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Developing Effective Instructional Strategies for Teaching in Inclusive Classrooms

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Abstract

The skills for effective teaching were investigated among elementary teachers working in inclusive classrooms to determine whether the appearance of 'constructivist' skills are independent of, or follow from the mastery of teaching behaviors that are more transmissive in nature. The data were extracted from the Classroom Observation Scale (COS) (Stanovich, 1994; Stanovich & Jordan, 1998) based on half-day observations of 63 teachers. Using a canonical discriminant functions analysis, a set of COS items distinguishing effective from less effective teachers was identified. The sequence of instructional practices appears to be cumulative rather than differentiated. Patterns of teaching behaviours were consistent across the range of students in the classrooms, with some evidence that academically 'at risk' students received less teacher attention and differentiated instruction than students with and without disabilities.

Inclusion is now the recommended service delivery policy in most educational jurisdictions in Canada. Furthermore, a growing body of research evidence speaks in favour of an inclusive approach to the education of students

with learning difficulties (Ainscow, 1999; Salend & Duhaney, 1999; Villa & Thousand, 2000). The heterogeneous nature of today's classrooms means that the responsibility for teaching an increasingly diverse group of students falls largely to the general education classroom teacher. Teachers are not only required to meet rigorous curriculum standards, but also to respond to the individual needs of the students in their classrooms. While many teachers support the philosophy of inclusion and believe it is both academically and socially beneficial to students with special needs, as well as their peers (Bunch, Lupart, & Brown, 1997), others have expressed skepticism and mixed opinions about the potential benefits, as well as an expectation of the problems inherent in inclusion, particularly when it comes to classroom implementation (D'Alonzo, Giordano, & Vanleuven, 1997). Elementary teachers are generally unwilling to adapt their instructional practices to include the breadth of learner differences in their classrooms, although they are more likely to do so where such adaptations can be incorporated into the overall classroom routines than when they are specialized to accommodate the needs of individual learners (Fuchs, Fuchs, Hamlett, Karns, & Phillips, 1995; Schumm, Vaughn, Gordon, & Rothlein, 1994; Schumm, Vaughn, Haager, McDowell, Rothlein, & Saumell, 1995). It may be the case that teachers learn to develop such skills as a result of considerable classroom experience and only after mastery of other skills, and that only the most proficient teachers reach this level of development.

The study reported here lies at the intersection of two areas of research: effective instruction in elementary regular education classrooms in general, and the nature of instruction provided to students with disabilities in inclusive classroom settings. There has been limited analysis of the instructional experiences of students with disabilities and students at risk for school failure in regular or inclusive settings. Considerable research has identified specific teacher behaviours as predictors of student achievement (Brophy & Good, 1986; Englert, Tarrant, & Mariage, 1992). In addition to classroom and time management elements, much of this research examines the process of teaching; how teachers structure their lessons, ask questions, and provide feedback to students (Brophy & Good, 1986; Rosenshine & Stevens, 1986). Several studies subscribe to the importance of a social constructivist view of learning primarily evidenced in teacher-student interaction through dialogue in advanced placement classrooms (Henderson, Winitzky, & Kauchak, 1996), in mathematics (Muijs & Reynolds, 2000; Reynolds & Muijs, 1999), in science (Lapadat, 2000; Roth, Anderson, & Smith, 1987) as well as in reading (Mariage, 1995; Pressley, Hogan, Wharton-McDonald, & Mistretta, 1996). Based on Vygotsky's (1978) work, teacher-student dialogue is considered to be at the heart of knowledge building in the classroom. Teachers who are considered to be effective, "apprentice students in the language, dialogue, and actions

of the skilled problem solver" (Englert, Tarrant, & Mariage, 1992, p. 72). Wells (1998) refers to this mediating role of dialogue in building knowledge as 'dialogic responsivity'. Through dialogue, effective teachers are able to calibrate their instruction according to their students' responses in a sequence of teacher-student interactions and thereby meet the range of learner needs in their classrooms. Thus, according to 'constructivist pedagogy' (Brophy, 2004), effective teachers are presumed not to transmit knowledge, but to co-construct it with their students through dialogical interaction. On the other hand, students with disabilities are known to benefit from direct instruction in which teachers transmit skills and knowledge in a structured sequence designed to make explicit the steps required to reach mastery (Swanson, 1999; Swanson, Hoskyn, & Lee, 1999). Indeed, the lack of opportunity for direct instruction in regular classrooms is often claimed as a reason to place students with learning disabilities in special education settings.

The literature on instructional characteristics in general education classrooms reveals a prevalent assumption that teachers who assist their students to construct knowledge are more effective than those who transmit it. The more extreme of these claims holds that the two styles of teaching are mutually exclusive, and are derived from fundamentally different sets of epistemological beliefs. Torff (1999, 2003) and Torff and Sternberg (2001) claim that teachers who are constructivist in their teaching style view learning as centered in the development of skills and knowledge in the child, while those who are transmissive are focussed on the delivery of curriculum and on the efficiency of information flow to the learner. Olson & Katz (2001) claim that curriculum-centered, transmissive techniques of instruction that maximize the flow of knowledge to the learner are derived from several teacher beliefs. These beliefs include (a) knowledge is fixed and external to the knower and (b) learning and ability are psychological characteristics or traits that are internal to the learner and not likely to be changed through learning. Likewise, some teachers view disabilities as fixed, internal characteristics of learners, unlikely to be affected by learning (Jordan & Stanovich, 2003, 2004).

Torff (2003) claims that novice teachers engage in direct instruction by transmitting content knowledge "based on the belief that learning is tantamount to memorization" (p. 563). As teachers develop expertise, their skills increase for promoting higher order thinking with a simultaneous decrease in the emphasis placed on covering content. According to Torff, experienced teachers do not automatically develop such expertise. Torff asserts that the instruction of some teachers tends to show a decrease in content knowledge while failing to increase techniques that promote higher order thinking skills. In research on instructional practices that assist learners with disabilities, one of the most

frequently cited criticisms is the lack of constructivist pedagogy that leads to higher order thinking skills (Trent, Artilles, & Englert, 1998).

In this study we examine the evidence for such claims using an empirical database of classroom observations conducted with 63 general education elementary classroom teachers. The Classroom Observation Scale (COS) (Stanovich, 1994; Stanovich & Jordan, 1998) is comprised of instructional skills and techniques derived from the literature on effective teaching (Englert, Tarrant, & Mariage, 1992). The 27 items on the COS comprise constructivist and teacher-directed elements, as well as a broad array of classroom and time management and lesson presentation skills. If the claims described above are accurate, there will be different patterns in the instructional techniques that high-scoring and therefore, more effective teachers, use predominantly in their elementary classrooms compared to lower-scoring, less effective teachers and those who are novices. Instructional patterns should emerge as distinct clusters of COS items, some relating to constructivist skills which promote higher-order thinking, and others to transmissive elements in which the teacher manages the flow of information. If Torff and colleagues are correct, teachers with high scores on the COS would show a predominance of constructivist elements with very few transmissive elements in their teaching repertoire compared to lower scoring teachers, who will show the opposite pattern. Any differences in instructional patterns should also differentiate novice teachers from those teachers with longer teaching experience. If this proves to be the case, it suggests that teachers may acquire instructional skills along a developmental sequence that is not simply cumulative, but represents a switch in emphasis from transmission to constructivist techniques at some point along the career span of those who excel.

In addition to examining teachers' instructional patterns with the class as a whole, we took a 'child's eye view' of instruction, by examining what specific instructional interactions took place between the teacher and each of two students in each class; one designated as exceptional, and one who was identified by the teacher as academically at risk. Students were designated as exceptional if they were on an Individual Education Plan (IEP) and were rated by their teachers as being substantially below the class average. By monitoring the quantity and type of instruction received by two such students in each class, we investigated whether the instructional style that each teacher customarily used with the students in the class as a whole was also used with students who are exceptional and at risk, or whether such students received a different instructional treatment. We speculated that novice and less effective teachers, with their focus on delivering curriculum, might direct their instruction to the overall class and pay little attention to the students at the low end of the range of

achievement in the class, whereas effective teachers, who presumably subscribe to a social constructivist view of learning, would be more likely to adapt their instruction to meet the academic needs of the two students whom we monitored. It should be noted that teachers were not aware of which students were being monitored. The rating of instruction received by two specific students can therefore inform us about the breadth of instructional adaptations of teachers, and whether there are differences between teachers in relation to their predominant teaching patterns with the class overall and with adapting instruction for individual students. Specifically, our research questions were three-fold:

1. Is there evidence that effective teachers (as indicated by those who score high on the COS) use instructional techniques that can be described as constructivist and do these techniques discriminate them from less effective teachers? Conversely, does a predominance of transmissive instructional techniques discriminate the teaching practices of less effective teachers (as indicated by those who score lower on the COS) from those of more effective teachers?
2. Is length of teaching experience related to differences in styles of teaching practice? That is, do effective teachers differ from less effective teachers and in turn differ from novice teachers on the types of instructional techniques they use?
3. Are there differences in the types of instruction received by students with exceptionalities and by those designated as being academically at risk, compared to the class as a whole? Do any differences relate to the teachers' scores on the COS, or to differences in their predominant instructional patterns?

Method

Instruments

1. The Classroom Observation Scale

Observation Items.

The Classroom Observation Scale (COS) (Stanovich, 1994; Stanovich & Jordan, 1998; see Appendix) was used to measure teachers' instructional behaviours. The COS was developed from a synthesis of effective teaching

skills published in 1992 by Englert, Tarrant, and Mariage as a series of teacher self-rating checklists. The checklists were based on a synthesis of the research conducted from 1970 to 1990 on teaching factors known to be effective, both in terms of student achievement (Brophy & Good, 1986; Gage and Needels, 1989; Rosenshine & Stevens, 1986), as well as the more recent 'social constructivist' factors and principles of community-based learning (Hogan & Pressley, 1997; Marshall, 1992). From these items, 27 were chosen as being possible to score by observers (Stanovich, 1994; Stanovich & Jordan, 1998).

The COS observation items span the spectrum of teaching behaviours from classroom organization and time management to engaging students in one-to-one dialogical interactions, such as responsive questioning and elaborating student responses. The 27 observation items comprise common indicators of teaching effectiveness within three categories: (a) classroom management (8 items), (b) time management (8 items), and (c) lesson presentation (11 items).

Each observation item is rated on a three-point scale: Not in evidence (0), Inconsistent (1; observed only once or twice), or Consistent (2; observed 3 or more times), with a total possible maximum score of 54.

Predominant teaching style (total class). In addition to the 27 items, the COS contains a 7-point rating scale on which the observer records the teacher's predominant teaching style with the total class during the seatwork portion of lessons. The scale ranges from 0, indicating that no academic interaction with students has taken place during seatwork to 6, indicating that the teacher consistently elaborates student responses. Mid points on the scale indicate that the teacher checks students' work and moves on once or twice (i.e., Inconsistent = 2) or more than twice (i.e., Consistent = 3) and that the teacher delivers or transmits instruction once or twice (i.e., Inconsistent = 4) or more than twice (i.e., Consistent = 5). Each teacher receives the score on this scale that represents the highest point reached during the lessons observed. For example, a teacher who consistently checked students' work during seatwork usually without giving feedback, but who did provide feedback once during the lesson in the form of telling a student how to improve his/her work, would receive a score of 4 – transmits inconsistently.

Predominant teaching style (two included students). The same 7-point scale used to rate the teaching style of the teacher with the total class was also used to rate the teacher's interactions with two students in the class; one exceptional and one academically at risk. The teacher was not told which two students were being rated during the observation. These ratings addressed

research question 3 by providing an index of the breadth of instructional adaptations that the teacher used to accommodate the diverse needs of students in their class.

The COS therefore provided four measures of effective teaching behaviour both at the class level (1. total score on observation items, 2. predominant teaching style with total class) and at the level of individual students included in the classroom, (predominant teaching style 3. with an exceptional student, and 4. with a student designated academically at risk).

Participants

As part of a larger series of studies that spanned four years, half-day classroom observations were conducted with 63 elementary regular classroom teachers, teaching in inclusive classrooms in five schools in a suburban Catholic school board and four schools in two public school boards, one rural and one urban, in Ontario. The schools had a strong mandate for inclusion of students with exceptionalities. A not-for-profit independent school that had no provision for identifying students as exceptional nor for withdrawing students for remedial support also participated with its entire staff of seven teachers. It is important to note that the data collection spanned several years, and that the scales of teaching style with the two included students were added part way through the data collection. Thus, the total number of teachers who provided the data for the observation of teachers' interaction style with two students, one designated as exceptional and one 'at risk', was 25, drawn from the suburban Catholic school board and the independent school.

In order to select the individual students for observation, the teachers ranked all the students in the class for whom parental permission to participate had been received, on three dimensions: relative to the overall class, the academic progress each was making, extent of behavioural difficulties, and extent of instructional accommodations and/or modified curriculum required. Students were designated as exceptional if they were on an Individual Education Plan (IEP) and were rated by their teachers as being substantially below the class average on two or more of the three teacher-rated criteria. According to Ontario policy, an IEP can be developed for a student even if they have not been formally identified as exceptional through the province's Identification, Placement, Review Committee (IPRC) process. Students who are placed on an IEP are receiving special education provisions through their IEPs, and in the case of these schools, are in the regular classroom. Students who were considered to be 'at risk' were those students whom their teachers rated as

below the class average on two or more of the three teacher-ranked scale, but who had not yet been designated as needing an IEP.

Procedures

For the observation, teachers were asked to conduct at least two expository lessons in core areas of the curriculum, language arts, mathematics or science. The observations consisted of between one and four lessons that took place during a three-hour period, or a half-day of instruction. Two trained researchers independently conducted the COS by observing and coding the teachers' practices, and rating the teachers on the scale of Predominant Teaching Style. In 25 classrooms, the observers also simultaneously monitored the specific instructional opportunities received by two students in each class, one who had been designated as having an exceptionality, and one deemed by the teacher to be academically 'at risk'. The observers selected the students to observe from the rankings supplied by their teacher, using the criteria described above. The teacher was not aware of which students were the focuses of the observation. The inter-rater reliability between the two observers was 94% agreement. The 63 teacher observation results used in this analysis are the mean ratings of the two observers on each of the measures. The teachers reported the total number of their years of teaching experience.

Analysis

Discriminant functions. To examine the first two research questions, an a priori analysis of the items in the COS was conducted. Those items that fit a curriculum-centered, transmissive conception of teaching, were distinguished from those that contained elements of a constructivist conception of teaching (see Table 1). Items were assigned to the constructivist category if they featured teacher-student dialogical interaction, such as activating students' prior knowledge relevant to the topics and skills to be learned, and providing frequent questions to evaluate students' mastery of lesson concepts. Assigning items that were transmissive in nature posed a greater challenge. Assisted by Englert et al.'s (1992) commentary that supports the scales, elements of scaffolding instruction, such as modeling, self-talk and think-alouds were designated as transmissive, although some authors claim that they are constructivist techniques. Elements of direct instruction of learning skills and strategies were also characterized as transmissive teaching.

The purpose was to see if the sets of items classified as characterizing transmissive compared to constructivist instruction would emerge as discrimi-

Table 1
COS Items Designated "Transmissive" or "Constructivist"

Transmissive	Constructivist
A4. Consequates rule compliance quickly; cites rule or procedure in responding to disruptive behaviour	C1. Provides review of previous day's concepts at beginning; actively tests students' understanding and retention of previous lesson concepts
B2. States expectations for seatwork in advance	C2. Provides a clear overview of the lesson: States the purpose and objectives of the lesson.
B4. Gains students' attention at the beginning of the lesson and maintains it during instruction at 90% level	Explains in terms of teachers' and students' actions. Tells students what they will be accountable for doing
C3. Actively models and demonstrates concepts, learning strategies and procedures	C5. Provides frequent questions to evaluate students' mastery of lesson concepts
C7 Maintains high accurate responding rate in teacher-led activities:	C6. Evaluates students' understanding of seatwork tasks and cognitive processes by asking "what, how, when, why" questions.
– repeats practice opportunities until students not making errors	
– delivers instructional cues and prompts	
– provides error correction procedures	
– uses prompting and modeling following errors.	
C8. Provides error drills on missed concepts and reviews difficult concepts	
C9 Gives summary of lesson content and integrates lesson content with other lessons and experiences.	

nating high- from low-scoring teachers using step-wise canonical discriminant function analysis. The total scores of the teachers on the COS were divided into eighths. The item scores of each member of these eight groups were entered into the analysis to see which COS items emerged as accounting for differences between groups.

Predominant teaching style (total class). Using discriminant function analysis the contribution of each item to the overall scores on the COS was estimated and the clusters of items that discriminated groups were determined. We hypothesized that items in the Lesson Presentation section of the COS that relate to teacher-student dialogues and the extension of students' thinking would discriminate the highest scoring groups of teachers from the lower scoring groups. We also anticipated that skills relating to student engagement in the lesson, and classroom management skills would add to the discriminant functions for mid-scoring groups, indicating a possible developmental sequence of skills mastery.

Predominant teaching style (two included students). The two scale scores for each of the two students, designated as exceptional and as academically at risk, were correlated with the teachers' total COS score, and with a later variable, 'student engagement', that was identified from the analyses described below.

Results

One significant function emerged from the discriminant functions analysis, accounting for 95% of the variance, consisting of five items (see Table 2). This function was named "student engagement" since the theme common to all of the five items was the teachers' efficient use of time to engage students in learning and to maintain their attention in the instructional component of the lesson. Teachers informed students of the expectations and time frames for lessons, and maintained a high degree of student attention during large-group activities and during seatwork. Student engagement significantly discriminated the eight groups of teachers as shown in the relationship of the function to group centroids (see Table 3). The reader will note that the loadings of this function for each of the eight groups increases in direct relationship with the rank of each group on the COS total score. This suggests that teacher skills in student engagement, as represented by the five COS items listed in Table 2, lie at the heart of teacher effectiveness. Further functions had eigenvalues of less than 1. A comparison of the items derived from the a priori division of items

Table 2
COS Items in Discriminant Function 1: Student Engagement

Function 1 - Accounts for 95% of variance N=63, eigenvalue = 6.93
B2 States expectations for seatwork in advance
*B3 Establishes clear lesson routines that signal a beginning and an end
B4 Gains students' attention at the beginning of the lesson and maintains it during instruction at 90% level
B5 Monitors transitions by scanning and circulating among students
C7 Maintains high accurate responding rate in teacher-led activities:
– repeats practice opportunities until students not making errors
– delivers instructional cues and prompts
– provides error correction procedures
– uses prompting and modeling following errors

*denotes not used in the analysis

into transmissive vs. constructivist groups (see Table 1) with those items that contributed to the subscale for student engagement resulting from the discriminant function analysis (see Table 2) show little correspondence. That is, the core items that distinguish teacher effectiveness do not characterize the constructivist approach, but contain a mixture of classroom and time management skills which allow students to participate fully in the lesson expectations, as well as one item that designates teacher-student dialogic interaction in the constructivist mode.

Number of years of teaching had no relationship with either the COS total score, nor the subscale score for student engagement.

The predominant teaching style rating with the class as a whole was correlated with the COS scale total score ($n = 32$, $r = .66$, $p < .001$) and with the subscale score for student engagement (n=33, $r = .599$, p<.001). These provided evidence of the concurrent validity of the COS-derived and rating scale measure of teaching style.

Table 3
Loadings of the 'Student Engagement' Discriminant Function Factor on Each of the Eight Teacher Groups

Teachers grouped by COS score	N	Function
Lowest 1 – 12.5%	8	- 5.46
13 – 25%	8	- 3.93
25 – 37.5%	8	- 2.78
38 – 50%	7	- 1.39
50 – 62.5%	8	.49
63 – 75%	8	1.57
75 – 82.5%	8	2.39
83 – 100% Highest	8	2.88

The relationship of the rating of teaching style for each of the two included students with the COS measures and the predominant teaching style rating provides a more complex picture. The teaching style received by the student who was designated as exceptional was similar to the style used by teachers overall. That is, the teaching style received by this student correlated with the teachers' COS total score, (n=24, r = .55, p < .001); with the predominant teaching style rating (n = 25, r = .69, p < .001); and with the subscale score for student engagement (n = 24, r = .42, p <.01). On the other hand, the teaching style received by the student who was designated as academically at risk did not correlate with either the predominant teaching style or the student engagement measures. Thus, a relationship was found between the measures of quality of teaching and the instruction received by the student designated as exceptional, but not the instruction received by the student at risk for academic failure.

Discussion

The results of the analysis indicate that the highest scoring teachers in our observation used a skillful blend of instruction involving classroom management, modeling, scaffolding, as well as questioning routines. However, the elements that were common in the function which discriminated them from lower scoring groups were the provision of organizational frameworks for lesson delivery and the effective use of instructional time, resulting in high levels of student engagement.

A set of elements defined as constructivist did not emerge as a distinctive feature of the teaching repertoire of the high-scoring teachers, if by these is meant the flow of information generated primarily in dialogical interactions between students and teacher or in student peer groupings. There were, however, instances of instruction that promoted higher-order thinking, although these did not discriminate lower- and higher- scoring teachers. Some of these stemmed from teachers directly describing and modeling the component strategies and skills of the lesson, a set of techniques often associated with the early stages of scaffolding, and classified by Englert, et al. (1992) as transmissive. On the other hand, there was ample evidence of teaching techniques that were responsive to student-initiated ideas, or which resulted from questioning routines that featured "what, how", and "why" questions. It appears that the highest scoring teachers had mastered techniques that included both maximizing instructional time by keeping students aware of lesson requirements, and conducting teacher-led explanations of concepts and learning strategies.

Thus, rather than discriminating the highest scoring group of teachers from the other groups on the basis of items that exclusively targeted teachers' use of constructivist skills to engage students in cognitively extending dialogues, the highly predictive items in the student engagement factor suggested a broader set of skills. This set marks the ability of teachers to engage their students in the lesson and to maintain student engagement by such techniques as gaining and maintaining their attention, moving the lesson along at a brisk pace and involving students in anticipating how the lesson material will relate to future lessons. This set of skills seems to be acquired gradually by teachers in our sample, with little evidence of it among teachers with low overall scores and increasing in relation to increasing scores in classroom and time management and lesson presentation. Moreover, the student engagement set of skills typically seems to be built upon mastery of the skills characterized by classroom and time management skills, dimensions of effective teaching

that have been criticized by some authors as mechanistic and transmissive, and detracting from social constructivist principles. Thus, teachers appear to master and use certain mechanistic and transmissive teaching practices *in order to* be able to engage students in the lesson. The results suggest that a part of the skill of fostering extended dialogues that lead to higher-order thinking in their students is the ability to gain and hold students' attention. Gaining and holding students' attention is achieved through effective classroom organization and management skills.

The results also reveal that teaching style was consistent across the range of students in the class, except for some evidence that the students deemed to be academically at risk may have received less frequent attention and instruction that was less responsive to their levels of knowledge than did other students in the class who were designated as exceptional or not.

Of interest is the finding that length of teaching experience was not a predictor of teaching style. Indeed some teachers with less than 5 years of teaching experience scored high on the COS and on the student engagement factor, while some teachers with more than 5 years of teaching experience scored low. This suggests that something more than experience contributes to the development of effective teaching practices. We have suggested elsewhere that one component of such professional development might be for teachers to experience the breadth of student characteristics in an inclusive class and be encouraged to develop the skills necessary for accommodating diverse needs (Stanovich & Jordan, 2004).

A fractious debate exists today about the development of teaching quality. Brophy (2004) warns about the dangers of extremism associated with polarizations such as transmission vs. construction of knowledge. Borko (2004) cautions against the dangers of over-generalizing prescriptions for practice from a single conceptual framework. Others have questioned the relevance of importing socio-cultural theories of learning as knowledge construction into prescriptions for teaching (Wells, 2004). Three of Heward's (2003) faulty notions that hinder the effectiveness of special education concern the direct instruction vs. constructivism debate; that structured curricula impede true learning, that drill and practice limit students' deep understanding and dulls their creativity, and that teaching discrete skills ignores the whole child. The claim prevails that direct instruction is undesirable, not student-centered and antithetical to the development of higher order thinking skills in students, if not potentially damaging to them. Contrary arguments suggest that the use of teaching techniques that focus on constructing knowledge are tantamount to "postmodern malpractice" and that the only hope

for effective service for students with disabilities is in special education classrooms (Kauffman & Sasso, 2006). The results of this study generally support the concerns expressed in the literature that there are dangers in over-generalizing prescriptions for practice.

The finding that students at risk received less instructional intervention than either those designated as exceptional and those who were not at risk is alarming. One premise of inclusive education is that students can best be prevented from sliding into major difficulties if served in a regular classroom with differentiated instruction. Yet these students appear to be at risk of falling between the cracks, and this was apparent in even the most effective classrooms. Processes and techniques such as the development of an IEP, appear to support teachers in attending to the needs of students who are designated as exceptional. However, the lack of attention for those students considered to at risk and the potential for their continued failure is cause for concern.

With the exception of the results concerning the students at risk, the results make it apparent that teaching in an inclusive classroom is possible if teachers are able to master skills of effective instruction, and that doing so benefits not only those with identified difficulties, but all students. The range of skills used by the high scoring teachers in this study was broad and often innovative, and defy a simple classification as constructing vs. transmitting knowledge. Moreover, the skills of engaging students in learning were made possible in the context of classroom and time management practices that ensured that maximum time was devoted to instruction, with little time spent on managerial and procedural routines, and that students were full participants in the instructional process.

In summary, three main conclusions can be drawn from this research study.

1. There appears to be a sequence of instructional practices that may reflect the development of teaching skills in general education elementary classroom teachers. This sequence of instructional practices is cumulative rather than differentiated, and results in a wide repertoire of teaching practices that consist of both transmissive and constructivist elements.

   This finding throws into question recent criticisms of process-product skills in teacher development as well as the current educational theory that students learn exclusively through teachers' use of constructivist pedagogical techniques. The emphasis on the benefits of student-centered learning and constructivist pedagogy (Torff, 2003) are

not supported by these data. The findings also affirm the importance of direct instruction as a set of teacher-led skills that engage students in learning.

2. Teachers may need to master the fundamental mechanics of classroom management and maximizing instructional time in order to develop skills of student engagement.

3. The skills that teachers use with their students in general are used for students with disabilities in inclusive classrooms. Effective teaching practices that can benefit all students focus on high levels of student engagement, together with excellent managerial and time management skills, in order to maximize the instructional time which teachers are able to provide to individuals and groups during lessons. Indeed, the findings of this research study support those of others (Englert, et al, 1992; Jordan, Lindsay, & Stanovich, 1997; Larrivee, 1986; McGee, 2001) that teachers who are generally effective are also effective with students who have special learning needs. Teachers' classroom organizational and management skills appear to play an important role in their ability to maximize time spent in elaborative individual student-teacher instructional interactions. Teachers who are effective at including students with disabilities in their classrooms use organizational and management skills to manage their instructional time, and to adapt and modify their instruction for individual students.

There are limitations of this study that need to be considered. The focus of this study was on elementary-level teachers. The results cannot be applied to secondary-level classroom teachers. Although the sample size for the analysis of the COS items was large, the sample from which observations were made of specific students with disabilities and at risk was smaller, being introduced into the data collection part way through the study. Further investigation of how teachers work with specific students would contribute to the literature on inclusive classroom practices. Finally, although teachers were not told which students were being monitored, our presence in the context of a study on inclusive education might lead them to assume that the students with disabilities were of interest to us. They may, therefore, have paid more attention to these students when we were in the room than is typically the case. This may have contributed to the findings and to the discrepancy between teachers' interactions with students with disabilities compared to those at risk.

Taken as a whole, however, the findings of this study contribute to the growing body of knowledge about what teachers know and do in inclusive classrooms (Jordan, Lindsay, & Stanovich, 1997; Jordan & Stanovich, 2001,

2003; Stanovich & Jordan, 1998), as well as the use of classroom observation as a means of inquiry into teaching practices (Brophy & Good, 1986; Good & Brophy, 2000; Hattie, 2003). The results shed light on the debate concerning constructivist and transmissive teaching practices, suggesting that there is a need for multiple instructional approaches when teaching diverse students in inclusive classrooms. Given the significant and direct role of teaching behaviours on student learning outcomes, both research and teaching practices should remain focussed on both the teaching practices that target the whole class, as well as those that target individual students in inclusive classrooms. In this way we are beginning to understand how teachers address diverse learner needs, the factors that influence their teaching practices, as well as how teaching practices evolve over time.

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Appendix

Classroom Observation Scale

Observer:_____ Date: _____ Time:_____ to _____

Teacher:_____ School: _____

NIE = not in evidence INC = inconsistent Con = consistent NA = not applicable

A. Classroom Management

1. Physical Space	NIE	Inc	Con	NA
2. Rules	NIE	Inc	Con	NA
3. Respect	NIE	Inc	Con	NA
4. Cites Rules	NIE	Inc	Con	NA
5. Positioning	NIE	Inc	Con	NA
6. Scans	NIE	Inc	Con	NA
7. Nonverbal S.	NIE	Inc	Con	NA
8. Praise	NIE	Inc	Con	NA

B. Time Management

1. Inst. Time	NIE	Inc	Con	NA
2. States Expt.	NIE	Inc	Con	NA
3. Est. Clr. Rtn.	NIE	Inc	Con	NA
4. Lssn. Attn.	NIE	Inc	Con	NA
5. Mntrs. Trans.	NIE	Inc	Con	NA
6. Stwrk. Attn.	NIE	Inc	Con	NA
7. Crc. Stwrk.	NIE	Inc	Con	NA
8. Actv. Stwrk.	NIE	Inc	Con	NA

C. Lesson Presentation

1. Review	NIE	Inc	Con	NA
2. Overview				
a) Actions	NIE	Inc	Con	NA
b) Objectives	NIE	Inc	Con	NA
c) Prior know.	NIE	Inc	Con	NA
3. Models				
a) Framework	NIE	Inc	Con	NA
b) Examples	NIE	Inc	Con	NA
c) Clues	NIE	Inc	Con	NA
d) Models	NIE	Inc	Con	NA
4. Brisk Pace	NIE	Inc	Con	NA
5. Brisk Pace	NIE	Inc	Con	NA
6. WHWW Q's	NIE	Inc	Con	NA
7. Resp. Rate	NIE	Inc	Con	NA
8. Error Drill	NIE	Inc	Con	NA
9. Sum. Cont.	NIE	Inc	Con	NA
10. Sum. Acct.	NIE	Inc	Con	NA
11. Forecasts	NIE	Inc	Con	NA

D. Adaptive Instruction

1. Same Curr.	NIE	Inc	Con	NA
2. Same Seating	NIE	Inc	Con	NA
3. Called on	NIE	Inc	Con	NA
4. Included in rtn.	NIE	Inc	Con	NA

A. Classroom Management

1. Arranges physical space to maintain minimally disruptive traffic patterns and procedures.
2. Rules and procedures exist for non-instructional events (e.g., movement about room, student talk, distributing materials, bathroom use, etc.) and for instructional events (e.g., getting ready for lessons, expected behaviour of instructional group, obtaining help, seatwork procedures, out-of-seat procedures, etc.)
3. Evidence of rules that involve respect for other members of class and/or provides verbal reminders to students about how to treat each other.
4. Consequates rule noncompliance quickly; cites rule or procedure in responding to disruptive behaviours.
5. Positions self in room to provide high degree of visibility (e.g., can make eye contact with all students).
6. Scans class frequently.
7. Uses nonverbal signals whenever possible to direct students in a nondisruptive manner when teaching other groups of students.
8. Administers praise contingently and uses specific praise statements.

B. Time Management

1. Allocates generous amounts of time for instruction (limits time spent on behaviour management, recess, and nonacademic activities, keeps transition time between lessons short).
2. States expectations for seatwork and transitions in advance (e.g., prepares students for transitions in advance by stating behavioural expectations and informing students that lesson is drawing to a close).
3. Establishes clear lesson routines that signal a beginning and end.
4. Gains students' attention at the beginning of the lesson and maintains attention during instruction at 90% level.
5. Monitors transition by scanning and circulating among students.
6. Maintains students' attention during seatwork at 86% or higher.
7. Circulates frequently among seatwork students to assist students and to monitor progress.

8. Provides active forms of seatwork practice clearly related to academic goals.

C. Lesson Presentation

1. Provides review of previous day's concepts at beginning of lesson; actively tests students' understanding and retention of previous day's lesson content.
2. Provides a clear overview of the lesson:
   a) Explains task in terms of teachers' and students' actions. Tells students what they will be accountable for doing.
   b) States the purpose and objective of the lesson. Introduces topic(s) of learning.
   c) Activates prior experiences and knowledge relevant to the topics, strategies or skills to be learned.
3. Actively model and demonstrate concepts, learning strategies, and procedures related to effective problem solving in the content area:
   a) Provides organizational framework that will help students organize the lesson information (e.g., text structure genre, diagram of lesson topics and subtopics, concept maps, semantic web, etc.).
   b) Points out distinctive features of new concepts and uses examples and non-examples to show relevant and irrelevant features of the concept.
   c) Points out organization, relationships and clues in learning materials that elicit learning strategies.
   d) Models task-specific learning strategies and self-talk that will help students achieve (e.g., rehearsal strategies, retrieval strategies, etc.)
4. Maintains a brisk pace during the lesson.
5. Provides frequent questions to evaluate students' mastery of lesson concepts.
6. Evaluates students' understanding of seatwork tasks and cognitive processes by asking students "what, how, when, where, why" questions related to the targeted skill or strategy.
7. Maintains high accurate responding rate (70-90%) in teacher-led activities:

   a. Repeats practice opportunities until students are not making errors.
   b. Delivers instructional cues and prompts.
   c. Provides error correction procedures.
   d. Using prompting or modeling following errors rather than telling the answer.

8. Provides error drill on missed concepts or review of difficult concepts during and the at the end of each lesson.
9. Gives summary of the lesson content and integrates lesson content with content of other lessons or experiences.
10. Summarizes the lesson accomplishments of individuals and group.
11. Forecasts upcoming lesson content.

Author's Note

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