Landers, Lokerson, Luchow, & Horvath, 1993), these competencies have been selected in a piecemeal fashion, with limited empirical support, and do not examine the effects of instructional contexts on effective instruction (Blanton, 1992; Goldenberg and Gallimore, 1991).

Several changes in the nature of special education have particularly influenced the role that these teachers now play in the educational system. The normalization and mainstreaming movements over the last twenty-five years called for the inclusion of special education students in regular education classrooms (Reynolds, Wang, & Walberg, 1987; Stainback & Stainback, 1992). As a result, special and regular education teachers are instructing classrooms of students with wide ranges of academic and behavioral needs in a variety of instructional arrangements (Fuchs & Fuchs, 1994). Special education teachers also are increasingly called upon to consult with and support regular educators in their instruction of special needs students, particularly those with mild and moderate disabilities (Sugai & Tindal, 1993). Arick & Klug (1993) found in a survey of 1,468 special education administrators, that the highest-rated training need of special educators was in training them so that they could work effectively with other instructional personnel. The expert special educator, then, may be seen as one that is skillful in facilitating this type of collaboration with his or her regular education colleagues.

Special educators also are instructing an increasingly diverse population of students. As a group, minorities often comprise the majority of students in public schools, while in the special education system, minority students continue to be over represented (Artiles & Trent, 1994). Unfortunately, we know little about how educators develop their cognitions, beliefs, and skills to teach diverse students (Grant & Secada, 1990). Grant and Secada suggest that examining the knowledge and skills of effective teachers may serve as a starting point for training novice teachers.

The changing role of the special educator begs for a close examination of those teachers who are particularly effectual in both both educating students with special needs and in consulting with regular educators who instruct students with disabilities. Researchers have used the construct of expertise to conceptualize the knowledge that superior teachers in regular education possess (e.g., Berliner, 1986; Borko & Livingston, 1989; Carter, Cushing, Sabers, Stein, & Berliner, 1988; Comeaux & Peterson, 1987; Shulman, 1986). Expertise is generally defined as superior knowledge and skill within a specific domain (e.g., Chase & Simon, 1973; Chi, Feltovich & Glaser, 1981; Ericsson & Smith, 1991; Glaser & Chi, 1988). Experts have been found to perceive meaningful patterns in their area of expertise, to be faster than novices at performing a task, and to have superior short-term and long-term memory about events (Glaser & Chi, 1988).

In research on expert teachers, some researchers (e.g., Leinhardt, 1983; Leinhardt & Smith, 1985; Shulman, 1986) have investigated teacher instruction within a specific subject matters, while other studies have focused on teacher's pedagogical content knowledge (e.g., Shulman, 1986). Research on expert teachers in the regular classroom setting focus on how they organize their knowledge about the classroom and on the instructional decisions that they make. Several studies have suggested that expert teachers not only have more knowledge than novices; they differ in how their knowledge is organized (Borko & Livingston, 1989; Sabers, Cushing, and Greeno, 1986), they make different judgments about students (Leinhardt, 1983; Cadwell & Jenkins, 1986; Stader, Colyar, & Berliner, 1990) and pay attention to different information about students when planning and implementing their lessons (Carter & Doyle, 1987; Strahan, 1989).

Several recent studies have implied that educating learners with special needs entails particular instructional and cognitive skills (e.g., Bartelheim & Evans, 1993; Bay & Bryan, 1991; Blanton, Blanton, & Cross, 1993; Cambone, 1991; 1992). Bay and Bryan (1991) observed and videotaped twenty-eight regular classroom teachers during instruction and interviewed them about their thought processes using a

stimulated recall procedure. In this procedure, regular education teachers reported what they thought about while they instructed special education students. Teachers made significantly more comments, both negative and positive, concerning special education students than they did about average achievers or low achieving students.

An ethnographic study by Cambone (1991; 1992) depicts the complex, dynamic, and reflective nature of one special education teacher's approach to delivering academic content in a classroom of emotionally disturbed students. In this portrayal, the teacher's approach to instruction was characterized by a continual forming and reforming of mental models of her students. The teacher continually attempted to reconcile individual students' needs with the needs and requirements of the educational setting.

These preliminary studies, taken together, suggest that the nature of cognition in special educators has a different focus than that of teacher cognition in regular classrooms. The nature of the special educator's task appears particularly complex, interactive, and focused on the needs of the individual learner. In examining skilled performance, a number of researchers (e.g., Rogoff & Lave, 1984; Perkins & Solomon, 1989) have pointed out the contextual nature of expert knowledge in that it appears tightly bound to the domain in which it is developed. This situated nature of cognition lends support to the prediction that teacher cognition would differ according to the characteristics of students in a classroom and the social environment in which teaching takes place.

Method

A stimulated recall procedure has been frequently used to study teachers' interactive thoughts and decisions (See Clark & Peterson, 1986). This procedure consists of a teacher viewing a videotape of his or her instruction to stimulate thoughts and decisions that were occuring during the instructional episode. Using this procedure, this study examined the reflections of identified "expert" special educators who worked in a wide variety of instructional settings.

Participants

Participants were 21 special education teachers from urban, mid-size, and rural school districts. Special education supervisors in each of these districts were asked to nominate teachers who 1) had at least five years of teaching experience, 2) were recognized among their peers, parents, or the community as being effective teachers, 3) instructed students that generally made excellent progress in achieving

their individualized education plan (IEP) objectives, and 4) were generally viewed by their supervisors as superior special education teachers. Principals of the nominated teachers were asked to confirm or disagree with these nominations. Teachers who were both nominated and who received confirmation for their selection were then contacted for participation. Similar criteria and methods have been used by other researchers in the area of teacher expertise (see Berliner, 1986; 1987; Bartelheim & Evans, 1993; Blanton, Blanton, & Cross, 1993) in order to select teachers who were "expert" and thus were used in this study to increase the probability that these teachers were part of a special sample.

Identified teachers were selectively sampled to represent a diverse array of instructional settings (i.e.. resource, inclusive, content mastery, and self-contained), instructional levels (i.e.. preschool, elementary, middle school, and high school) and student characteristics (learning disabilities, emotional disturbance, and mental retardation) (see Table 1). The sample was also selected so that diverse ethnic minority groups were represented in both the teachers and the students who were invited to participate (see Table 2). The principal, special education coordinator, and the special educator themselves were each asked to describe the content domains and the curricular activities in which they felt the teacher was "particularly effective." These were the areas of instruction or responsibility that eventually became the focus of our investigation.

Procedure

Data was collected from the participants by five different researchers, each of whom was trained in interview and stimulated recall procedures. These researchers used a variety of methods to obtain information from each of the teacher participants. Each researcher was trained to follow the same procedures in collecting the following data:

Interviews. Each teacher was interviewed and asked a standard series of questions about their classroom experiences and teaching philosophy (see Appendix A). The procedures to be used in the study were explained in detail and teachers were encouraged to share any discomforts or suggest any areas of particular expertise they felt they had with the researcher. These interviews lasted approximately forty-five minutes, resulting in a total of ten hours of audiotaped interviews.

Videotaping. Six one-hour videotapes were made of each classroom teacher. The first videotaped session was used to explain the researcher's presence in the classroom to the students, to orient the researcher to the classroom, and to acclimate

the class to the presence of the videotape recorder. Teachers were asked to select an instructional sequence and content area in which they felt that they were particularly skilled in delivering instruction. They were also asked to identify upcoming consultation sessions that they would have with regular educators or with other personnel providing transition services. Videotapes of these sessions were made during the natural course of the semester and scheduled by the special education teacher. In general, these videotapes were made over a period of two months. Approximately six hours of videotape was used per teacher for a total of 126 hours of videotape.

Observations. Observations were made in conjunction with each videotaping session. Notes were made concerning the number of students in the classroom, number of students who were classified as special education students, ratio of male to female students, ethnicity of the students, content area taught, grade level, and if adults other than the teacher were present in the classroom. A map was made of the classroom and the seating location of all students was noted. For each student enrolled in special education, their classification of disability was noted and the amount of time that they had been with the teacher observed. Observational notes were made both while videotaping the classroom and refined while the researcher reviewed the videotape at a later date.

Stimulated Recall. After each observation, an interview took place with the teacher as soon as possible following each observation and videotaping. A stimulated recall procedure (see Ericsson & Simon, 1984) was used to obtain teacher's reflections about the classroom interactions or consultations. This procedure replicated that used by other researchers in the field of teacher cognition (e.g., Peterson & Cormeux, 1987) in that teachers were asked to recall, to the extent possible, their thoughts and emotions during the classroom or consultative sequence.

During the stimulated recall procedure, the teacher viewed the videotape along with the investigator. The teacher was instructed to stop the videotape at points when s/he recalled thoughts or feelings that occurred during instruction or consultation. If a period of two minutes passed without comment by the teacher, the experimenter stopped the videotape and asked open-ended questions such as, "What were you trying to accomplish here?" or "What were your thoughts or feelings at this point?" All comments by the investigator and the teacher were simultaneously recorded on audiotape. Approximately forty-five minutes of

audiotape was obtained per recall session for an approximate total of four and a half hours per teacher and ninety-four and a half hours of audiotape across all teachers.

Field Notes. Immediately following each contact with a teacher, the researchers completed field notes in which they noted technical notes (problems in collecting the data, special considerations for during their next contact with the teacher), analytical notes (analytical and conceptual reflections) and their general observations (the mood, tone, of the session). These notes were meant to supplement observational notes made during observations during classroom instruction. Approximately six pages of field notes were made for each teacher.

Data Analysis

Following analytical procedures discussed by Glaser and Strauss (1967) and Strauss and Corbin (1990), the data from the special education teachers was analyzed. A qualitative analysis of the data was used to examine the reponses of the twenty-one teachers in this study. All interviews and stimulated recall recordings were transcribed, producing a total of 2,853 pages of transcription. We incorporated data obtained from the interviews, observations, stimulated recall procedures, and from field notes. All interview and stimulated recall transcripts were first analyzed using open coding wherein data were analyzed using a line-by-line analysis (Strauss & Corbin, 1990). In open coding, events or verbal phrases are coded using labels that describe them at a higher level of abstraction. 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 and their effects on subsequent communication.

Initially, each teacher's interview transcripts and observational notes were analyzed separately. The conceptual labels were discussed among the researchers and then were grouped together to form tentative categories. These categories were then arranged following Strauss & Corbin's (1990) suggestions for axial coding. This secondary analysis thus produced a conceptual model of cognition and instructional decision-making in special education teachers.

Memberchecks. A second interview was used at the end of the stimulated recall sessions and after open coding to verify the results of the preliminary analysis of the stimulated recall sessions conducted with each teacher. As the analysis of each teachers' transcripts was individualized, the nature and length of these second interviews varied. Overwhelmingly, the majority of teachers agreed with the major categories of concern that the researchers noted following open coding.

Quantification of the data. In order to compare our data with that of other researchers who have investigated teacher cognition in regular education teachers we collapsed our categories into those that roughly paralleled those used by Peterson & Cormeux (1987). We used these categories to reexamine the open codes that were used during the qualitative analysis and tallied the number of codes that were mentioned by each teacher in each category. These tallies were summed, averaged, and converted to a percentage of the total number of comments made by each teacher. Comments were also calculated so that the mean percentage of total comments made could be calculated and compared (see Table 3).

Results

At this point in our project, we are refining a conceptual model of cognition and feelings that the teachers reported they experienced during instruction. For the purposes of this paper we report on several of these initial categories of interest, along with our emergent model. We also report on our intial analysis of our quantitative analysis of the coded comments and their implications when compared to expert regular education teachers.

Teacher Diagnosis of Students

Teachers often engaged in a pattern of thought during instruction that was expressed throughout many of the stimulated recall sessions. When students express difficulty on a task, teachers would typically "diagnose" the student's ability to successfully engage in the task, based on her general knowledge of the student and of the specific task demands and student capabilities. Her diagnosis, along with the goals and student knowledge, then typically led her to develop a strategy for assisting the student in the academic task. For example, Teacher #10 comments on Ann, a student with learning disabilities, who comes to her classroom for help on a social studies assignment about Texas history:

> I just wanted to check on her and make sure she was doing okay, uh, she has at the bot...let's see it's the one at the bottom of the page it's asking basically the sentence they want the place that the, uh, Ben Milam an...how many, how many people came to help Ben Milam in San Antonio and she wrote 300 and that was correct and but it was, um, she needed to put the place as San Antonio is where they were going and she put attacked she misinterpreted the sentence and so I'm trying to get her to read because it's

not a sentence that is exactly like the book and, um, she finally figured it out, I'm trying to think of what the top one...she knows where the answer is I think she's trying to interpret the sentence and I think it's another confusion because the sentence isn't just like the one in the book and so, it's hard to communicate to her that it doesn't necessarily always have to be exact... (Teacher #10, Stimulated recall, May 10, 1996).

In this example, Teacher #10 demonstrates her knowledge of the task in which Ann is engaged (questions over a reading assignment), her knowledge of the content domain of the task (Texas history), and her knowledge of the student (what were the student's general learning difficulties). From this knowledge base she monitors the progress of Ann on the task and then makes a diagnosis of what she believes is Ann's "state of mind" or learning state. It is from this diagnosis that Teacher #10 then selects an appropriate instructional modification for Ann.

Modification

Teachers noted with frequency about the modifications they used to instruct their students. Modifications that were identified in the analysis of the stimulated recall and interview transcripts included the following: direct instruction of the material, reteach the material, use instructional materials as aides, prompting/cueing, modeling, modifying the task, and giving the student more practice at the task. Teachers typically carefully observed the result of their modifications, assessing each student's progress after it's implementation. If the teacher then deemed that the modification applied was not sufficient to assist the student, the teacher typically rediagnosed, then applied a new modification.

As an example, in her comments about José and two other students with whom she had been working closely with on writing a paper, Teacher #10 focuses on the students' progress and the instructional modifications needed by the students:

> ...he has got his cover drawn for the project and he was working on tracing a picture of a gorilla which he had to put in his folder with his paper and so the other girls are are a little bit further behind but I think they're also in a different class, the whole sixth grade's doing it but they're all at different parts um, I took José's paper and sort of showed them an example of what it should look like and mainly what the teachers are asking them is just to take each section of their notes and make a paragraph using their notes for part

one through part eight and so I read the first paragraph for them so they could see what it sounded like putting the information together... (Teacher #10, Stimulated recall, May 2, 1996).

In this excerpt, Teacher #10 uses two modifications; modeling (when she uses José's example) and prompting (when she reads the paragraph aloud). Immediately following Teacher #10's use of these modifications, she again monitors the progress of the girls in the excerpt, then rediagnoses their understanding of the task and their "state of mind."

Consultation and Collaboration with Regular Educators

Teachers frequently discussed her consultation and collaboration with thier regular education colleagues. The consultation activities that were observed in the observations were typically brief (less than three minutes), unplanned, and took place in the special education classroom when the regular education teacher entered to consult with the special educator. It was not unusual for instruction to be interrupted when these consultations took place:

> ...I think sometimes that the interruption is it's just it's commonplace, um, as department chair I mean people have questions for me continuously and I don't have a conference period where they can say oh I can ask her that at third period so if and if it's a situation where this teacher calls and I need to give him an answer then you know I need to do that, uh, here are times when I will say "I'm sorry but I can't talk to that person right now," um, so it depends on what the situation is, sometimes I can be you know if a teacher comes in and they see me sitting with a student working with them and they go ahead and interrupt me anyway, um, I really would prefer they just leave me a note and I'll get back to them, I understand there are emergencies so they're we all have those so it's just kind of one of those things that happens [laughs] and the kid are pretty used to it so, uh, we have so many people that visit that people can walk in the room and it it doesn't bother them.

This style of consultation was one that we frequently observed in the special education teachers who participated in the project. Although teachers at times expressed frustrations about the nature of these consultations, they also accepted that regular educators had few opportunities to consult with them about special education students in a more leisurely manner.

In our examination of the quantified percentage of comments made by teachers, we found that the majority of comments fell into five major categories: 1)

students characteristics and behaviors, instructional strategies, teacher characteristics and behaviors, behavioral strategies, and classroom environment. Teachers were surprisingly consistent in their frequency of making references to these categories during the stimulated recall procedure.. However, in examining these categories across different instructional settings, it appears that the contexts in which these expert teachers taught had an affect upon their cognition and instructional decision-making. For example, teachers in classrooms that were primarily self-contained with students with challenging behaviors tended to make relatively more statements concerning their thoughts about behavioral strategies.

Discussion

The teachers who participated in the stimulated recall procedure quickly became familiar and comfortable with the technique. Teachers seldom relied on prompts from the researcher and readily and prolifically expressed their thoughts and emotions concerning targeted teaching sequences. Many times these teachers did not restrict their comments to the episodes that they observed on the videotape, but expanded on how they made instructional decisions, describing previous events had influenced their decision-making.

We observed that many teachers made frequent use of what we have labeled "instructional diagnosis." The use of diagnosis is not unlike that described by Patel (1985) in her description of radiologists determining pathology when examining radiographs: our teachers used extensive content knowledge and their particular knowledge of the student to arrive at a diagnosis. Immediately following their diagnosis, they applied a modification to remedy the learning difficulty that the student was encountering. This diagnostic process differs, however, from that of doctors in that this procedure was repeated numerous times over the course of the instructional period, with a diagnosis of one student often being made several times in the space of five or ten minutes.

Of interest to us was that this "instructional diagnosis" did not seem to rely on the category assigned to a student. Instead, teachers closely observed the progress of the student, basing their observation on the student's progress, together with their past knowledge of the student. Also of interest to us were the inferences that teachers in our project seemed to make about a given student's "state of mind" in this diagnostic process. These statements were based on information from multiple sources; observations of the student, past experiences in working with the student, and the teacher's experience in working on similar tasks with other students.

Finally, we observed teachers in our project engaging in frequent consultations with regular education teachers. These consultations were brief and spontaneous, and required the special education teacher to manage the consultation along with her instruction in the classroom. While there has been much prescriptive suggestions regarding consultative practices in special education, this is the first time, to our knowledge, that there has been a report on the actual consultative practices across a wide sample of special educators.

Implications

There is extant research on the training of novice teachers using the knowledge and information from expert teachers (see Berliner, 1986; 1987). This research suggests that novice teachers may be instructed to use similar routines and strategies as do expert teachers. However, it is often the case that an expert educator (such as a supervising teacher) has difficulty in clearly communicating the reasons for his or her instructional decisions. It is suggested by researchers in the field of expertise that this difficulty is due to the automatization of the behaviors that an expert possess: They are less accessible at a conscious level. The implications are that our present system of student teaching is limited in its effectiveness, no matter how expert the supervising teacher, simply because it is difficult for the supervising teacher to explain why he or she makes certain instructional decisions in the classroom.

An alternative method for transferring expertise, while still providing a real-world example, is with the use of case studies. In a Bay and Bryan (1991) study, it was found that novice teachers, after viewing videotapes of teachers instructing children with disabilities, increased their reflectivity after hearing audiotapes from stimulated recall procedures. These audiotapes included comments from teachers while they watched themselves in a videotape of an earlier teaching session. However, the effects of using such a format as part of a teacher training program has not been assessed.

Teacher educators should consider the use of this modified stimulated recall procedure as an appropriate intervention in their training of preservice teachers. This technique, when preservice teachers are paired, is easily implemented, requiring a minimum of supervision on the part of the teacher educator, while producing a maximum of opportunity for reflective thought. Sessions may be audio taped and reviewed by teacher educators at a later date, if desired, and thus give important insights into how preservice teachers cognitively process their own

teaching. In addition, the process of transferring expert knowledge and skills to the novice, wherein the novice observes the expert reflecting upon his or her instruction in the special education classroom, might be explored.

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Appendix A

Teacher Interview Questions

1. How long have you been teaching?
2. Tell me about previous settings in which you have taught.
3. Describe the classroom in which you are presently teaching.
4. Tell me about the students that you are currently teaching.
5. How would you describe your teaching style?
6. What would you say is your teaching philosophy?
7. What do you consider to be your teaching strengths?
8. What do you consider to be your teaching weaknesses?
9. Can you think of a particular teaching experience that has changed your perspective on teaching special education?
10. What do you feel is the most rewarding aspect of your job?
11. What do you feel is the most frustrating aspect of your job?
12. When you consider your own teacher training program, what was the most helpful part of that program that led to your development as a teacher? The least useful? What changes would you suggest in designing teacher training programs?
13. What do you think makes a special education teacher "an expert?"

Table 1: Primary Instructional Setting of Participating Teachers

	PRIMARY INSTRUCTONAL SETTING**				
	Regular Education	**Co-Teaching**	**Self-Contained**	**Content Mastery**	**Resource Room**
Early Childhood	Teacher # 17a	Teacher # 11, 12, 19, 17b			
Elementary K-2					Teacher # 4a, 9, 15
Elementary 3-5	Teacher # 8, 20a	Teacher # 1, 3a, 16	Teacher # 2	Teacher # 3b, 6, 20b	Teacher # 3b, 4b, 16, 20c
Middle School				Teacher # 7, 13	Teacher # 5, 14
High School		Teacher # 10, 21a	Teacher # 18		Teacher # 21b

** **Some of the teacher participants were observed in more than one setting as noted by a, b, or c after the teacher number**

Table 2: Student Participant Data

Teacher Number	Sex of Students		Ethnicity				Inst. Setting	Total # Students	Subject Matter	# SPBD Students	Reason in SPBD	Time w/ Teacher
	Male	Female	African	Hisp.	White	Other						
1	10	12	4	6	12	0	Inclusion	22	Math	8	LD, MR	6 mos.
2	7	0	2	3	2	0	Self-Cont.	7	Soc. Skills	7	ADHD,MR, LD,OHI,BD,	3-7 mos.
3	12	1	1	7	5	0	Mastery	13	Math	13	LD	6-24 mos.
4	6	0	3	1	2	0	Resource	6	Reading	6	LD	.5-24 mos.
5	11	2	7	5	1	0	Resource	13	Phonics	13	LD	.5-24 mos.
6	7	6	2	0	11	0	Mastery	13	Various	9	LD	.25-18 mos.
7	10	5	3	8	4	0	Mastery	15	Content Mastery	7	MR, LD	7 mos.
8	12	10	6	2	13	1	Inclusion	22	Math	5	MR, LD	8 mos.
9	6	6	0	1	11	0	Resource	12	Lang. Arts	10	ADHD, LD, OHI, SI	3-24 mos.
10	20	4	5	7	12	0	Inclusion	24	English	9	LD	1.5-12 mos.
11	19	14	0	33	0	0	Inclusion	33	Pre-K	8	OI,S I, PDD, OHI	.25-12 mos.
12	19	14	0	33	0	0	Inlcusion	33	Pre-K	8	OI,SI	.25-12 mos.
13	8	6	5	2	7	0	Mastery	14	Read/Math	14	LD	12 mos.
14	12	9	2	7	12	0	Inclusion	21	Soc. Stud.	11	LD, OHI, ADHD	4 mos.
15	4	2	1	1	4	0	Resource	6	Read/Math	6	MR, LD	4-36 mos.
16	10	11	14	7	0	0	Inclusion	21	Lang. Arts	4	LD, BD, OHI, SI	4 mos.
17	20	7	10	4	3	0	Inclusion	17	Pre-K	1	LD	7-12 mos.
18	3	3	3	2	1	0	Self-Cont.	6	Lang. Arts	6	MR,SI,BD, OHI. Autism	6-36 mos.
19	9	11	12	3	5	0	Inclusion	20	Pre-K	7	MR, SI	2-24 mos.
20	8	6	5	4	5	0	Resource	14	Reading	14	LD	4-7 mos.
21	15	10	2	7	16	0	Inclusion	25	Biology	4	MR, LD	7 mos.
Totals	218	139	87	143	126	1		357		170		
%	61 %	39 %	24 %	40 %	35 %	< 1 %				48 %		

Table 3 - Teachers' Thoughts (frequency and percentage) by Content Category

Category	All Teachers	Teacher #02 Urban Elementary Self-contained	Teacher #03 Sm. Metropolitan Elementary Res Rm/ Content Mastery/Incl	Teacher #04 Urban Elementary Resource Room	Teacher #05 Sm. Metropolitan Middle School Resource Room
Group 1					
Student Characteristics/Behavior	6596 (40%)	775 (45%)	554 (40%)	487 (39%)	570 (44%)
Instructional Strategies	3029 (19%)	265 (15%)	300 (22%)	224 (18%)	239 (18%)
Teacher Characteristics/Behavior	1282 (8%)	116 (7%)	95 (7%)	130 (10%)	91 (7%)
Behavior Strategies	986 (6%)	186 (11%)	54 (4%)	93 (7.5%)	68 (5.3%)
Classroom Environment	883 (5%)	62 (4%)	43 (3%)	35 (3%)	60 (5%)
Group 2					
Monitoring Academic	516 (3%)	59 (3%)	30 (2%)	13 (1%)	34 (3%)
Instructional Materials	496 (3%)	45 (2%)	39 (3%)	31 (2.5%)	13 (1%)
Teacher Awareness	341 (2%)	18 (1%)	79 (6%)	21 (2%)	36 (3%)
Instructional Content	348 (2%)	42 (2%)	44 (3%)	55 (4%)	11 (.8%)
Time	371 (2%)	30 (2%)	42 (3%)	21 (2%)	27 (2%)
Teacher Academic Expectations	292 (2%)	39 (2%)	48 (3%)	8 (.6%)	51 (4%)
Instructional Goals	200 (1%)	23 (1%)	16 (1%)	44 (3.5%)	9 (.7%)
Parents/Home Factors	160 (1%)	10 (.5%)	2 (.1%)	26 (2%)	11 (.8%)
Group 3					
Planning	154 (1%)	29 (2%)	17 (1%)	13 (1%)	11 (.8%)
Monitoring Behavior	177 (1%)	13 (.7%)	5 (.3%)	6 (.5%)	14 (1%)
Teacher Behavior Expectations	121 (.7%)		12 (.8%)	5 (.4%)	25 (2%)
Administrative Issues	46 (.3%)	1 (.05%)	2 (.1%)	4 (.3%)	16 (1.2%)
Curriculum	46 (.3%)	6 (.3%)	4 (.2%)	22 (2%)	2 (.1%)
Transitions	34 (.2%)	9 (.5%)			
Context	7 (.04%)	5 (.3%)			1 (.07%)
Total Reflections	16296	1733	1386	1242	1289

Table 3 (continued)- Teachers' Thoughts (frequency and percentage) by Content Category

Category	Teacher #06 Urban Elementary Resource Room		Teacher #10 Sm. Metropolitan High School Co-teaching		Teacher #12 Urban Preschool Co-teaching		Teacher #13 Sm. Metropolitan Middle School Content Mastery		Teacher #15 Sm. Metropolitan Elementary Resource Room	
Group 1										
Student Characteristics/Behavior	286	(46%)	507	(38%)	284	(45%)	552	(33%)	591	(43%)
Instructional Strategies	133	(21%)	244	(18%)	114	(18%)	281	(17%)	262	(19%)
Teacher Characteristics/Behavior	38	(6%)	161	(12%)	47	(7%)	192	(11%)	48	(3%)
Behavior Strategies	15	(2%)	112	(8%)	52	(8%)	67	(4%)	53	(4%)
Classroom Environment	31	(5%)	107	(8%)	34	(5%)	183	(11%)	42	(3%)
Group 2										
Monitoring Academic	29	(5%)	30	(2%)	30	(5%)	65	(4%)	64	(5%)
Instructional Materials	18	(3%)	22	(2%)	17	(3%)	74	(4%)	87	(6%)
Teacher Awareness	4	(.6%)	46	(3%)			47	(3%)	24	(2%)
Instructional Content	29	(5%)			23	(4%)	37	(2%)	34	(2%)
Time	11	(2%)	12	(1%)	6	(1%)	67	(4%)	19	(1%)
Teacher Academic Expectations	3	(.5%)	17	(1%)	3	(.5%)	25	(1%)	29	(2%)
Instructional Goals	10	(2%)	11	(1%)	3	(.5%)	10	(.6%)	14	(1%)
Parents/Home Factors	2	(.3%)	1	(.07%)	3	(.5%)	49	(3%)	15	(1%)
Group 3										
Planning	4	(.6%)	1	(.07%)	5	(.7%)	3	(.2%)	10	(.7%)
Monitoring Behavior	3	(.5%)	24	(2%)	9	(1%)	8	(.5%)	8	(.6%)
Teacher Behavior Expectations			14	(1%)	3	(.5%)	10	(.6%)	5	(.4%)
Administrative Issues	3	(.5%)	9	(.6%)	1	(.1%)	2	(.1%)		
Curriculum	1	(.1%)	1	(.07%)					2	(.1%)
Transitions					1	(.1%)			3	(.2%)
Context							1	(.06%)		
Total Reflections	620		1330		636		1696		1386	

Table 3 (continued)- Teachers' Thoughts (frequency and percentage) by Content Category

Category	Teacher #01 Rural Elementary Co-teaching		Teacher # 09 Urban Elementary Resource Room		Teacher #17 Sm. Metropolitan Preschool Co-teaching		Teacher #19 Sm. Metropolitan Preschool Co-teaching	
Group 1								
Student Characteristics/Behavior	350	(31%)	256	(43%)	853	(46%)	531	(38%)
Instructional Strategies	200	(18%)	136	(23%)	312	(17%)	319	(23%)
Teacher Characteristics/Behavior	31	(3%)	40	(7%)	207	(11%)	186	(13%)
Behavior Strategies	88	(8%)	38	(6%)	85	(5%)	75	(5%)
Classroom Environment	151	(13%)	28	(5%)	48	(3%)	59	(4%)
Group 2								
Monitoring Academic	96	(8%)	5	(1%)	26	(1%)	35	(2.5%)
Instructional Materials	31	(3%)	10	(2%)	60	(3%)	49	(3%)
Teacher Awareness	7	(1%)			39	(2%)	16	(1%)
Instructional Content	28	(2%)	22	(4%)	17	(1%)	6	(.4%)
Time	60	(5%)	25	(4%)	33	(2%)	18	(1%)
Teacher Academic Expectations	2	(.2%)	3	(.5%)	39	(2%)	25	(2%)
Instructional Goals	9	(.8%)	5	(1%)	23	(1%)	23	(2%)
Parents/Home Factors			4	(.7%)	33	(2%)	4	(.2%)
Group 3								
Planning	34	(3%)	7	(1%)	7	(.4%)	13	(1%)
Monitoring Behavior	35	(3%)	3	(.5%)	28	(1.5%)	21	(1.5%)
Teacher Behavior Expectations	2	(.2%)	5	(1%)	25	(1%)	15	(1%)
Administrative Issues	1	(.1%)	5	(1%)	2	(.1%)		
Curriculum	2	(.2%)	1	(.1%)	1	(.1%)	3	(.2%)
Transitions	11	(1%)			5	(.2%)	5	(.4%)
Context								
Total Reflections	1138		593		1844		1403	

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