DIFFERENTIATING KINDERGARTEN

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B.G.S. Simon Fraser University, 1994

A Project
Submitted to the School of Graduate Studies
of the University of Lethbridge
in Partial Fulfillment of the
Requirements for the Degree

MASTER OF EDUCATION

LETHBRIDGE, ALBERTA

March 2003

Dedication

I dedicate this work to Sharon Piffard, a truly unique individual who has always held a special place in my heart. This is but a small gesture to show my appreciation for her unconditional love, her inspiration, and our friendship that has endured almost forty years and has survived a distance of several thousand miles. Mere words cannot express the respect, love, and honour I hold for her.

Thanks for believing in me. I love you, Shar.

Abstract

A 'one size fits all' method of teaching falls short of meeting the diverse needs of students in today's classrooms. This project explores the history, philosophy, principles, and practice of differentiated instruction and discusses the planning, implementation, and results of differentiated instruction in the social/emotional, academic, and physical areas of the kindergarten curriculum. Key themes in the discussion and implementation of differentiated instruction are the developmental view of education, planning for individual differences, and using and internalizing knowledge from current research about the brain, learning, and multi-intelligences to make the paradigm shift necessary to develop attitudes and curriculum for a child-centered learning environment.

Acknowledgements

I am grateful to my supervisors, Dr. David Townsend and Dr. Cynthia Chambers at The University of Lethbridge, whose encouragement and advice led me through serious academic growth while I pursued a Masters degree.

I have appreciated the love and support of my partner, Peter Shaw, who has been a constant source of encouragement, never complaining of the time that I had to devote to my work. You helped me maintain my sanity, listening to the good, the bad, and the ugly as I completed assignments, wrote papers, and worked through health problems.

I extend special thanks to a new friend, Charlene Hodgson, who took this journey beside me and graciously shared her knowledge, books, computer equipment but, especially, her friendship and encouragement while we worked on our projects.

Last, but not least, thanks to my gentle mentors, long-time educators Sharon Miller, Steve Dunsmuir, Jeannie Matthews and my students, whose lessons have been life altering.

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Chapter 1: Introduction

I

pushed

slowly

down the

birth canal

anticipating and dreading graduation

leaving the security of the womb behind

to assume my position at the front of the classroom

a new teacher, a person—reborn

tender, vulnerable, naïve

ready to find my place in a world called school.

Now, a child of seven, I am

less vulnerable, less naïve, less tender, more experienced

I have enjoyed the love of gentle mentors; endured the rebuke of harsher ones

I am not

who I

once was.

But, I ask,

"Who

am I?"

Like a child of seven, I am still learning about my world. Teaching looks easy from the outside, especially when it is done well. Only those who live in the world of teaching (and, perhaps, close friends and family) can imagine the gifts and sacrifices it holds.

The year I began teacher training was a year of firsts, of re-births. I was newly separated, a single parent recovering from back surgery in a new town, a new neighbourhood, a new home. The only familiar place was school, for I had been a student most of my life. Even if I had never entered a classroom to teach, the preparation to do so would have remained a pivotal, life-changing experience for me. In the process of becoming a teacher I have become a more confident, aware, sensitive person.

Sometimes, however, old insecurities emerge. Nearing the end of my research, I shared my topic with a doctoral student who observed, "Kindergarten teachers have been doing a great job of differentiating instruction for years." I agreed, adding that primary teachers in general also do a great job of differentiating instruction. Then, for a moment (a couple of days, really), I questioned why I spent the past year researching differentiated instruction and attempting to make a paradigm shift in my own practice. I asked myself, "If kindergarten teachers are doing a great job of differentiating instruction, am I doing it poorly or, worse, do I not know what it looks like at all? Was it a mistake to continue with this project when my teaching assignment changed from grade 1/2 to kindergarten?"

By way of defending this project, and maintaining my dignity, I pondered the changes I have made in my philosophy and practice. I thought about the insights I am still gaining months later and concluded that while I have been differentiating instruction well in some areas, I can improve in others. Most importantly, I am gaining a better idea of what differentiated instruction looks like in practice. As a result, I am differentiating instruction for my students deliberately and knowledgeably rather than incidentally and haphazardly. I am, in fact, making an important paradigm shift.

Differentiated instruction is *not* new and good teachers *have* been doing it for years, but the possibilities for improving teaching by applying the most recent research about teaching and learning, intelligence, and how the brain works, are endless. Furthermore, with the recent expectation that kindergarten students will exhibit beginning reading skills, or at least strong reading readiness behaviours, comes a need for more structured academic instruction in this first important year of school, hence, a more pressing need for differentiated practice. I have concluded that this project is not only necessary, but also timely.

Kindergarten teachers make differentiated instruction look easy. It is much like classroom management and discipline. When a teacher has a firm handle on things, classroom management is like an undercurrent that supports the real work going on in the classroom. Similarly, when teachers are successfully meeting the needs of small children, differentiation often occurs quietly as the real work of the day plays out.

When I think about kindergarten, generally, I think of playtime, hands on activities, singing, and movement games. These activities meet the needs of young children to move and participate actively. They are easily adapted for reluctant or less capable children. I sit on the floor with the children, and those with the least developed motor skills take turns sitting between my knees as I help their hands do the actions for a song or game. Another time, while we enjoy a familiar song, I notice one boy is not singing. He never does, even when encouraged. He's not happy singing, and I'm not happy that he's being disruptive when the class is singing but do I know he loves to move when we sing. I give him the responsibility of being our choir director and we are both happy. These are two examples of what I call differentiation 'on the fly'. In the first, I

differentiated for ability, giving some students support to do the movement activity. In the second, I respected a boy's preferences and differentiated the process allowing him to participate in the singing activity in a more comfortable way. In a primary classroom, differentiation often comes out of necessity, unplanned; as do many of the hundreds of other small decisions teachers make every day. My response could have been different. A short time ago, it would have been.

The person and teacher I was a few years back would have noted the students who couldn't do the motor activity so I could provide one-on-one help later, and, assuming that the non-singing boy was just being difficult, I would have tried to convince him to sing with the class. My knowledge, experience, values, and beliefs about small children and teaching would have influenced those responses. All of these things have been in a state of constant change so that I no longer recognize myself as the same first-year teacher from seven years ago. I have acted as if for so long, that I have almost become the person and teacher whom I have striven to be. I say almost because when I respond differently than I would have in the past, I still sometimes think, "Hmm, was that me who just did or said that?" When I have truly become, perhaps my present behaviour will no longer surprise me.

Research Question

My goal for this project was to discover the answer to the following research question: How can I differentiate instruction in a more proactive, deliberate way for my kindergarten students?

One aspect of my practice I knew I could improve was in teaching alphabet letters and sounds. Like most kindergarten teachers I know, this year I had planned to

introduce a couple of letters each week. I researched what would be the most appropriate letters to begin with, and finding conflicting information, I made my choice based on what I thought was the best of each of the programs I studied. Or was it just a compromise? Fortunately, just as I got started, I began my research into differentiated instruction and realized the way I was planning to teach did not take student readiness or individual differences into account. When I realized I was planning a 'one size fits all' curriculum, I decided to make teaching the alphabet my first differentiated project. My metamorphosis had begun.

Rationale

Reaching for the Ceiling

> Some educators say a "good" education is one that ensures that all students learn certain core information and master certain basic competencies. Others define a "good" education as one that helps students maximize their capacity as learners. Because the latter definition encourages continual lifting of ceilings and testing of personal limits, it would seem to make the best sense for all learners. (Tomlinson, 1995, p. 11)

This research project grew out of an activity I call special-number, that I adopted several years ago from a colleague who learned it at a *Math Their Way* workshop. This activity, which goes by many names, was also the topic of a journal article by Schneider and Thompson (2000) called 'Incredible Equations' in *Teaching Children Mathematics*. The authors experienced results similar to the ones that follow.

During calendar time, our daily helper chooses a number. Students work individually or in groups to create an equation that results in the special-number. Grade

1/2 students at the beginning of last year produced simple equations for the number 7, such as 4 + 3 and 6 + 1. Soon the equations increased in complexity to strings of operations such as 7 + 3 – 5 + 4- 2. It was when the equations began reflecting substantially higher level skills that I became extremely excited about this activity. Students began experimenting with multiplication, and contributed equations for the number 7, such as 5 x 5 – 5 – 10 – 3. A few children began working in hundred thousands, millions, then billions. One of the most exciting equations began with 2,000,000,000 – 4,000,000,000. Thinking the student had made a mistake, I asked what the answer was so far. The surprising reply was "negative 2,000,000,000." The student continued through the billions, millions, hundred thousands, and so on, ending with the target number. These youngsters could not only use large numbers, but they could work with large strings of numbers and operations, keeping the temporary solutions in their heads until the end. They rarely made a mistake. It became a challenge to produce longer and more complicated equations and to form larger and larger work groups. When I tried the special-number activity as an individual paper and pencil exercise later in the year, it was a flop.

This year I introduced the special-number activity to my kindergarten class at calendar time. Like last year's grade 1/2 students, these youngsters worked together, learned how adding and subtracting worked, used larger and larger numbers, and kept long strings of numbers and operations in their heads as they worked towards the target number. Most students also learned the concept of zero and together we explored the concept of infinity through this activity.

There are many wonderful things about the special-number activity. It satisfies Tomlinson's (1995) definition of good education by maximizing students' learning capacity, raising ceilings and testing personal limits, and I believe it is the epitome of differentiated instruction. The content is open-ended, so students can contribute at their own level. Students learn new things about numbers from each other and by jumping in and trying a new challenge. Many of them reach beyond what I would have taught at their grade level. Second, the process is differentiated. Children may work alone, with a partner, or with a group. Sometimes they assume the role of leader; sometimes they accept the help or leadership of others. Students can choose to use manipulatives or blackboards to help them solve a problem, though most children compute in their heads. Often, socially backward children become so caught up in the challenge and excitement that they shed their fear or shyness and join a group to help them make a bigger and better equation. Everyone feels challenged, and better yet, students create their own challenges. I never hear a student say, "I can't" or "I don't want to" during the special-number activity. Had it not been for this activity, I would not have known just how advanced some of my students were in math. I feel I have found an excellent ongoing individual math assessment to give me up-to-the-moment information about what each child is ready for next, and I can encourage them to reach for a bigger challenge during the activity.

Good Teaching

I am sure there are many more strategies and activities like special-number that will produce similar magic in my classroom. I have concluded that three elements help create the magic. First, all students are able to participate at their own level and, because

it is a safe and encouraging environment, they are proud of their contributions and they celebrate eagerly. Second, the challenge of a problem to solve and the open-ended nature of the activity provide the motivation to always reach higher. Third, the social element helps nurture relationships and build a positive classroom climate. The attitudes towards learning and the relationships built during the special-number activity transfer to other parts of the day.

I have always looked for ways to meet the diverse needs of my students. This one activity has inspired me to make a closer examination of my teaching practice in an effort to provide more deliberate differentiated instruction. The philosophy and practice of differentiated instruction provides the elements that lead to the kind of learning I want to have happening in my classroom. It is first, and foremost, good teaching based on the latest research about learning. The philosophy of differentiated instruction stems from two central tenets. First, learners are diverse in many ways, and second, it is the educator's responsibility to make adjustments for the learners, rather than expecting children to adjust to curriculum and instruction. Teachers must become expert kid-watchers who get to know their students as individual, unique, learners.

Tomlinson (1999) indicates that good teaching and getting to know students goes beyond effective kid-watching to incorporating the knowledge gained from current research into how the brain works and how learning can be enhanced for all learners. The description of good teaching based on current research includes many ways of assessing students and meeting and supporting their learning needs at their level of readiness. Good teaching also includes adopting the philosophies and practices of constructivism, cooperative learning, multiple-intelligences, learning styles, and differentiated instruction

Student Diversity

"As the student population becomes more diverse in general and as that diversity finds its way into heterogeneous classrooms, it seems likely that any view of teaching that denies the pluralism is doomed to fail" (Council for Exceptional Children, 1995, p. 16).

Howard Gardner says, "Anyone who has spent a significant amount of time with children, whether as teacher, counsellor, therapist, or family member, will have been struck by the vast differences among children, including ones reared in the same family" (as cited in Chapman, 1993, p. 65). How are learners different? Beyond their distinct personalities, students differ physically, academically, emotionally, socially, and developmentally. They have varied cultural, socio-economic and family backgrounds and values. Children have different levels of motivation and impulsivity. They have varied degrees of skill for listening and co-operating. Students' learning styles, interests, background knowledge, and experiences are unique. If the number of ways learners differ seems staggering, consider the possible combinations within each individual. How can teaching to the middle possibly meet the needs of the diverse group of learners found in a single classroom? I do not believe it can. One way to meet the needs of diverse groups of learners is through differentiated instruction.

Differentiated instruction is a way of looking at planning and teaching with the purpose of providing the appropriate amount of challenge with just enough support for each student. This does not happen in most classrooms, however. Archambault, Westberg, Brown, Hallmark, Emmons, and Zhangn (2001) report findings from a national survey conducted by The National Research Center on the Gifted and Talented

that revealed "third and fourth grade teachers make only minor modifications in the regular curriculum to meet the needs of the gifted students". Advanced students are often given more work, called "independent projects", when they complete assignments or they are "assigned advanced readings" (p. 1). Often, advanced students are expected to help others who are struggling to learn the skill or concept they have already mastered (sometimes long before it was taught). According to Tomlinson (2000) "a grade of 'A'" is "more an acknowledgement of their advanced starting point relative to grade level expectations than a reflection of serious personal growth" (p. 3). Struggling students are often given less work or lower expectations. What message are these students receiving day after day? Neither of these groups is being treated respectfully or equitably; nor are they being encouraged to strive for excellence in their endeavours.

School Reform

> Despite the past decade of intense efforts to develop a methodology of teaching that is superior to the prevalent mode, successful innovative practices are like little islands of creativity in a sea of traditionalism. (Georgiades, 1977, pp. 35-36)

Tomlinson (2000) and others have echoed Georgiades' words in many ways, more than twenty years later. Educators do not make changes easily. Certainly, they have not readily embraced the philosophy and practice of differentiated instruction. Teaching to the middle *is* easier for teacher planning and instruction, but students pay the price year after year, going without appropriate challenges at their level of readiness.

School reform is calling for classrooms where time and pacing is flexible, where multiple resources, strategies, and ways of expressing learning are used, and where

teachers accept students as they are, and understand how to continually support them in development toward their potential. (Council for Exceptional Children, 1995, p. 14)

I intend to be part of this reform. Learning about differentiated instruction will lead me to the paradigm shift I am working towards. It is my hope that publishing my research will make the task of implementing differentiated instruction easier for other teachers who are ready to begin.

Chapter 2: Review of Literature

Introduction

Recent research on the brain, intelligence, and learning has given us some of the most powerful insights into teaching in the history of education. A 'one size fits all' attitude towards teaching has not been able to meet the individual needs of learners, and it is hardly tolerable in light of what we know about the diversity of learners found in modern classrooms. Inclusionary practices, changes in family structure, and immigration bring a mixture of learners to challenge the best of today's teachers. One way teachers can face this challenge is by providing differentiated instruction for their students.

Differentiated instruction, both a philosophy and a practice based on current research and rooted in best-teaching practice, aims to meet the needs of all learners. Pettig (2000) defines differentiated instruction as a "proactive approach to improving classroom learning for all students" (p. 14). The philosophy stems from two central beliefs. First, learners are diverse in many ways. Second, it is the educator's responsibility to make adjustments for the learners, rather than expecting children to adjust to the curriculum and instruction. Carol Ann Tomlinson (1995, 1999, 2000) writes extensively about differentiated instruction and encourages teachers to become familiar with, and align their practice to, the most up-to-date educational research. Tomlinson (1999) highlights brain research and points to research on multiple-intelligences. She refers to the *zone of proximal development* and *scaffolding*, which describe children's readiness to learn a new skill or concept and the support necessary for them to learn. Further, Tomlinson suggests that successful differentiation can happen only if teachers know their students well as individuals and as learners. Finally, she stresses that teachers

must conduct ongoing assessment to determine children's starting points for learning, and to trace their progress on the learning continuum.

History of Differentiated Instruction

Introduction

For as long as there have been learners, there has been a need for differentiated instruction. Every parent with more than one child knows that no two children are alike; nor do they respond the same way to the same stimulus. Effective parents have provided differentiated discipline and instruction for their children for centuries. Similarly, since the beginning of formal education, teachers have faced the challenge of meeting the needs of diverse learners in their classrooms. Teachers and institutions have tackled this challenge in a variety of ways including teaching to the middle, homogeneous grouping, alternative schooling for gifted children and for children with physical and learning disabilities, individualized instruction, inclusion, non-graded education and, most recently, differentiated instruction.

The Resounding Cry for Child-Centered Education

The need for child-centered practice was expressed as early as the 16th century, when Comenius "argued for a developmental view of education and maintained that children would need less discipline if the curriculum made sense to them" (Chase & Doan, 1994, p. 4). Comenius's argument was for multi-age groupings "so that one pupil serves as an example of and a stimulus for another" (p. 4). Inherent in his argument were some of the beliefs held by those who support differentiated instruction: learning has a social element; teachers alone cannot meet the needs of diverse learners; learners must take responsibility for their learning; and curriculum must be relevant to students. These

concerns, expressed so long ago, still ring true today. Yet genuine educational reform is deferred over and over again while philosophies clash and practices are relativized by whim, bandwagons, and political agendas.

According to Chase and Doan (1994), the progressivist movement of the early 1900s produced a cry for more child-centered education. The response in the decades that followed took the form of philosophies and experiments such as the open school, the Summerhill experiment, discovery learning, learning centers, individualized instruction, non-graded education, multi-age education, and cooperative learning. The most recent philosophical term to gain prominence in school systems is differentiated education. This philosophy contains many elements of the learner-centered movements that have gone before it, but it is also unique in many ways.

Philosophy and Principles of Differentiated Instruction

"Schools must be 'learner centered', concerned not about 'whether the child is ready for school' but 'whether the school is ready for the child.'– Edwin J. Delattre" (Lambert & McCombs, 1988, p. 1). "In a differentiated classroom, teachers begin where students are, not [sic] the front of a curriculum guide." (Tomlinson, 1999, p. 2).

Two tenets guide teachers who wish to practice differentiated instruction. First, every student is unique, and has individual learning needs. Second, teachers must match the learning to each child, rather than expect all children to learn the same thing in exactly the same way, to the same depth, at the same time. Teachers who differentiate instruction adjust the learning so that it meets all students at their level of readiness, which Vygotsky (1978) called the Zone of Proximal Development (ZPD). Vygotsky defined the Zone of Proximal Development as the "distance between the actual

developmental level as determined by independent problem solving and the level of potential development under adult guidance or in collaboration with more capable peers" (p. 86). Once a child's starting point for learning has been determined, teachers must provide scaffolding, or just the right amount of help, for the child to reach a learning objective.

Gregory and Chapman (2002) encourage teachers to find that ideal emotional place within the zone of proximal development, where the learning task is challenging but not overwhelming, to establish "the state of 'flow' (Csikszentmihalyi, 1990), the condition which exists when learners are so engaged, excited about learning, challenged, and receiving appropriate feedback that they are oblivious to anything else" (p. 5). Goleman describes flow in terms of how learners are feeling: "If there is too little demand on them, people are bored. If there is too much for them to handle, they get anxious. Flow occurs in that delicate zone between boredom and anxiety" (as cited in Gregory & Chapman, 2002, p. 5).

The philosophy of differentiated instruction goes hand in hand with sound teaching practice based on current research. Tomlinson (1999) points to brain research, which provides evidence that "the brain learns best when it can come to understand by making its own sense out of information rather than when information is imposed on it" (p. 19). Further, information that is meaningful and connected to prior knowledge enhances learning. Tomlinson (1999) reports that Howard Gardner and others have found that "intelligence is fluid, not fixed" and that "we think, learn, and create in different ways" (p. 18). Further, brain research indicates that "vigorous learning changes the

physiology of the brain...neurons grow and develop when they are used actively; they atrophy when they are not used" (Tomlinson, 1999, p. 18).

Practice of Differentiated Instruction

The practice of differentiated instruction is an application of the philosophy outlined earlier, guided by the following principles set forth by Tomlinson (1995):

Differentiated Instruction is Proactive

Good planning is the foundation of effective instruction and is, by definition, proactive. A teacher must be clear about the objectives of a unit and of individual lessons, ensuring that all tasks lead to the desired outcomes. Planning for differentiated instruction involves the greater task of how best to meet each learner's needs. Since the primary goal of differentiating instruction is to meet learners at their point of readiness, pre-assessment is necessary. Students begin learning at their level of readiness, not at the age- or grade-appropriate level required by a text or an inflexible curriculum. Of course, the teacher will have already put his or her 'kid-watching' skills to work and will have some working knowledge of students' needs, goals, and interests. Students must be encouraged to assume responsibility for their own learning, and may be more motivated to do so if given a choice about how they will meet or demonstrate mastery of the learning outcomes (Pettig, 2000).

Differentiated Instruction is More Qualitative Than Quantitative

Simply varying the amount of work does not come close to meeting students' needs. Effective differentiated instruction goes beyond how much students are required to do and pays close attention to what a student is able to do and how or to what level a student is able to do a task or demonstrate an understanding. Tomlinson (1995) argues

that giving struggling students less work often results in inferiority feelings. If they lack some of the skills or prerequisites to do the task to begin with, having them do a smaller amount of work is ineffective. Similarly, Tomlinson contends that giving more work to advanced students is equally harmful because it is often considered a punishment. Their needs are better met with an increased challenge, or acceleration.

Differentiated Instruction Provides Multiple Approaches to Content, Process and Product

Students are given multiple ways to learn content, multiple ways to make meaning from information, and multiple ways to demonstrate their understanding. Student ability, interest, and learning style are taken into consideration when a teacher or a teacher and student together make decisions about how the student will go about meeting and demonstrating learning outcomes. The content, pace, abstractness, level of complexity, or level of difficulty may be varied according to students' needs. Student choice is encouraged and valued.

Before they begin to plan, Tomlinson (1999) suggests that teachers ask themselves what, how, and why they are differentiating. Teachers may differentiate for ability with different levels of scaffolding, especially for students who struggle or who have special needs. Differentiating for ability is also done by assigning different tasks, by using different levels of reading materials, or by utilizing different skills. Sometimes a teacher will differentiate the process from concrete to abstract. Many times it will be appropriate to differentiate tasks from simple to complex, but at other times it may make more sense to vary the pace from slow to accelerated. Decisions on what and how to differentiate should not be made randomly, but carefully, taking individual needs, interests, goals, and learning preferences into account. Some structures, strategies, and

methods lend themselves well to differentiated instruction (Schniedewind & Davidson, 2000). Tiered assignments, like the pyramid, place learning outcomes on a continuum that students work through. Inquiry, problem solving, and using questions, activities, or assignments that are open-ended provide excellent avenues for diverse learners to enter at their levels of readiness (Tomlinson, 2000).

Schniedewind and Davidson, (2000) suggest that cooperative learning structures lend themselves well to differentiation if the teacher assigns levelled tasks for group members. If the teacher establishes interdependence within cooperative learning activities, together with providing tasks that are matched with ability, chances are good that no student will be able to avoid participation, and no one student will be able to do everything him/ or herself. Students may use different advanced organizers to prompt and record their thinking. Students may demonstrate understanding in a preferred learning style, in a favourite intelligence, or on a favourite topic.

Differentiated Instruction is a Blend of Whole-Class, Group, and Individual Instruction

Grouping in the classroom is an important topic in education, and an important consideration when differentiating instruction for students. Part of planning for differentiated instruction is deciding on the most effective way to deliver instruction for diverse learners. Sometimes this is whole-class instruction that breaks into small-groups. Sometimes it begins as small-group instruction. Sometimes it requires that a teacher or an aide work with one student. It is always carefully considered rather than randomly selected. Flexibility is also important when using homogeneous groupings so that students are not always in a group that is considered the low or high group.

Differentiated Instruction is Organic

Ongoing assessment is of paramount importance when differentiating instruction. It provides the necessary data on where students are in their skill development, and in their understanding of concepts. Assessment must be used as a tool to guide instruction, and not only as a way of collecting information for reporting purposes. Tomlinson stresses this point emphatically when she says, "You can't just wait until the end of the year to find out who got it and who didn't. By then, it's too late" (Tomlinson, as cited by Ross, 1999, p. 1). Students are given a great deal of responsibility for their learning. They set goals and work towards them. They encourage each other. They collaborate with the teacher in the planning and assessment process.

Differentiated Instruction is Concept Focused and Principle Driven

Understanding the concepts rather than simply remembering and reporting the facts allows for differences in depth and breadth of understanding and application for different learners. This principle is derived from brain research, which indicates that people learn better when they construct meaning, than when information is imposed on them. Inquiry and problem solving approaches have the potential to lead students to deeper understanding. Winebrenner and Devlin (1996) suggest that for cooperative learning tasks to be beneficial to gifted students, they should be open-ended and they should require critical or divergent thinking. Hess (1999) encourages teachers to use open-ended lessons and units that allow students to "go as far as they want" (p. 2). Learning centers provide open-ended experiences for students, as do problem-solving approaches, where problems vary in complexity and abstractness.

How-to's of Differentiated Instruction

Information about the specifics of practicing differentiated instruction is more elusive than the philosophy and theory. Tomlinson's work is extensive in the philosophy and principles of differentiated instruction, but when I talked to a teacher who attended Tomlinson's workshop in Medicine Hat (personal communication, Browne, 2002) she expressed the same concern I have about the difficulty of turning the theory into practice. I see this as big part of my work for this project.

From my research, I have learned what differentiated instruction is not. Wilmette (2001) cites Morreale, who suggests that differentiated instruction is not:

- individualized instruction
- creating more work
- using higher standards when grading
- giving the same work but expecting more
- providing free-time challenge activities
- using capable students as tutors to classmates (p. 4)

The goal of differentiating instruction is not to develop individual education plans for each student. What differentiated instruction *is* becomes more vague. Wilmette (2001) offers Morreale's definition. Differentiated instruction is:

- creating different opportunities within the same curriculum
- putting students in situations where they don't know the answer—often
- differing the product from simple to complex
- differing the process from concrete to abstract

- differing the content from below to above grade level
- differing the pace from slow to accelerated (p. 3)

Differentiated instruction certainly requires a teacher to engage in ongoing observation and assessment in an effort to get to know students in order to provide the appropriate level of instruction at the right time and in the way that best suits each learner. Using a student's interest provides a sure-fire motivator. Knowing about a student's strengths, weakness, and learning preferences provides important information about his or her readiness to learn a new concept or skill. Ongoing assessment is critical to determine each child's starting point for learning and can benefit the child who is exceptional, the child who is struggling, the child who is gifted, and others who fall anywhere in between.

Teaching for Multiple-Intelligences

Howard Gardner says:

> The two intelligences that are listed first [linguistic and logical-mathematical] are the most commonly recognized and appreciated in our society. They are the ones that assure success on IQ tests and SAT's because they are the ones those tests were designed to test for in the first place. Students who possess and develop the linguistic and logical-mathematical intelligences are virtually assured of success in the traditional school setting. This success is, however, not a good predictor of success in real life. (as cited in Jasmine, 1996, p. 2)

Chapman (1993) concludes that Gardner's definition of intelligence "highlights problem solving and product making as the most important elements" (p. 2). In the foreword of *If the Shoe Fits* (Chapman, 1993), James Bellanca points out that:

> The idea of a single IQ score undermines the now widely accepted concept of multiple ways of knowing and learning. To believe a single quantitative measure can possibly reveal all the gifts of which the human mind is capable puts unnecessary limitations on our concept of human development. (p. vii)

With its concentration on the spoken and written word, our school system has failed to meet the needs of many students, including famous ones. Jasmine (1996) reminds us that "Thomas Edison…was sent home from school as unteachable…Both Winston Churchill and Albert Einstein were thought incapable of the structured learning of their academic environments" (p. 6).

Gardner has identified eight intelligences: linguistic, logical-mathematical, naturalist, spatial, musical, bodily-kinesthetic, interpersonal, and intrapersonal (Chapman, 1993, p. 4) that explain learning preferences or strengths well beyond the scope and complexity of earlier learning-style theories. According to Campbell and Campbell (1999), teachers, who "lacked an adequate theory of human intelligence" (p. 3) welcomed multiple-intelligences theory:

> MI [multiple-intelligences] offers insight into the human mind, its abilities, and its development that teachers find tangible, accessible, and professionally useful…Many teachers claim that MI provides a language or vocabulary to perceive and articulate a broader array of student talent. (pp. 4-5)

Multiple intelligence theory lends itself well to the practice of differentiated instruction giving teachers many avenues by which to vary process, content, and products to maximize and expand student learning styles. In fact, says Jasmine, (1996):

> Gardener's ideal school is an individual-centered school (Gardner, 1993)...It involves...looking at each child to discover where he or she is and then taking that child as far as he or she can go. (p. 47)

Above all, multiple-intelligences theory affects teacher expectations positively. Campbell and Campbell's (1999) research revealed one teacher's transformation: "I perceive children according to what they are good at rather than by their challenges" (p. 9).

Multiple-intelligences provide a variety of avenues to pique children's interest in learning. Jasmine (1996) cites Sylwester who says, "Emotion is an important factor in learning because 'it drives attention, which drives learning and memory'" (p. 49). Jasmine suggests that good literature, social interaction and role-play, positive classroom climate, and humour are all good multiple intelligence avenues that can evoke the positive emotion that can have a favourable effect on learning.

Traditional intelligence assessment relies heavily on the linguistic and mathematical-logical areas. New diagnostic tools that regard multiple-intelligences are being developed. One such test, "the Teele Inventory of Multiple-intelligences (Teele, 1994)...makes it easy for the teacher to discover the dominant intelligences of a classroom full of students...independent of language" (Jasmine, 1996, p. 52). However, until the educational community catches up to the ideas of Gardner and his supporters, there will be skepticism about multiple-intelligences and its place on national tests. The results of Campbell and Campbell's research (1999) offer some positive responses to that concern:

> At the six MI schools, teachers shunned teaching to any test...At inner-city Russell Elementary School, with 94% of its population on free and reduced lunch, student scores have doubled...the discrepancy between black and white student scores has disappeared...At inner-city EXPO for Excellence Elementary School, where over 50 percent of the students are minority and 35 percent are limited-English-proficient, scores on the new Minnesota basic skills tests are among the highest in St. Paul. (p. 96)

Campbell and Campbell (1999) do not support nation-wide testing even though the schools offering multiple-intelligence programs demonstrated significantly higher results. They say, "the scores risk placing standardized tests and not students at the center of public attention" (p. 97). The research team stresses that:

> Such tests don't communicate the whole story of student accomplishment ...they cannot reveal that students are engaged in personally relevant schoolwork, that they are developing a broad spectrum of intellectual competencies, that they can apply what they know, and that they can tell others what they are doing and why...nor do such scores reveal the enthusiasm of students for learning, their increased school attendance, or their enhanced self-perceptions. One thing the test scores do communicate, however, is that adopting MI does not mean ignoring the basics, but rather MI can improve basic skill achievement and more. (p. 9)

Campbell (1994) suggests that teachers implement a multiple-intelligences program in their classroom in one or more of the following ways: set up learning centers, team-teach, provide whole-class instruction in multiple ways, emphasize one intelligence

each day, engage students in self-directed learning through personal choices, invite members of the community into the classroom to share their career specialties (p. 7).

Grouping for Social and Academic Success.

Grouping students for learning is an important consideration when planning differentiated instruction. Sometimes whole-class instruction is necessary, sometimes a situation calls for some individual instruction, but more often small-group instruction is most effective. There is ample evidence to support small-group learning. Baron (1998) highlights Vygotsky's writings, which "emphasize the role of social factors in both instigating learning and in facilitating the accelerated development of metacognitive processes through social prompting of the zone of proximal development" (p. 220). Lambert and McCombs (1998) point to several research studies in the area of cooperative learning that provide evidence of gains in both social and academic areas for students who have participated in cooperative group work. Kagan (1992) reports that the benefits of cooperative learning in heterogeneous groups are greater for minority and low achieving students, but "high achieving students generally perform as well or better in cooperative learning classrooms than they do in traditional classrooms" (p. 3:1).

Homogeneous grouping, or similar ability grouping, has been criticized for affecting members of the lower performing groups adversely by creating low self esteem and opening a door to peer ridicule of slower learners (Burnett, 1999). Tomlinson (1999) suggests that learning goes awry for struggling students when teachers reduce expectations and slow down the pace, removing the excitement for learning. Advanced learners in homogeneous learning situations enjoy quite a different experience according

to Tomlinson (1999) who suggests their learning is enhanced by raised expectations and a faster pace.

Slavin, a prominent researcher in the area of cooperative learning and a staunch supporter of heterogeneous grouping, discovered that although heterogeneous interaction in the classroom benefited the majority of students much of the time, homogeneous or ability grouping proved to be most effective for teaching reading and math in mixed-ability classrooms (Hollifield, 1987). Slavin now supports ability grouping in these two subject areas only, provided that grouping plans allow for frequent reassessment of student placement (Hollifield, 1987). Educators who support differentiated instruction meet the grouping dilemma with a compromise, called *flexible* grouping, sometimes whole-class, sometimes pairs or small-groups, but always carefully chosen to best meet the learning situation (Pettig, 2000). Flexible grouping leaves room for students to be moved if assessment indicates that their needs would be served better in another group. The concern about self esteem is reduced because groups are not always formed around abilities. The problem of peer ridicule is met in a proactive way by establishing a safe, caring community of learners, by discussing differences, and by encouraging acceptance and celebration of differences.

Teacher Attitudes Towards Differentiated Instruction

> On the entire educational scene, the toughest person to change is the teacher because an alteration of methods touches his ego, his self-concept, his security, his life work, and everything that he has become throughout his professional career. (Georgiades, 1977, p. 62)

Differentiated instruction may be the ultimate in child-centered education, yet according to Tomlinson (1999), teachers largely reject it. She reports, "despite compelling new educational knowledge, classrooms have changed little over the last one hundred years" (p. 22). Nathaniel Cantor made a similar observation fifty years ago, claiming "that there are individual differences in learning has been recognized in theory as often as it has been denied in practice" (Cantor, as cited by Garger & Guild, 1998, p. 2). Johnson (2000) further substantiates this concern, citing research that has found "few instructional or curricular modifications in regular elementary classrooms" (p. 1).

Schools spend a great deal of time and money to implement inclusionary practices that support students who have learning, physical, and behavioural difficulties. However, we ignore the needs of others who are clumped together as *average learners*, and we neglect those who are labelled *gifted.* Winzer (1999) informs us that "educators have persistently argued about whether special programming for individuals already well endowed violates the ethics of a democratic school system" (p. 222). Funding allocation for gifted children has certainly been scarce compared to funding for disabled children.

The funding issue is important. Winzer (1999) says that about one-half of gifted students may be considered underachievers according to their potential. Until the controversy over equality versus individual rights becomes resolved, it will remain the decision of classroom teachers to either nurture or neglect the needs and potential of gifted children.

Though we are spending money in the area of learning assistance, we may not be serving our students with learning difficulties well, either. Winzer (1999) supports the view that many learning disabilities may be attributed to maleducation. Those who

support this view believe that teachers are not adequately prepared to teach children who experience learning difficulties. Winzer (1999) points out several studies that indicate "one curriculum may not be best for all children" and that "all programs should match the individual needs of the child" (p. 159).

Teachers, even many of those who teach to the middle, make attempts to provide differentiated instruction, but some approaches are ineffective, and other efforts might be better left undone. Learner-centered approaches to delivering instruction require a paradigm shift that is not easy, or readily embraced by teachers who have become comfortable running a one size fits all classroom where learners are expected to be in the same place as their peers, on the same page, at the same moment.

There are many reasons why teachers have resisted the kind of change required to implement differentiated instruction well. Many of them parallel the reasons why only a small percentage of teachers use cooperative learning despite compelling evidence of its effectiveness. Some educators are unaware of current research in the area of learning that would indicate their practice could be changed or improved to better meet the needs of their students. Jungck (2001) blames teachers' perceptions for their prevalent aversion to research, which teachers in her courses describe as "statistics, boring reading, and dusty-shelf material" for which they see "no practical application to classroom" (p. 330).

Alternatively, teachers who *are* aware of current best practice may not know how to go about making the paradigm shift from a teacher-centered to a student-centered program, or may be unwilling to give up the control of teacher-directed instruction. Teachers either do not know how to adapt curriculum or learning opportunities creatively for diverse learners, or do not feel that they have the time, the opportunity, or the desire

to learn how. It requires a great deal of thought and time to plan units and lessons that are engaging for all students, and to develop multiple ways or levels for students to access content, process information, or demonstrate understanding. Koller (2001) remembers embracing brain-based research to improve his teaching:

> It was quite another matter putting these principles into practice. One doesn't need courage to read about and even accept brain-based teaching theories, but one does need a fair amount of courage to set aside old teaching habits, prepare an accelerated learning lesson, and then walk into a classroom and teach it with conviction! (p. 134)

Further, teachers may feel they would be alone or unsupported in this endeavour. The whole thing can be very overwhelming and overworked educators may decide that what they already do works, so why change? Like many teachers, Koller (2001) admits:

> The daily demands of teaching and the extra, often unnecessary burdens placed on teachers by their administrators are often so demanding that any serious consideration of making a radical shift is usually dismissed outright. The other deterring element was the perception that something that works well enough shouldn't be fixed...Obviously things were going well enough. Why change anything? (p. 130)

Teachers often feel they have been bombarded with new innovations that they are expected to adopt for the sake of change. They are reluctant to undertake something new until it is proven to be beneficial, or until it is mandated by their school board. Koller (2001) captures the feeling of many teachers when he remembers, "I had to go along with the latest fad, which was followed by several more 'perfect solutions' to language

teaching. Paradigm was forced upon paradigm" (p. 132). Even after adopting the latest method endorsed by their school boards, usually in the form of free professional development, teachers are "sometimes criticized for 'not doing it right' or not being true to the model" (Mohr, 1996, p. 119).

Teachers may also reject the practice of differentiated instruction because it seems to be in opposition with standards-based educational practice. Tomlinson (2000) expresses her concern that "recent demands for more standards-based teaching can feel like a huge impediment to encouraging differentiated instruction...and the high stakes testing that drives it can often feel like a locomotive rolling over everything in its path" (p. 6). How do we differentiate instruction according to need when virtually everyone in the class will have to write an external test, ready or not? Tomlinson (2000) is convinced that standards-based education and differentiated instruction can live in the same classroom.

Finally, teachers may feel they are already meeting the needs of all learners in their classroom well. As I pointed out in the beginning of this section, however, research shows that few of them are.

Teacher attitudes are an important test of their acceptance of a theory or philosophy. The findings of the team responsible for implementing the 'Success for All' reading program developed by Robert Slavin, Nancy Madden and a team at John Hopkins University provide some insight into teacher attitudes towards differentiated instruction. 'Success for All' is aimed at prevention and uses early intervention strategies to ensure reading success for every child. Datnow and Castellano (2000) report that of the 36 teachers who participated in the study, only three were 'vehemently against' teaching the

rigidly structured reading program. One teacher who opposed the reading program cited Paulo Freire, arguing that the program "is totally the banking model of education in which decontextualized knowledge is deposited in learners' heads" (p. 790). A second teacher who opposed the program stated that you must "find out what the rate of learning is of the group that you've got and you've got to tailor-make it. I'm sorry, I have still never seen a program that works 'as is' for all children." (p. 790). The third, opposing teacher "complained about the 'one size fits all' nature" of the program (p. 790). These three teachers comprised only 8% of the teachers in the study who spoke out for differentiated instruction, leaving 92% who endorsed or accepted this heavily structured, 'one-size-fits-all' method to teach reading in elementary school.

Teaching the familiar is certainly easier than undertaking professional development and experiencing the discomfort of practicing a new teaching method. Gaustad (1995) observes, "veterans may feel as insecure as first-year teachers as they struggle to learn these new skills" (p. 2). In light of current research, however, reform is clearly indicated.

Differentiating instruction well is not easy, but it is not impossible. Wehrmann (2000) suggests taking "baby steps" (p. 1); beginning with differentiating content for one group, followed by differentiating content, process and product for one group, followed by differentiating for multiple groups. Tomlinson (1999) recommends starting small with one lesson, then a unit but to be aware that it may take five to seven years to make the philosophy and practice of differentiated instruction a way of life, and it will still be in progress at the end of a teaching career.

Gaustad (1992) concedes, "Experts agree that teaching multi-age classes requires more preparation time. Teacher burnout due to insufficient planning time was one reason for the failure of earlier non-graded experiments" (p. 3). Gaustad further admits that it is easier to follow teachers' manuals and to mark multiple-choice tests than to collect, evaluate, and describe samples of student work on report cards, but she cites Goodlad and Anderson who say, "Efficiency takes on proper meaning only in relation to the job that should be done. To recognize that something is easy does not justify our doing it" (p. 3).

Chapter 3: Research Methodology

Introduction

Several of my colleagues and I are creating a common history. We have travelled over 1000 km to the university to consult our advisors, to take advantage of the library, and to get serious about writing our projects. The bonus has come in the interactions we are experiencing. We talk over a cup of coffee, in the car while driving somewhere, or at dinner. This morning my roommate and I had a conversation through the bathroom door (hmm, reminds me of an old Beatles song). I remarked about how I had to begin this section with history because I just have to have the big picture and know the roots of a subject to understand it more fully. It surprised me, I said, because I hated history in school. It was a boring exercise in listening followed by an intense memorization of dates, places, and names that would allow me to pass the test. My roommate was a history major. She experienced history as a fascinating story of people and places; a story brought to life by a passionate teacher. It's pretty obvious why her experience resulted in a love of history and mine did not, but thinking about my need to seek out history as an adult when I detested it as a child leads me to wonder what caused the shift. My recollections brought back the feeling of disdain I had for school-taught history. First, it was the experience (listening to boring lectures). Second, it led to hard work that would, in turn, lead to a stressful end (memorizing facts for a test). Third, I felt it had no relevance in my life and finally, I had no interest in the subject matter, nor any choice about what I would like to learn. As an adult I have many choices about what I learn, how I learn it, and how I present my learning. As I plan instruction for students, I need to remember to give them the gift of active learning, relevance, and personal choice

in areas of interest. I will think back to my experience with history the way it was taught in school when thinking about what students need to make learning personally relevant and interesting.

History of Educational Research

McKernan (1991) offers a brief history of educational research beginning with Alexander Bain's books about applying the scientific method to education in 1879 (p. 8). McKernan notes that in 1910, Dewey developed an early application of the elements of action research using the inductive scientific method of problem solving alternated with stages of reflective thinking. Burdette Ross Buckingham's book *Research for Teachers* broke ground in 1926, and Kurt Lewin's work in group dynamics in the 1940s gave birth to the term *action research* identified by the spiral of action research cycles that is still prevalent today (p. 9). McKernan contends that Stephen Corey used action research methods to tackle the problems of intergroup relations and prejudice and action research enjoyed high interest into the 1950s before declining with the movement towards expert educational research. McKernan credits Lawrence Stenhouse with the revival of action research in Britain in the 1970s. According to McKernan (1991), Stenhouse devoted part of his thesis and his future advocacy to the concept of teacher-as-researcher as a powerful method of improving teaching (p. 10).

McFarland and Stansell (1993) acknowledge the contributions to educational research of Aristotle's "notions of the observer's role in constructing reality and his emphasis on morally informed action as a distinct and elevated form of thought that clarifies belief and deepens understanding" (p. 13). They also underline the importance of Pestalozzi's involvement in, and Rousseau's writing about, child observation in the 1700s

as well as Piaget's work more than 200 years later. They credit Maria Montessori as a major contributor to modern thought (p. 13) and give Francis W. Parker recognition as the "first well known American to promote research by teachers" in 1875 (p. 14).

Expert Research vs. Teacher Research

Expert researchers and teacher researchers (or their advocates) have fought long, hard, and loudly for recognition. Though both have found a place in the educational community, each camp insists it employs 'the' right way to do research, and the one-upmanship battle continues. Connelly and Clandinin (1988) state the clash more delicately, as "frequently finding ways of dismissing one another" (p. 87). Those who have studied counselling, however, know that the inner scars of indifference are more painful and longer lasting than physical confrontation.

Teacher as Researcher

> Educators who learn in their classrooms, who conduct research and write about their observations, become the best possible teachers, thoughtful about how students learn and how they can help...they find their voices...they redefine professionalism...they turn teaching into work that is real. (Atwell, 1993. p. vii)

An objective observer might see that the writers of formal and informal research need each other. Formal research informs practice with theory; teacher practice and research informs and supports theory. Connelly and Clandinin (1988) suggest, "we should be searching for ways to work collaboratively" (p. 87). Carr and Kemmis (1986) offer hope for this when they refer to writing that "implies new relationships between outside researchers and practitioners: collaborative relationships in which the 'outsider' becomes a 'critical friend' helping 'insiders' to act more wisely, prudently and critically

in the process of transforming education" (p. 161). If I am wrong about the slightly condescending wording, the 'critical friend' (who could perhaps be defined more aptly as a research partner) idea could be instrumental in uniting researchers and teaching professionals. McFarland and Stansell (1993), a few years later, report that research collaboration between universities and schools in their area is thriving. They add that teacher research "has become in recent years a worldwide activity" (p. 17).

Lawrence Stenhouse states his perspective on teacher research eloquently, yet simply: "It is not enough that teachers' work should be studied; they need to study it themselves" (Stenhouse, as cited by Burnaford , 2001, p. 49). Teacher research is important if teachers are to improve their practice and grow as professionals. Good teachers conduct their own research all the time to assess and inform their practice. They are, however, somewhat reluctant to share their work. Nancie Atwell (1993) attributes her professional growth, a journey from technician to professional, to teacher research and advocates sharing among colleagues:

> I looked to them [experts] to be the 'someone elses' who would tell me what to do with my students in my classroom...In truth, no expert could give me the two kinds of knowledge I lacked...The day I filed away the programmed materials...was the birthday of my professionalism...I ventured out among my students to follow their leads, observe their learning, and ask them genuine questions. I talked with my colleagues and wrote about what saw and heard, and I revised and revised my behaviour as a teacher. (p. viii-ix)

McFarland and Stansell (1993) paint a grim picture of the future of teacher research, with the knowledge that:

> Powerful groups in many nations are now at work on various educational reforms, including national curricula and national tests, which presume no need for further inquiry among teachers...who will have no role for building curricula from their research in the classroom. (p. 17)

Methodology

Introduction

I have conducted informal research for years. I saw the need in my first year teaching grade 1/2. Teacher training did not prepare me to teach beginning readers. Methods courses were delivered with a whole language philosophy without the how-to's of teaching children to read. I could tell and read wonderful stories, engage young students in prediction and making meaning, but I knew little of the actual practice of teaching them to read. Not only did I not know how to teach beginning reading, but I was still in a place of unconscious incompetence, that place of not knowing what I did not know. The consequences of that school year are ghosts that still haunt me.

I find myself in a state of unconscious incompetence again as I begin the methodology section of this project. I fail to understand all the fuss over what methodology to use. I thought one did research and presented the findings in a well-written paper, period. Not so. After I read several books about general and more specific research methods it became apparent that the development of a methodology was something of an art form that required knowledge and understanding, application, and a creative way of melding them.

Choosing a Methodology

While reading about research methods and reflecting on how they are used, generally, and if they would be useful for my study, I found myself engaged in a series of cycles similar to the action research cycle, and decided this must be the method best suited to my project. Upon further reading, I became more familiar with the jargon of research and discovered I had many more decisions to make.

Qualitative or Quantitative Method?

Just as no two students are alike, no two researchers or projects are alike. When considering the methodology and design of a project, many factors play a role, but I found myself coming back to two important questions: What methods seem most suitable for this project and what methods are most comfortable for me? The first decision was to determine if the research was better conducted with a qualitative or quantitative method. My naive understanding of quantitative methodology as collecting numerical information and doing statistical analysis led me to believe my method would be qualitative. My research question did not lend itself to the collection of numerical data, and my fear of statistics confirmed that I would be using quantitative methodology. Later I would find that, in fact, I had conducted a little experiment during my research that would require some simple statistical analysis. Still, the methodology used in this project was largely qualitative.

Goodwin and Goodwin (1996) describe qualitative research as "personalized and naturalistic…inductive, emergent, and less specific than quantitative research" (p. 19). The role of the researcher and methods of generating data, they add, are different;

qualitative methodology is more open-ended, and qualitative reports take on a more narrative form.

My classroom research project begs for a qualitative approach because this method is "perhaps best suited for researching naturalistic settings" and "naturalistic settings are best suited and researched by those participants experiencing the problem" (McKernan, 1991, p, 5). This approach also matches my "give it a try, assess and reflect" approach to trying out new teaching methods and strategies, and my belief in the importance of personal research and professional development to improve practice. Within the qualitative orientation I had to decide which were the most suitable methods for collecting and analyzing data and reporting findings.

Burnaford (2001) describes teacher research as different from traditional research methods, neither quantitative nor qualitative, but "a new genre…[with] different purposes, different incentives, and a different audience than traditional academic research" (p. 50). I have to agree, given the difficulties I have had in pinning down a research methodology for this project. Nothing seemed to fit neatly into a package for my investigation. Much of the research that teachers do, however, falls under the category of action research.

Action Research

Jungck (2001) observes that "action and teacher research is becoming so linked that...we are seeing the combination referred to as teacher action research" (p. 341). Van Manen expresses the important relationship of teacher and research:

> To be oriented as researchers or theorists means that we do not separate theory from life, the public from the private. We are not simply being pedagogues here

> and researchers there—we are researchers oriented to the world in a pedagogic way. (p. 151)

McKernan (1991) believes that it is necessary for teachers to improve their practice through action research. Johnson (1993) adds that teacher researchers attend more carefully to their methods, perceptions and practice. Jungck (2001) sums it up nicely when she says that action research "formalizes and systemizes what good teachers tend to do naturally" (p. 341).

Connelly and Clandinin (1988) say action research is "a deliberate way of creating new situations and of telling the story of who we are. Action research consists of deliberate experimental moves into the future" (p. 153). Carr and Kemmis (1986) believe the minimal requirements to label an undertaking action research are first, examining a social practice, and second, the systematic, self-critical implementation of a spiral of cycles including planning, action, observation, and reflection phases.

My study, generally, matches the action research model in that it satisfies most of the principles and key concepts outlined by McKernan (1991), but since I did not stringently apply the spiral of cycles for my inquiry framework, I concluded that I must view action research as a container to hold the eclectic collection of methods I used; the tools that each lent themselves to the work of gathering and analyzing the data, discussing the procedure and reporting the results of this project. Jungck (2001) lends credibility to my eclectic approach to methodology for she sees that "teacher research is characterized by a selecting and blending of methods…that collectively enable the teacher researcher to draw on, question, integrate, and develop dimensionally nuanced understandings" (p. 343).

Connelly and Clandinin (1988) state the importance of studies that "get inside the teacher's head" (p. 14). Too often, outside researchers conduct these studies, rather than the teachers who are intimate with what is inside their heads. Herein lies the heart of action research, or what Johnson (1993) calls "teacher-as-researcher." In the process of sharing my story, inquiry and reflections, I have often exposed my thoughts, allowing the reader inside my head. To do that, I had to investigate methodologies that would allow such an inquiry. Jungck (2001) sees the intimate relationship between action research and interpretive inquiry that I have found while investigating research methods for my project. I saw the relationship as a container and its contents, but Jungck believes, "If we consider action research as one methodological strand of teacher research, like the warp of weaving, then the…methods of interpretive research, like the weft in a weaving, are its complement" (p. 341).

Narrative Inquiry

Clandinin and Connelly (2000) express the importance of narrative and story in teacher research in the following excerpt:

> Education and educational studies are a form of experience. For us, narrative is the best way of representing and understanding experience. Experience is what we study, and we study it narratively because narrative thinking is a key form of experience and a key way of writing and thinking about it. (p. 1)

The appeal of using stories is twofold. First, it places value on looking to past and present experience as a window to an improved future. Clandinin and Connelly (2000) say, "we tell remembered stories of ourselves from earlier times as well as more current stories. All of these stories offer possible plotlines for our futures" (p. 60).

Second, as Clandinin and Connelly (2000) point out, "there are no field texts, no careful notes, no photographs, no transcribed conversations of the events in that classroom" (p. 59).

This project is interspersed with stories or accounts of my experience, which lend themselves to narrative inquiry. Clandinin and Connelly (2000) describe a three-dimensional inquiry space, which includes interaction (personal and social), continuity (past, present, and future) and place (situation), all of which are experienced simultaneously in four directions. The four directions of experience are: inward (feelings, hopes, reactions, and moral disposition), outward (environment), backward and forward (past, present, future). The three-dimensional inquiry space, together with four directions of experience, allowed me to move freely within and between time, place, and person and to reflect on internal and external elements of experience.

I hadn't planned to use stories, but as my inquiry progressed, I discovered that Newman (1998) was correct in pointing out "in action research, methodology evolves from the situation itself. You do not begin by deciding to use narrative inquiry (Connelly and Clandinin, 1988) or dilemma analysis (Winter, 1986). The methodological specifics emerge from the inquiry" (p. 9). As I began writing about implementing differentiated instruction in the classroom, stories seemed the most natural way to talk about the experience. Narrative inquiry provided the freedom for me to blend narrative pieces with the more formal writing in this paper, allowing an examination and comparison of past and present philosophy and practice. Other methods seemed more suitable as a framework for the inquiry and subsequent analysis.

Normative/Critical Interpretive Inquiry

McKernan (1991) observes that with emphasis on personal understanding action research is moving in the direction of "European critical theory thus lending a philosophical interpretive-reflective note to our text" (p. 6).

When I realized that my research was leading me to an examination of how my philosophy played out in practice, and how it compared to the principles of differentiated instruction, it became evident that my method of inquiry and analysis would move from a reflective to a more interpretive one. Carr and Kemmis (1986) extol interpretive theory as a means of "providing individuals with the opportunity to reconsider the beliefs and attitudes inherent in their existing ways of thinking...Practices are changed by changing the ways in which they are understood" (p. 91).

Hermeneutics is the interpretation of text. In this research orientation, the text becomes an object for interpretation by the author and, later, others. Carr and Kemmis (1986) cite Josef Bleicher who compares hermeneutic philosophy, which is interpretative and aimed at the past, to what he calls critical hermeneutics, "which is directed at the future and changing reality rather than merely interpreting it" (p. 156). An important part of this project is tracing my philosophy from when I was a student teacher until now, with a view to the future. It seemed logical to employ interpretive methods to explain my narrative experience and philosophy, but a more critical methodology would be needed to discuss my practice, since my aim was future-directed action. I began to read a number of studies that used interpretive and critical modes of inquiry and decided that the normative/critical orientation seemed a suitable way to extend my inquiry. Haggerson and Bowman (1992) define researchers in this orientation as "critics, interpreters, and

revisionists" (p. 223). This is re-iterated in the framework of critical analysis, below, that Smyth (1992) utilized in his study, which resembles the critical framework that I adopted for my inquiry:

- Describing: What are my practices?
- Informing: What does this mean?
- Confronting: How did I come to be like this?
- Reconstructing: How might I do things differently? (p. 231)

The purpose of Smyth's research was "an attempt to lay to rest once and for all the precious view that it is people other than teachers who know best about teaching, hence an attempt to come to grips with who the real power brokers are in our schools" (p. 225). His research strictly satisfies the definition of critical interpretive theory described by Haggerson and Bowman (1992) as the use of "critical analysis, argumentation and logical and verbal persuasion to bring these forces to the consciousness of those affected and to provide processes by which these forces, norms, laws, and structures can be changed" (p. 223). My research fits the definition more loosely. My purpose is less noble, and my goal is directed towards personal change rather than persuasion, but the inquiry is similar and, in the back of my mind, I hope that my research will convince other teachers to move more in the direction of differentiated instruction.

Research Question

The revised research question that will guide this inquiry is: How can I differentiate instruction in a more proactive, deliberate way for my kindergarten students?

The original purpose of this project was to learn about differentiated instruction and apply the philosophy and principles to my teaching practice. My goal was to reach

and report about the implementation phase. As the project progressed, however, I became entrenched in the philosophy and principles of differentiated instruction and how and where my practice fit in. Although I began to plan for more deliberate differentiated practice, any significant implementation seemed distant. I came to see the paradigm shift I sought would take years, not months of reading, thoughtful reflection, and synthesis while I made a gradual transformation into a teacher who differentiates learning well for students. I believe I have made a good start.

Inquiry and Investigation

Miles and Huberman (1994) suggest that qualitative researchers make a map of their research. I used the *Understanding by Design* planning model (McTighe & Wiggins, 1998) as a framework for investigation during this research project. The enduring understandings, overarching questions, and essential questions listed at the beginning of the inquiry section of this paper and at other strategic points in the investigation were the map that guided my research. Understanding by Design (UBD) is a backward planning model. For students, the performance assessment that follows instruction is a compilation of many facets of learning during a unit of study. It is often cross-disciplinary, and students must demonstrate what they have learned, beyond skills and knowledge, towards a deep understanding of the concepts involved. The UBD model begins with enduring understandings, which are made clear by the following questions posed in the introduction to the text:

> To which ends is the teaching directed? What are the big ideas and important skills to develop during the unit? Do the students understand what the learning targets are? How often does the evidence of learning from the unit reflect

worthwhile content standards? What understandings will emerge from all these activities and will endure? (p. 3)

In a similar way, I believe, by looking at the end of this project--the improved practice of differentiated instruction in my classroom--I could better plan how to get there. What did I need to know at the end of this project that would cause me to make the paradigm shift from dabbling in differentiated instruction to using differentiated instruction consciously and deliberately in my planning and teaching?

I examined the features and practices of differentiated instruction and choose a few key words to help me shift my current paradigm. The following learning environments and practices lend themselves well to differentiated instruction:

1. learner-centered
2. mixed-ability
3. inclusive
4. multi-age
5. zone of proximal development
6. flexible groupings
7. homogeneous groupings
8. heterogeneous groupings
9. multiple-intelligences
10. personal goal setting
11. responsive
12. individualized
13. co-operative learning
14. peer instruction
15. variable pacing
16. scaffolding
17. open-ended activities
18. community building
19. learning styles
20. experiential learning

The elements most likely to help me make the paradigm shift towards differentiated instruction are: zone of proximal development, learner-centered,

responsiveness, open-ended activities, flexible groupings and scaffolding because I believe they are imperative to delivering a differentiated program of instruction.

From my review of the literature, the points that describe an understanding of differentiated instruction became my own 'enduring understandings' from which I derived overarching questions and essential questions to guide my research.

Enduring understandings for this project.

1. Learners of similar age are different in many ways. One size fits all instruction does not meet the needs of diverse learners. All students need the opportunity to learn at their level of readiness in the ways that are most appropriate for them.
2. Teachers have a responsibility to help learners reach the level of their personal potential.

Overarching questions for this project.

1. How can I determine the social, emotional, physical and academic differences of kindergarten students?
2. How can I differentiate instruction for young students in a kindergarten program?
3. How can I determine the effectiveness of the differentiated instruction I provide?

The next step in the UBD process is to ask several essential questions that will guide students toward an enduring understanding.

Essential questions for this project.

1. How will I learn about my kindergarten students socially, emotionally, physically, and academically?
2. What do I do now to meet my students' different needs?
3. What are the elements that lead to differentiated instruction?
4. How can I adapt, change, or add to what I already do, to provide more effective, differentiated instruction for my students?
5. In what ways do I have to adjust my thinking to improve my practice of differentiated instruction for my students?
6. What baseline data will be helpful?
7. Who are the experts?
8. Can colleagues help broaden and confirm my understanding of differentiated instruction?
9. How can I measure the effectiveness of differentiated instruction in my classroom?

Design

Overview. My inquiry began with a search for ways to meet the individual needs of students in my kindergarten class by differentiating instruction. I intended the inquiry to lead me from the philosophy to the practice of differentiated instruction and from current practice to improved practice. McNiff (1993) encourages teacher researchers to inquire into what aspects of their practice do not live up to their values and to "show the process of the improvement...and the systematic nature of that process needs to be made public and subjected to others' validation" (pp. 41-42). Expressing the difficulty in doing

this, Elliott (1991) says, "in order to adopt an objective attitude to their practice, teachers need to be able to tolerate the existence of gaps between their aspirations and practice, with a consequent lowering of professional self esteem" (p. 35).

Once I had a firm grasp of the philosophy and practice of differentiated instruction, I went about planning and slowly implementing aspects of differentiated practice. I examined my lesson plans and unit plans to determine how my current practice aligned with my current perceived philosophy and with the philosophy of differentiated instruction. I used this information as a jumping off point to design and plan lessons with my new understanding of differentiation in mind. I created and used a lesson plan and unit plan template that included many of the elements of differentiation as a checklist to ensure I considered all aspects of differentiation during the planning phase. I compared old unit/lesson plans with new unit/lesson plans and reflected upon how my planning reflected my perception of a teacher who differentiates instruction effectively. I concluded with reflections and evidence of how my practice and philosophy have changed since I have consciously and deliberately begun to implement differentiated instruction.

Inquiry into differentiated instruction. My inquiry began with research about the history, philosophy, and practice of differentiated instruction. I paused often to reflect on what I read, and how it related to my current and ideal practice. As I delved into the how-tos and began to practice more deliberate differentiated instruction; the inquiry took me in new directions. I searched for new ways to plan and deliver instruction, to assign projects, and to assess students. I consulted the experts and asked colleagues for ideas.

An ongoing activity was to examine my philosophy and practice to determine what I needed to change in order to make the paradigm shift I desired.

Data collection. According to Bogden and Biklen (1982), data are "the rough materials researchers collect from the world they are studying" (p. 73).

Data are both the evidence and the clues in this adventure; they are what support the reflections and the analysis, and they are what are used to make meaning for future researching in a classroom. There is no single way of doing research in the classroom, so the real question is, what works? (Burnaford, 2001, p. 56).

The thought of taking copious field notes while maintaining responsibility for the safety and learning of 20 five-year-olds was daunting. Instead, data I used for the classroom portion of this project consisted of stories, conversations with colleagues, responses to critical questions I posed, reflections from my practice, journal jottings in my day book, anecdotal observations, checklists which I use for assessment and evaluation, lesson plans, day plans, and unit plans.

Goodwin and Goodwin (1996) stress the importance of using multiple methods of data collection, and multiple sources of data. This practice, called triangulation, extends credibility to research findings because the data from one method can corroborate the data from another. Comparing present documents with documents from the past provided tangible evidence of the changes in my planning, perceptions, and practice. Student work supplied assessment data. My lesson and unit plans, stories, reflections, and interpretations offered evidence of a paradigm shift.

Tools for reflection. I used much of the data I collected as a memory-prompting device, bringing back aspects of my teaching that might have otherwise been forgotten. I often used the data as a background or detail for a piece of writing which would become part of a story or reflection to be interpreted right away, or during the analysis phase of this project.

Picturing, suggested by Connelly and Clandinin (1988), is a technique I used to bring classroom events back to life, reliving them in my mind, seeing my students and myself interacting and feeling. I interjected autobiographical narrative throughout the project, as a means of explaining my thoughts, feelings, and my philosophy and how it was changing.

Connelly and Clandinin (1988) use document analysis as a valid beginning point for reflection and interpretation. My daybook, lesson plans, unit plans, and journal jottings provided such evidence, almost the history of implementing differentiated instruction, and a place to begin discussing and analyzing my practice or, more specifically, how I applied the principles and philosophy of differentiated instruction to various aspects of my teaching.

Analysis. Just as there are many ways to collect data, so there are many ways to analyze it. Different data lend themselves to different analyses. Stories may be analyzed interpretively and/or critically, or may be searched for key words or concepts that lead to a common thread or theme running throughout the discourse. I searched for patterns, connections, and dilemmas in the data to speak to the inquiry and I used an inductive method (coding) to derive categories from the data (Altrichter, Posch & Somekh, 1993). To search for how my philosophy, attitudes and practice were changing, I analyzed my

paper using codes for four themes that emerged: *SC* for student-centered, *DI* for differentiated instruction, *PS* for paradigm shift (changing attitudes, philosophy and practice), and *?* for questioning. Although the coding was time consuming, it provided an easy way to pick out examples and evidence of my paradigm shift.

Documents may also be analyzed interpretively and/or critically. Goodwin and Goodwin (1996) observe that qualitative papers are generally longer and much richer in detail than quantitative papers, revealing the interpretive, critical quality of the discussion involved:

> Qualitative research papers are well documented and enriched with many data-based descriptions and examples including actual quotations from participants, short segments from field notes, and other pieces of data to help the researcher 'tell the story' well. In addition to the descriptive narratives, of course, are the researcher's interpretations, presentations of new or changed theoretical positions, and conclusions...often appearing as monographs or even books rather than as journal articles. (p. 149)

Reliability and validity in qualitative research. I was curious about how a qualitative research project met the criteria of reliability and validity, so I investigated what constituted a sound research project. The results surprised me. There is disagreement about how, and even if, qualitative research should be scrutinized. Goodwin and Goodwin (1996) describe the debate as follows:

> The 'positivist' position holds that the same criteria should be used to judge qualitative research as are used to judge quantitative research...The 'postpositivist' position is that unique criteria must be constructed and used to

> evaluate qualitative research...'postmodernists' believe that is inappropriate to judge qualitative research, and that there are no criteria...The very idea of assessing qualitative research is antithetical to the nature of this research...'Poststructuralists' argue that entirely different criteria—not connected to positivist or postpositivist traditions—must be developed for qualitative research. (p. 150)

After I read the criteria for internal and external reliability and validity, I felt they just did not seem to fit many of the qualitative methods I had become familiar with. In fact, I concluded the positivists were suggesting something as impossible as fitting a round peg into a square hole. At the same time, I knew if qualitative research was to maintain its credibility, it was only reasonable that it should stand up to critique. Goodwin and Goodwin (1996) say that the post-positivist view has been most extensively explored by methodologists, several frameworks for critique have been posited, and authenticity and trustworthiness appear to be the important elements to consider. They support the following seven attributes that contribute to sound qualitative research: "significance, theory-observation compatibility, generalizability, consistency, reproducibility, precision, and verification" (p. 150-151). Goodwin and Goodwin (1996) also list the following components of a complete report:

- goals and research questions
- conceptual and theoretical frameworks underlying the research
- overall design characteristics
- participants and others who provided data
- roles and experience of researchers

- data-collection methods
- data-analysis strategies
- conclusions, interpretations, and applications of key findings (p. 150)

I have made an effort to ensure this project is sound by measuring it against the criteria listed here.

Chapter 4: Discussion - A Year of Differentiated Instruction

Getting to Know Students

> He is merely making notes about the duration and intensity of Danny's crying...It could have been done differently. The psychologist could have taken the five-year-old by the hand and said, "Let's go in here and see if there are some toys for us." They might have walked into the room and explored it together. If it had been child-friendly space, they could have looked at pictures on the wall and got to know one another. (van Manen 1996, p. 7-8)

I first read Max van Manen's book, *The Tone of Teaching*, when I was a student teacher. I had not yet been a classroom, but I knew the tone in this book held the key to how I wanted to be with children. I think that was when I began a journey to close the gap between who I was and who I wanted to be as a teacher. A wonderful bonus was that in the process of becoming a better teacher, I was becoming a new, better person. Part of this ongoing journey has been to get to know my students personally, to interact with them respectfully, and to respond to their social, emotional, and academic needs empathetically and skillfully. My research on differentiated instruction has provided both information and a tangible working framework to help me move closer to becoming the teacher I want to be.

When beginning a new school year, it has always been important for me to get to know students individually in a number of ways. First, to establish a working rapport and to uncover clues about what motivates my students, I must know them socially and emotionally. Second, to reduce the chance that I will expect more than they are physically able to do, I must know their level of fine and gross motor skills. Third, and finally, in

order to deliver a differentiated instructional program I must know my students academically.

I used to go about assessing my students physically, emotionally, socially, and academically in a haphazard way through observation, only writing down concerns or recording performance that I was assessing for a report card. This meant that I had no baseline data at the beginning of the year to compare to students' performance at report card time. I could write anecdotal comments about where they were, but not about the progress they had made. I assumed they had progressed, but had no measure of how much they had grown in relation to when they entered my classroom.

The literature on differentiated instruction is very clear about finding children's point of readiness to learn, their zone of proximal development. If I didn't have a beginning of the year baseline, how could I know where each child was in relation to the learning objectives? Of course, I took educated guesses, but the instruction I delivered could hardly be called differentiated because some already knew the content or skill I was teaching, while others were just ready to learn it, and still others were not yet ready to learn it. This year, I made a conscious effort to collect useful baseline data and to do ongoing assessment to inform my teaching. I collected baseline data in the following developmental and academic areas, and recorded it by way of anecdotal comments or checklists which I filed in a record book:

- Fine motor (hold and use pencil, scissors, crayons)
- Gross motor (run, jump, avoid obstacles, use of space, comfort)
- Math (number sense, counting, one to one correspondence, patterning, shapes)

- Reading (name, alphabet, sounds, and number recognition, knowledge of how books work, oral comprehension)
- Writing (name, printing alphabet and numbers, knowledge of how print works)
- Listening (attentiveness, ability to sit, following verbal instructions)
- Speaking (speech clarity, confidence, vocabulary)
- Drawing (draw yourself)
- Social interaction and responsibility
- Emotional maturity (cooperation, independence, interdependence, handling disappointment)

It quickly became very clear how different these children were. A few children could write some words; most could write their name and a few other letters (mostly capitals), a couple could barely hold a pencil. A few children knew many alphabet letters and several numbers, many knew a few letters and numbers and some did not know any. Many children were already quite independent, doing everything for themselves, while others needed help with simple tasks. A few children had separation anxiety for several days or weeks.

Many differences were made evident in their pictures of themselves. Klepsch and Logie (1982) write extensively about Goodenough's *Draw a Man* assessment, which has been used for decades to assess children's intellectual development, and it is gaining popularity in the field of child counselling. Just as Goodenough observed, the children's drawings varied in realistic value, detail, and proportion. I found that the maturity of the drawings was not always consistent with the level of students' skills in other areas. It

was, however, a good baseline from which to measure growth over time of a student's fine motor skills, attention to detail, perspective, observation and interpretation of reality.

Knowing Students Socially and Emotionally

"A real teacher knows how to see children—notices a shyness, a certain mood, a feeling of expectation. Real seeing in this sense uses more than eyes" (van Manen, 1986, p. 21).

In her introduction to *Tribes,* Jeanne Gibbs (1987) refers to the work of Benjamin Bloom who developed Bloom's Taxonomy of learning. According to Bloom, students experience two curricula in the 20,000 hours they spend in school, "the 'manifest' one in reading, writing, arithmetic etc. and the 'latent' curriculum of social interactions" (p. 4). Further, says Gibbs (1987):

> Bloom questions which of the two curricula will be of more lasting imprint…the facts of the history lesson or…
>
> The humility of being an isolate,
>
> The fear of being teased,
>
> The confusion of feelings unexpressed,
>
> A feeling of powerlessness when pressured by peers
>
> The ways that decision are made and rules enforces
>
> The partiality of a teacher towards other students.
>
> Bloom estimates that 96% of the 20,000 classroom hours are devoted to the manifest curriculum, and a mere 45 to time to address the latent curriculum. And we wonder why Johnny can't read! (p. 4)

Before reading this quotation, I knew how important the social/emotional aspect of school was. Even when teachers see how children are feeling, and what they are experiencing, however, they do not always intervene or step in to help. I lived with put downs and degrading remarks about the way I looked and dressed all the way through elementary school, and I know about the emotional scars that remain even into adulthood. No teacher seemed to be able to make it stop. I asked for help and when nothing changed I felt as if they let me down, allowing the verbal abuse to continue. Early in my career, I made a vow to always take the social/emotional side of children's development seriously, and to always respond to a child who was hurting (on the inside or the outside).

I often wrestle with *how* involved to get in children's social/emotional world. Teacher attitudes on this issue vary from leaving children to work things out on their own, to imposing solutions on them. Both of these responses are time-savers and, I believe, cop-outs. Somewhere in the middle is where I live. I teach children how to make and keep friends, how to include others, how to share and compromise, how to work together, and how to resolve conflicts. At the beginning of the year, I give them a lot of help, but most children eventually apply most of the skills independently. Some need help until the end of the year and some need help for many years to come, but while they are in my classroom, and in my school, the expectation is that they will not hurt each other physically or emotionally.

Enduring Understandings

The social and emotional aspects of school and the teacher's role in providing social training, nurturing relationships, and setting the climate for social interaction in the classroom are as important as academic learning. Children's social experiences at school,

remembered long after academic facts are forgotten, can imprint their lives and affect their futures significantly. The emotional baggage that children bring to school and the perceptions that children have of themselves can affect their learning and relationships at school.

Essential Questions

1. How do I get to know students as individuals?
2. What do I need to know about students socially and emotionally in order to provide differentiated instruction?
3. How can I meet the needs of students who experience social or emotional difficulties?

It is easy to get to know children. When I ask them about themselves, they are happy to tell me. Even if I do not ask them about themselves, most are still happy to talk. One-on-one conversations are ideal, but can be rare in the school setting under imposed time constraints. I try to catch conversations with individual students before and after school and when I am on outside supervision duty. Mostly, however, I eavesdrop. I listen and observe during playtime and when children are working together.

This year, as I try to get to know my students as unique individuals, I have gone further in my endeavour by organizing opportunities for students to share information about themselves. Near the beginning of the year, I planned a unit called 'Me'. The unit lent itself to children sharing things about themselves, and getting to know each other. They interviewed each other and participated in many community-building activities with different partners and small-groups. One activity that was great for getting to know students is when students bring a few of their favorite items to school. When they share

their treasures, they reveal many things about themselves. During this, and other small-group or whole-class discussions, I am able to interact with children in a more personal way. Sometimes we interview each other, collect data, and graph results, integrating an oral language experience with math. At the same time, I am gleaning precious information about the children as they learn things about each other that strengthen personal connections.

A profound observation one of my instructors shared was that it is more difficult to hurt someone with whom you have made a personal connection. This underlines the importance of nurturing adult-child and child-child relationships in the classroom. I bring children who have hurt others together with those they have hurt to be confronted with the consequences of their actions by the victims, who express their personal pain and give the perpetrator a chance to make amends. The penal system has used this knowledge to bring those convicted of crimes against others together with their victims, or their families for those who have been murdered, as part of the convicted person's rehabilitation.

Most of what I do to promote social learning in my classroom is not in the curriculum guide. I spend a great deal of time in this area because I find it is necessary, and because I believe it is as important as academic learning. When we put more than twenty students in a small space, we must teach them how to interact confidently, how to work together respectfully, and how to solve conflict independently. Vygotsky (1978) stresses the importance of social interaction on learning:

> Every function in the child's cultural development appears twice: first, on the social level, and later, on the individual level; first, between people

> (interpsychological) and then inside the child (intrapsychological). This applies equally to voluntary attention, to logical memory, and to the formation of concepts. All the higher functions originate as actual relationships between individuals. (p. 57)

McCombs (1998) relates the following research findings, from several studies, about the social/emotional aspects of schooling: "In commenting about their teachers and classrooms, students clearly focused on the affective factors of learning and teaching" (p. 382); "The common elements across successful [dropout intervention] programs centered on the quality of the relationship established between adults and youth and a genuine caring for students and an understanding of the optimal climate for learning" (p. 383); and, "Far and away the most important teacher characteristic for maximum positive affect and learning was the teacher's sensitivity and respect for individual students and their differences in ability" (p. 390).

Social-skills training and emotional well-being comprise a very small part of the personal planning curriculum compared to the actual time I devote to it. The answer to this dilemma has been the cooperative learning model, in which social skills become a part of every day life in the classroom as an add-in, rather than a time consuming add-on. For most lessons, I have an objective devoted to knowledge, one to skill development, and one to the affective or social/emotional domain. Cooperative learning provides a structure for me to differentiate for children's social and emotional needs. When forming cooperative learning groups, it is important for me to know about children's personalities or style of interacting with others, how confident they are in a partnership or group, the quality of their interactions, and the roles they assume.

Cooperative learning also addresses concerns I have for children with social risk factors. Overly assertive children become an equal partner in their group as they learn to hone their leadership styles. Passive or shy children gradually gain confidence to participate in the emotionally safe environment of a cooperative group. Children who experience difficulty learning new skills and concepts contribute at their level and have many peer helpers to guide them to mastery. In a small cooperative learning group, aggressive children have many opportunities to interact with peers in a positive way as they learn to treat others with respect and kindness. I also teach my students a conflict-resolution model, help them use it frequently, and I expect them to use it independently as I feel each of them is ready.

Children's personal skills such as listening, following directions, self-control, and risk-taking need to be considered when providing differentiated instruction. Risk taking and self-control are among the personal skills that Costa (2000) calls *habits of mind*, which he hopes will "help educators develop thoughtful, compassionate, and cooperative human beings who can live productively in an increasingly chaotic, complex and information-rich world," (p. xiii).

Students' emotional states can affect the kind of day students and teachers have. Interactions in the classroom can be highly charged with emotion at times, and problems cannot be ignored if the learning climate is to remain positive. Tarsoff (1990) reveals the connection between emotions and learning:

> The emotional state of the learner plays a key role in determining what is attended to and whether cognitive processing will be effective…situations perceived by the student as negative and threatening produce very strong

> emotions, which inhibit cognitive processing. Lack of success, confusion, or feelings of negative self-worth can lead to the student avoiding the learning situation...this in turn makes further learning extremely difficult. (p. 19)

Caine and Caine agree with Tarsoff in saying, "students will not attend to learning if their major concern is safety" (Caine & Caine, as cited by Gregory & Chapman, 2002, p. 5). Gregory and Chapman go on to identify that:

> Safety in classrooms means intellectual safety as well as physical safety. During stress the emotional centers of the brain take control of cognitive functioning and thus the rational thinking part of the brain is not efficient, and this can cause learning to be impeded...Students who are challenged beyond their skill level are more concerned about being embarrassed or laughed at than with the quest of learning. They will not be motivated to attempt the challenge if they are not able to imagine or perceive success (p. 5).

Children's intellectual and emotional safety is the teacher's responsibility. The teacher plays an important role in setting the emotional climate in the classroom. McComb (1998) shares the following student comment from his research notes: "When I walk into my second period class, my teacher is there to meet you with a handshake and a smile, which makes you know it's going to be a good day. He knows your name, which makes you feel good" (p. 382).

Teachers hold a great deal of responsibility for the emotional climate of their classrooms. I have adopted the social worker's creed 'do no harm' to guide my interactions with and responses to students. My goal is always to respond to students with respect and empathy. I search my values and beliefs about teaching and being human, and

I reflect often on my interactions with children. I am never afraid to tell a student I am sorry, or I was wrong. Above all, I try to remember the importance of being a role model and guide, to help children learn social skills because young children are wonderful copycats.

This year, I turned to van Manen (1986) to gain insight into responding to children with empathy. He refers to empathy, the ability to enter a child's world, as "thoughtfulness" (p. 10). Questions he asks himself when responding to children could be considered both differentiated and empathetic:

> What is to become of this boy? How does this event fit into his life? What meaning does it have for him? What should I say, how should I act to make sure he can learn from this experience? How can I allow this young person room for the youthful living that is appropriate for his age? How can I nurture him so he will grow up to be a responsible adult? (p. 9)

I rely heavily on the fourth question 'What should I say, how should I act to make sure he can learn from this experience?' I know I have moved from reacting to responding to children's behaviour and misbehaviour. I also know I have much more inner dialogue to consider when responding to children's misbehaviour.

I used to think when children misbehaved, they were doing it *to me.* I somehow thought I was not worthy of their respect, and I accepted behaviour that should have been squelched. A grade 5 boy in one of my practicum classes, about eight years ago, brought me to awareness that I ignored certain behaviour too long before dealing with it. The day I was packing up my things to leave for the summer, Trevor returned to the classroom to say goodbye before he left on his holidays. He stayed a long time and helped me put our

6-month life together into cartons. We talked. We talked about problems he was having at home and he apologized for his misbehaviour that year and said he just could not help it. His words have stuck with me all these years. "Miss Lacarte," he said, "You were too nice. You gave me too many chances." He was right, of course. One thing I tried, that I thought would turn his behaviour around, was befriending him. In doing so, however, I accepted Trevor's behaviour rather than confronting it. It was easier that way. In the long run, he had my number. I was too tolerant, too soft, and I never did get a handle on his behaviour that year.

The friendship paid off in other ways. One evening as I worked in my classroom, I heard some noise outside. I opened the blinds, and asked the teenagers there if they would move to another corner of the school to talk. Some of the kids started to curse at me. Then I heard, "Miss Lacarte, is that you?" I recognized his voice right away, and we exchanged a few words about what we were both doing now. "No sh%#" he said, "You're teaching grade 1? Sure, we'll take our noise somewhere else so you can work. Nice seein' ya again."

Had I known eight years ago what I know now, I would have used the information that Trevor shared with me that year about his home situation to give him opportunities to take personal responsibility for his behaviour and learning. I would have offered opportunities for leadership to help him increase his self worth. Instead, I reacted to his behaviour, putting out fires all year, allowing his inappropriate behaviour to continue.

Trevor and others like him have taught me valuable lessons in classroom management and discipline. My attitudes towards children's behaviour have changed a

great deal in recent years. At least three beliefs I held when I began teaching stood in the way of managing a classroom effectively. First, I thought I was being mean when I had to discipline students. My response to misbehaviour was first to ignore it, hoping it would go away, and then, to nag and remind. Second, I believed that behaviour was something that just happened and I had to deal with it. That belief put me in a position of always reacting to behaviour in an attempt to correct it. It often worked for compliant, cooperative students, but I was unsuccessful with students who had more difficult behaviour patterns. Third, I wanted kids to have fun learning. There is nothing wrong with this, of course, unless the fun happens at the expense of learning. In these beliefs, I needed to make a change.

I learned to manage behaviour in such a way that students were learning first, and then that they were having fun. I was the adult, and the one who was ultimately responsible for the learning environment. Once I saw behaviour problems as learning needs, and not as something students were doing to me, I discovered many ways to teach children appropriate classroom behaviour. Routines became my friend instead of something to fight against. Planning became the route to proactive classroom management. By including student behaviour as part of my planning I was able to anticipate student behaviour, set up reasonable expectations before a lesson or learning activity, and plan for problems before they occurred. I soon began to see that behaviour was not just something that happened in the classroom. It was a dance between students and their teacher. I could let students dance uncontrollably or I could teach them to put their talents to better use.

This year, to be sure I saw my students as individuals in all areas of development, I helped them set behaviour goals along with their academic goals. My simple management system did not seem to lend itself well to this. I placed two columns on the white board. At the top of the first was 'TEACHER.' At the top of the second I wrote 'STUDENTS.' As I taught a new routine or reinforced a classroom expectation students could earn a point by meeting the expectation. If they had trouble, the point went to the teacher side. Students could earn a privilege they decided upon through a vote. This little game, however, did not take into account the differences in children's abilities to listen, to follow directions, and to behave in the desired way. There were always a couple of little ones who were not able to meet the expectations and they were soon ridiculed by others who wanted desperately to earn the point. I overcame this problem by introducing personal behaviour goals.

Students chose something they would most like to change in their behaviour that would help them gain points on the 'STUDENTS' side of the board. Some children wanted to remember to put their shoes on after an outside break. Some wanted to listen more attentively, or to stop talking to their friends at inappropriate times. One boy wanted to stop sucking on his shirt, and another wanted to stop playing with the Velcro fasteners on his shoes. Two others worked towards getting back to class quickly and hanging their things up after breaks and a few others wanted to remember to clear their table tops after lunch. Only one student said he had no goal to work on, and he was right. His behaviour was excellent all of the time so he earned points by improving the neatness of his work. In all cases, students were able to earn points on the student side of the board when they successfully completed tasks (and remembered to bring it to my attention). I did not have

to nag or remind. Students began to remind each other. This was a wonderful way of turning the responsibility for behaviour over to the students. I believe when we give students responsibility for their own learning, goal setting, and behaviour, their self esteem rises with their independence and with their increasing awareness of their abilities.

Student behaviour is driven by emotions, too. Over the course of a day I often examine my responses to children's emotional needs. I know that my responses, now, come from my heart and from instinct but I did not always trust these impulses. I know from experience that if children are in emotional upheaval, or have real or perceived social problems and feelings of alienation, it can affect their attitudes, interactions, and performance at school. I also know, firsthand, that the emotional scars children bear from negative experiences at school can last a lifetime.

The kindergarten year is fraught with emotion. Some little ones, anxious to enter the world of school, run from their mothers without so much as a goodbye. Others experience varying degrees of anxiety when beginning school. Some are sad for a few minutes when their parent leaves; others weep for the better part of the school day. Most children realize, after a while, that mother will always be back to pick them up at the end of the day, but a few become consumed with a sadness that interferes with their school experience for several weeks, even months. Kindergarten children are often shocked to find how little time a teacher has to spend with them individually, compared to the time they spend with their mothers. Those who make friends easily adjust to this quickly. Others need more of their teacher's time for a while and a few need to be by a teacher's side for the better part of the day at the beginning of the year.

One very difficult part of beginning a kindergarten year, for me, is prying crying children (boys, usually) from their mothers every day for the first week or two of school. Experience has told me that most adjust quickly when mother leaves. The longer she stays, the longer it takes them to adjust to her leaving. I act 'in loco parentis', as our mandate states, acting as surrogate mother offering comfort and a pant-leg to hold onto, if necessary, until they get involved in the school day and are able put their sadness away.

One boy I taught a few years ago took almost the whole year to adjust to kindergarten. On the first day of school, Lenny would not get on the school bus. His mother drove him to school, but the minute he entered the classroom door he began to wail. His mother stayed for a while and he settled down. As she was leaving, however, there he was, arms wrapped around her legs holding on for dear life. I finally pried him away from her, and he cried for a big part of the day. It broke my heart to do this every day, so I welcomed the day he accepted me as his second mom. He clung on to my leg for months. He wouldn't leave me to go to the library with the teacher librarian, so during my preparation time, Lenny was my assistant. He would not run in the gym so he became our mascot, warming the bench for the first few weeks of school. At recess and lunch time he refused to go outside, so I had a constant companion for a long time. Every new experience or change brought Lenny to a new level of fear and trepidation.

Some of my colleagues warned me against coddling Lenny and allowing him to become dependent on me. One day when a retired kindergarten teacher visited our school, she assured me I was doing the right thing by meeting his need for security. Sure enough, slowly he began to try something new. The first was playing in the gym. He stayed by my side, and left to play for two or three minutes, returning to me like a baby

who has just crawled from its mother for the first time. One first led to another until he was going to the library and going outside for recess and lunch. Towards the end of the year, he finally rode the school bus for the first time. However, one adjustment was too difficult to make that year. Every time we went to the gym for a school assembly, he cried, right up until the end of the year.

Sometimes I got a bit resentful of the constant care Lenny needed. I sometimes wondered if I was responding to his needs or my own. The alternative to meeting his needs was to live with what ranged from quiet sobbing to all-out wailing for most of the day. It may be that I was still in that place of 'acting as if' I was the compassionate teacher I wanted to be, but had not yet become. The important thing was that his needs were met. Lenny's emotional growth that year was tremendous. His starting point was well behind the others and by the end of the year he had almost caught up.

This year a couple of little boys had a hard time leaving their moms. Instead of assuming they were both just like Lenny, I asked a number of questions and tried a few strategies to get to know the boys and what would be best for them. In the end, I responded differently to each of them, seeing them as the unique people that they are. One seemed a little like Lenny. I had to pry him away from his mother or father every morning. But that's where the similarity ended. If I could pair him up with a friend right away, he got busy and forgot to be sad. Another little guy left his mom, though reluctantly, each day. But soon after she left, and at several other times during the day, he quietly sobbed his sadness out in little puddles, head on his folded hands, atop the desk. Having a friend sit with him did nothing to console him. The classroom aide and I went

to him often, whether he was crying or not, and gently rubbed his back and asked him how he was doing.

Unlike the experience with Lenny years before, this time I knew for sure that I had reacted from my heart and, as with Lenny, I did what I thought was right for each of these little boys. Had either one been more like Lenny, I would most likely have lived with a 'cling-on' again, but this time I would have had the confidence to be sure I was doing the right thing, and that I was responding from my heart and not just reacting to his behaviour.

Knowing Students Physically

Enduring Understandings

1. Children of the same age may vary significantly in the development of fine and gross motor skills. Development occurs on a continuum.
2. Teachers need to be aware of, and account for, differences in fine and gross motor development when providing instruction for children.

Essential Questions

1. What do I need to know about students physically in order to provide differentiated instruction?
2. How can I assess my students physically?

Children's fine and gross motor skills are still developing when they enter kindergarten and, like emotional, social, and academic development, motor skill development is on a continuum. Some children have well-developed motor skills when they enter kindergarten and they easily perform to end-of the-year expectations, while

others struggle to hold a pencil, to use scissors, or to run without falling over themselves, objects, or other people.

The area of physical development is where I feel the least capable. I am still not comfortable in the gym and always worry that one of my students will get hurt. Of course, once in a while one does, and I feel totally responsible.

I collected simple baseline data on my kindergarten students' fine and gross motor skills. I observed their fine motor skills, making notations in my record book of whether they were capable, developing, or not yet able to perform the skills that were important to learn in kindergarten. I began with the simplest physical tasks, and moved towards more difficult tasks. The fine motor skills I assessed included using a pencil, crayons, and scissors. The gross motor skills were running, jumping, avoiding obstacles, use of space, and confidence in the gym. As they did with the other areas of development, students varied a great deal, especially in fine motor skills.

I put the baseline data to use right away to determine which students were capable of doing an activity independently, which would require some assistance, and which would require a different assignment geared to their needs. As a result, paper-cutting activities became a favourite rather than something I dreaded.

Some children were already expert cutters, moving the paper with one hand as they cut skillfully with the other. Some children could accurately cut on lines and others could not. Some did not yet know how to hold scissors or how to make them cut. I had always observed these differences in children's ability to cut, but I thought I met their needs by giving them all the same activity, then racing to help everyone who could not cut independently. Frazzled, I had to deal with the 'experts' who were finished in record

time and shouted "Teacher, I'm done." I knew that I was not the only frazzled human being in the classroom. Many children, too, were either frustrated with a task that was too difficult and the long wait for my help, or they were frustrated at being finished quickly, wondering and waiting for me to tell them what to do next. Four- and five-year-olds in this situation rarely rush to find something productive to do.

When I sense frustration, mine or the students', I know there is something amiss in the way I am doing things. Again and again, I met the challenge of cutting activities in the same way. I gave students the same activity and rushed around to help the ones who needed help and gave those who were finished early something else (anything else) to do. Once in a while, I saved cutting activities until I had one or two helpers in the classroom, alleviating the pressure on me to help more children than was humanly possible. More recently, I brought small-groups of children to the back table to work on cutting while the others were engaged in another activity. I was working smarter, but the principles of differentiated instruction allowed me to go one step further.

With my knowledge of differentiating process, product, and content, I looked for ways to meet everyone's needs, *and* save my sanity. The next time we did an activity that required cutting, I gave expert cutters a more intricate, challenging design to cut with many nooks and crannies that required them to pay attention to fine detail (yes, that would keep them busy while the rest finished up!). I gave the struggling cutters straighter lines, and fewer of them. A little extra effort in the planning phase paid off in a striking decrease in the difference of time it took for each to do the task, a smaller number of children who required my help, and a welcomed decrease in teacher and student

frustration. A productive, quiet hum of activity replaced the chaos I experienced before differentiating cutting activities effectively.

Knowing Students Academically

The developmental view of learning comes with its problems. Eleanor Duckworth (as cited in Oser, Andreas, & Patry, 1992) eloquently explains the dilemma that "developmental milestones do not translate into instructional goals…either we're too early and they can't get it, or we're too late and they know it already" (p. 162).

Enduring Understandings.

1. Kindergarten children vary significantly in the knowledge and academic skills they bring to school.
2. Children learn and develop in different ways and at different rates.
3. Teachers must become aware of and account for individual differences when planning for and providing instruction for students.

Essential Questions

1. What must kindergarten children learn so they are ready to begin to read in grade one?
2. How can I provide ongoing assessment that will provide data for planning differentiated instruction?
3. How can I provide instruction at each student's level of readiness in a way that best suits his or her learning style?

Differentiating Alphabet Instruction

I consulted many books and articles that discussed ways to teach alphabet and sounds to kindergarten children. I also talked to colleagues who teach kindergarten and

grade one. I expected to find disagreement on *how* to teach, but found that there is also disagreement on *what* to teach. Gould (1988), who named a chapter of her book "Please Don't Teach the ABCs," believe it is a waste of time to teach the names of alphabet letters because children need to know the sounds of the letters in order to learn to read. Some of the kindergarten and grade one teachers I talked to agree. I was almost sold, until I encountered several sources that indicated the importance of knowing letter names. I talked to reading-recovery teachers who test children at the beginning of grade 1, and found that recalling the names of alphabet letters is a major factor that determines whether or not a child is a candidate for reading recovery. I sought to find out why.

The importance of learning letter names is, in fact, supported by research findings. Jager-Adams (1990) found that:

> Research indicates that the most critical factor beneath fluent word reading is the ability to recognize letters, spelling patterns, and whole words, effortlessly, automatically, and visually. Moreover, the goal of all reading instruction—comprehension—depends critically on this ability. (p. 14)

Fountas and Pinnell (1996) say that in kindergarten, children "learn to recognize and name the upper- and lower-case letters so that the information letters provide is more available to them" (p. 4). Pycha (1999) concurs:

> The ability to label an object probably helps children store it in memory. Common labels, or names, also allow children, parents and teachers to talk about letters, point out letters that appear on signs and examine letters in storybooks. These naming activities help the child learn to recognize letters quickly and automatically…Some researchers believe that the importance of letter-naming

> goes further. Rebecca Treiman of Wayne State University claims that as children learn letter names, they increase their phonological awareness...we know that children pay attention to the sound information contained in letter names. (p. 1)

Many sources agreed that kindergarten teachers should concentrate on lower-case letters because many children have become familiar with some upper-case letters before coming to school, and especially because they will encounter more lower-case letters when learning to read.

The information from my research on alphabet instruction became the basis for my alphabet instruction. I made a decision at the beginning of the year, to augment whole-class alphabet activities with individual instruction in alphabet recognition and sounds during play time. It seemed impossible at this time of year to teach small-groups of children while keeping the noise level low enough in the rest of the room. I could change to small-group instruction later in the year if I wished. I would give each child the time he or she needed to recall the letters confidently and quickly, and I would make every attempt to address each child's learning style.

Since I began research on differentiated instruction, it has become important for me to collect as much baseline data as possible on each student, and to maintain a schedule of ongoing assessment, in order to meet students at their point of readiness. Brown (1991) suggests that teacher assessment may, in fact, be a better predictor of student achievement than more formal tests:

> Readiness tests are generally given to children in groups and focus on vocabulary, visual discrimination, and auditory discrimination...Such tests results predict future reading achievement only 16 to 34 percent better than

> chance (Ladd 1978; Olson and Rosen 1971)...Teacher judgment often may be more reliable than such test scores for predicting reading achievement (Sparberg 1973). Emery (1975, Chapter 6) has suggested an informal reading readiness assessment that we have used along with several innovations of our own. His primary indicators of reading readiness are: (1) oral vocabulary; (2) reading curiosity; (3) auditory discrimination as it relates to clear speech and learning letter sounds; and (4) visual discrimination of letters. (p. 80)

In the academic area I assessed children's reading and writing skills, beginning with the alphabet. As expected, my students demonstrated a broad range of knowledge and skill with alphabet letters and sounds. Most children were not familiar with sounds at all, but letter identification ranged from recognizing no letters, to recognizing almost all of the letters.

From my initial assessment, I knew which letters the children already knew and which ones they needed to learn. I highlighted the letters they knew on an alphabet list beside each child's name, so I also had a comparison of all students in the class, on one sheet, and a record of how many children knew each letter. Just before report card time, I did another full assessment and highlighted the letters each student learned during the term in a new colour. From the game sheets, I also knew from day to day which letters each child was learning. I did not highlight them on the master sheet right away because sometimes the children seemed to have learned the letter, but did not always recognize it in a different context.

My instruction began with game sheets with empty spaces leading from a beginning point to an ending point. Some game sheets were footprints leading to a cave,

holes on a golf course, or lily pads in a pond. I chose a couple of letters the child did not recognize yet, and placed them randomly in the blank spaces. Trehearne (2000) suggests "it is a good idea to link known and unknown letters in the same lesson to ensure that students always feel some success" (p. 46), so I placed one or two familiar letters in some of the spaces. The benefit was two fold. As Trehearne suggested, students felt success but it also kept the familiar letters active, rather than stored away until assessment time.

To play the game, the children rolled a dice cube with only the numbers one and two on it, or used a spinner with one and two on it. As they moved their penny the correct number of spaces, they had to read the alphabet letter before they could move their penny. Of course, the first time or two, I had to tell them the unfamiliar letters. Most children could read at least one of the new letters confidently by the end of the first session, though they did not necessarily remember it by the next day. After playing the game, we worked with one of the new letters, playing with the sound it made, writing it in sand or on a chalk board, making the letter with fingers or with playdough. I worked for about 8 - 10 minutes with each child.

During this activity, the children were soon showing me how different they were. As expected, some children learned their two letters after the first or second time playing the game, and others took much longer. Some children found that just reading the letters was fun enough, and chose not to play the game at all. They made their own game, challenging themselves to read faster or read every letter correctly. I soon had to vary the game. I added more letters for some children, and gave them more challenging activities to do as they read each letter, such as telling me a word beginning with the letter. A couple of children were overwhelmed with two new letters, so we worked on one new

letter and one familiar letter at a time to play the game, and played a matching game instead of a reading game to become more familiar with how letters looked. I became aware, through trial and error, if a child's learning preference was more auditory, visual, tactile, or kinesthetic (Gregory & Chapman 2002) and I attempted to provide learning opportunities that utilized their learning strengths. The overtly visual learners played the game or read the letters and practiced printing letters and words on chalkboards and on paper with special pens and markers. The overtly auditory learners played letter bingo and other games and songs, did matching activities, and wrote letters and words while saying them out loud. The overtly kinesthetic learners used plastic and foam letters, made letters with their fingers and whole bodies, and wrote letters in pudding and other squishy stuff. If their learning styles were not obvious, I offered students a combination of learning opportunities.

Some children quickly reached a point where they needed more of a challenge. As each child became more proficient at reading letters, quickly recalling many of the alphabet letters and sounds, I began to introduce word families. After playing the game, they would read a list of words from a single word family. When they could read the list without help I introduced a new word family. This gave the children incentive to learn the sounds of the onset letters at the beginning of the rime.

I chose to teach onset and rime as the next step because it would provide challenging, practical practice of sounds, and it is important to beginning readers in two ways. First, as Jager-Adams (1990) points out, "nearly 500 primary-grade words can be derived from...only thirty-seven rimes" (p. 84). Second, she adds, by adding a series of onset consonants to the rime, the children are encouraged "to produce these individual

sounds and blend them" (p. 86), which is an important skill when decoding unknown words. As a result of this instruction, most children could hear beginning sounds and many could also hear ending sounds. Some children were beginning to distinguish vowel sounds in the middle of short words and were ready to write three-letter words after Christmas.

My concern rested with the four children who did not learn alphabet letters easily or quickly. I often felt responsible for their difficulties. Was there more I could do to meet their needs? It was the first time that I knew for sure I had employed various approaches and strategies, but nothing seemed to be working. I wanted to rest on the words of Klepsch and Logie (1982) who believe that the "maturity [of children's human figure drawings is] the ability to perceive or discriminate similarities and differences, to abstract or classify objects according to similarities and differences, and to generalize or assign a discriminated object to a correct class" (p. 14). Maybe these children were not developmentally ready to distinguish between alphabet letters or to discriminate sounds. I accepted this as a reason, for a while. Then, the very words "developmentally ready" that I hoped would alleviate my guilt for these children not learning offered the only explanation that made sense. I had not been teaching within their zone of proximal development. They needed more practice observing, comparing, and distinguishing between different shapes, sizes, and angles.

I thought I was meeting the needs of these four struggling students by reducing the number of letters they had to practice and learn. I gave them all the time in the world to learn them, but it was still not happening. I believe, now, that they were probably not ready for alphabet recognition because they were not able to pick up the similarities and

differences in letters, or to categorize the letter shapes in their memory for recall. Spending more time on pre-alphabet activities to prepare them to read alphabet letters would likely have been more beneficial than providing more assistance and extending the time for them to learn.

One little girl who was very alert and aware, and seemed bright, was not learning to read letters quickly. She remained a mystery until, in second term, I collected baseline data on sound recognition. She had learned half of the alphabet sounds, although I had not directly taught them yet (I waited until second term when the children would be more ready to hear individual sounds). She had learned sounds easily through the indirect activities we had done in the first term. Armed with this knowledge, even if it was late, I was able to modify her program so she learned through her auditory strength.

In the end, the four students who had difficulty learning alphabet letters made huge gains in the last couple of months of school and learned to read and write at least half of the alphabet letters, identified some sounds, learned valuable information about books and print, and could read simple pattern books.

Proponents of whole language may be disappointed by my direct phonics and phonemic approach to teaching alphabet but my decision was based on literature and research. Much of the literature I have read (McCracken & McCracken, 1979, 1996; Rosner, 1975; Winzer, 1999), especially about children who learn slowly or have a learning disability, says that a direct, systematic teaching approach with a lot of repetition is the only way that many of these children learn to read. Moats (2000) says, "Well-done studies of reading instruction support systematic, synthetic phonics in which children are taught sound-symbol correspondences singly, directly, and explicitly" (p. 7). Jager-

Adams (1990) concurs, citing research findings of the United States Office of Education Cooperative Research Program and the Follow Through Studies:

> The approaches that, one way or another, included systematic phonics instruction consistently exceeded the straight basal programs in word recognition achievement scores. The approaches that included *both* systematic phonics *and* considerable emphasis on connected reading and meaning surpassed the basal-alone approaches on virtually all outcome measures. (p. 9)

Of course, I believe in balance and I know that phonics is only one tool in a collection that helps children unlock meaning of print on the page. Jager-Adams (1990) and Moats (2000) both found evidence in the research that although phonics instruction was necessary for success in reading, it was not sufficient. One cannot ignore the appeal of good children's literature to turn children on to books and reading. On each page of a good children's book are many clues in addition to phonetic and phonemic arrangements that help children make sense of print. Pre-readers and emergent readers use pictures, context, prior knowledge, prior print experience, and memory long before they use their knowledge of alphabet letters and sounds.

In response to this, and in addition to read-alouds and shared reading where I modeled and invited children to use pre-reading and reading strategies, I began small reading groups before Christmas. One group of children was ready to read beginning books with one or two very predictable words under the picture whereas the second and third groups were ready to read a repeated line of print with one word that changed at the end of the sentence, and they could guess the final word by its first letter and a clue from the picture. A fourth group was ready to decode simple words and use more abstract

context clues. Sometimes I could read with one or two groups in a day. Less often, I could read with all of them in one day. By the end of the year, most students were able to read beginning pattern books with one sentence under the picture. Several children could read more difficult books with changing patterns that required the reader to use the sounds and word length as clues to read the text correctly.

I never did do alphabet work in small-groups because I realized how much the children valued this learning opportunity, which was often the only few minutes of one on one time with their teacher during the day. During play time, students ran from their play to do their alphabet work when I called them. Often during play time a few children came to ask if it was their turn yet.

Besides the individual alphabet work, we spent at least twenty minutes a day on other reading and alphabet activities as a whole-class. These activities included read aloud, shared reading, shared writing, partner reading, poem reading, letter and word hunts around the room, alphabet bingo and printing practice. Opportunities to play with, and point out letters and words were an integral part of my kindergarten program. Every morning, calendar time provided a great deal of practice with letters and words. Throughout the day, children participated in guided reading and guided writing.

I called upon the research into multiple-intelligences to guide my whole-class lesson planning, making sure to include each intelligence alternately in chosen alphabet activities. When I saw students who had an aversion to written letters 'come alive' during alphabet songs and movement activities, I knew I was meeting their needs in the whole-group learning situation.

Whenever possible, I incorporated many intelligences into a single activity so that many children were using their preferred intelligence while stretching to also utilize their weaker intelligences. One example is the activity I used to reinforce letters I had taught the children in whole-group. I wrote a simple song into which we plugged the name and the sound of a letter we were learning. As we sang each verse, I held up a card with the letter on it, and the children made a movement associated with a word that begins with the letter. Some examples are: bouncing an imaginary ball for /b/, using an arm hanging down from the nose for an elephant's trunk for short /e/, and hands crossed over the chest (sign language for 'love') for /l/. After children learned the letters more thoroughly, we sometimes made the letters with our fingers or wrote the letters in the air, on our arm, or on a partner's back. This one activity drew upon musical, verbal-linguistic, bodily-kinesthetic, interpersonal and intrapersonal intelligences.

Every term I reassessed all alphabet learning and compared it to the previous term to see if the children had retained their learning over time (Appendix A, Table 1). In addition, I highlighted the letters I had taught each term to see which children were learning them quickly and which children were experiencing difficulty (Appendix A, Table 2). Further, I recorded the many ways children had been exposed to certain alphabet letters in the hope that this information would give me some insight into how each child learned.

Differentiating Reading and Writing Activities

I used to hand out students' journals and printing workbooks myself because kindergarten students cannot read. However, after spending several weeks early in the year doing activities with children's name cards, I found that some students could read

some of their friends' names, or at least guess by the first letter. I began to allow these students to give out books. The motivation was in the pleasure and the challenge of the activity. Now, I provide the following three levels of scaffolding and let all students hand out workbooks:

1. Tell the student whose name is on the book and they deliver the book or work with a partner who can read most of the names.
2. Check with me or another student for help.
3. Encourage the student to guess the name on the book by first letter, take it to that student and ask a student if it is his or her book.
4. Student gives out the books independently.

During other reading activities, I provide scaffolding in different ways. When we 'read around the room' some children match a letter that they hold in their hand to a letter in print somewhere in the room while children who know the letter use their memory of the letter's shape. Those who need an additional challenge must find an upper and a lower-case letter, or three different words with the same letter in different positions (beginning, middle, end), or they must give the name and the sound of the letter they find.

When we do shared reading on a chart or poem, my questioning, or whom I choose to respond, changes in relation to children's skills and knowledge. I often differentiate the task according to Bloom's taxonomy (Gregory & Chapman, 2002). The lowest-level activity (knowledge and recall level) is to point to or to circle a given letter. I will usually ask children who know the letter (often because it is in their name). The next level (comprehension and understanding level) may be to fill in a blank requiring a decision of whether a lower-case or capital letter is needed. Again, I ask children who are

beginning to understand the use of capital letters. The third level (application and transfer) may be to tell me another word that begins with the same letter. I will ask children who have a confident grasp of beginning letter sounds. A fourth level (analysis and examination) will most likely require the student to tell how this letter is like and unlike another letter. Students who are confident printers and who recognize the difference between reversed letters such as d and b can often respond to this question. In kindergarten, I rarely go to the fifth level (synthesis), which is usually beyond the developmental stage of kindergarten children, but once in a while, a talented student can design a tongue twister or a short song about the letter.

I found it necessary to provide many levels of scaffolding for printing and journals. They include

1. Scribe (print it for the student)
2. Teacher's hand over student's hand while printing.
3. Teacher writes with highlighter pen, adding arrows in pencil, to show letter direction (students print over top of highlighter and their pencil marks show through).
4. Student copies from a source of print (difficulty may vary by where the print is located - on the same page, on a card placed on the desk, in a pocket chart or on the white board).
5. Teacher places a dot, or a dot and first stroke, at the beginning place for the letter (word).
6. Student prints independently from memory.

The lesson plan page I designed ensures that I always keep student differences in the forefront of my planning. As a summative assessment of my progress towards differentiating Kindergarten, I made the following notes about a typical day in my classroom, beginning with "O Canada" and ending with our goodbye routine:

8:55 *Welcome.* I greet children and parents as they enter the classroom, helping tie shoes and cheering the one who's sad to see mom or dad leave. As "O Canada" plays, I remind everyone about how we stand tall and still with our hands at our sides, or signing quietly until the song is over. I glance over at Jennifer who's doing up her shoes. She stops, and I stand behind Danny who finds it difficult to stand for the 40 seconds the song is playing. I have to put my hand on his shoulder once as a reminder to stand straight and still. As soon as "O Canada" is over I let him know how well he did.

9:00 *Calendar.* We discuss whose name comes next in alphabetical order and I put the VIP's name from our last day of school to the back of the pile, revealing the answer to our first challenge of the day and the name of today's VIP. She knows how to point to each number as we count, so she goes ahead. When she reaches the end of the line, however, she hesitates and looks to me for help. I quickly guide her pointer to the beginning the next line and she's on her way again. I give a silent signal to Tory who knows it is his one reminder to pay attention at the front of the room before he will be invited to sit beside me so I can be his listening partner. Later in the term, I will assign a peer to be his listening partner if he still needs one. Tory holds it together for another few minutes, when his little fingers just can't resist pulling the ponytail of a girl sitting directly in front of him. After she grabs her hair, shouting, "Ouch!" and looking backwards, he looks at me just in time to see my finger beckoning him towards me. He

responds. Now all it takes is a hand on his shoulder as a reminder for him to resume his listening behaviour. Our VIP and others are doing a great job to carry on, ignoring what happened with Tory. As the class asks, "Is it cloudy?" the VIP, who is now standing at the window to give a weather report, responds "Yes." She doesn't respond to "Is it windy?" so I help her out by asking if the trees are moving. She replies, "Yes." When she comes back to the carpet area, she is ready to tell us the special-number for today. She has chosen 8. Students take about 3 minutes to work alone or with a partner, with or without manipulatives, to make a number sentence to arrive at the special-number. Sean and John haven't found a partner yet, so I invite John to be Sean's partner. Today he agrees. Another day, he may not, in which case I give a left-out student the opportunity to join another group, work alone, or work with me.

9:30 *Gym.* I instruct our VIP to head to the door while modelling the behaviour we need to have to go the door and line up in a way that won't waste our gym time. After reciting our line-up poem "Hands at our side, we do not talk, facing straight ahead and we're ready to walk" ("with marshmallow feet," we add), we head to the gym making sure not to disturb other classes on our way. We check our shoes for undone laces and Velcro and go through a short list of other safety concerns before stretching our muscles with a short, quick game of tag. Sarah is still afraid to run in the gym, so I take her hand and she runs beside me to play the game. Ben receives a warning for pushing others as he tags them, followed by a time out when he repeats the unsafe behaviour. Children sit on the bench when they need a rest, and go for a drink as they need one. Today we will play *Fish and Whales*. I describe the game and the playing area. The whole gym is too big a space for these children for this game, so we cut it in half. We

also have a safety rule that we are safe at the black line so we don't go crashing into the wall. In fact, people who touch the wall or go outside the boundaries are considered "tagged." Three of the children either have difficulty understanding boundaries or following directions, so I take them in tow as I run around the playing area to model for everyone where the boundaries are for the game. During the game, many children are tagged, but nobody minds, because once "fish" or "whales" is called again, those who are still in the game touch children who are sitting after being tagged, saving them so they are able to run and join the game again. After gym we line up at the fountain for drinks. After their drink, each child joins a line at the opposite wall where we are doing silent math as we wait for others to get their drinks. I call out an adding or subtracting question, and they show one way to make the answer with their silent fingers. Then they have to make the same number a different way. Exhausted physically and mentally, we head back to class.

10:00 *Storytime.* The children are allowed to stretch out and get comfy. They often use each other's legs and tummies for pillows. They look like a bunch of tired puppies lying on the carpet together. I have chosen a book with a part that repeats so the children can chime in, much like they do on the chorus of a song. Once a few children get their part, I stop and let them take over the reading. If I am reading from a big book I have one of the children, who is ready to try tracking print, point to each word as we read. To help children develop a sense of story we have choice centers after the story. One group may pass a beachball to help them discuss the story. One section of the ball has a picture of people and animals on it. They discuss characters if the ball is caught with this section facing the catcher. If the student who caught the ball is given the choice

of discussing the characters in the story, or choosing a volunteer in the group to do so. Other sections of the ball are for setting, retelling the story, an exciting or favourite part of the story, author, and illustrator. Another group acts the story out by taking roles from the story, using puppets, or flannel characters. Sometimes we have several small books to match the big book so one group of children "read" the book again in small-groups. If there are no small books, the children huddle around the big book and "read" it together. The last group does a retelling by drawing the story. The groups usually come out fairly even, but they are open ended enough that they can accommodate any number of children.

10:30 *Recess.* Vicki still cries when she has to go out at recess. I find her friend in the next class who she feels safe with and they go off together. Ben stays inside with me learning about playing nicely because his unsafe behaviour has continued at recess and lunch after it has been brought to his attention and he has had a warning of the consequences.

10:45 *Alphabet work.* Today's letter is "l" We read poems with "l" words in them. Children put up their hands when they hear the /l/ sound in a word as we read. I take a quick count of who can hear the sound correctly so I can ask them later when we brainstorm words that begin with the /l/ sound. I ask for volunteers to put a wax-string circle around an "l" in our poem. Many hands go up. The first few times I make sure to choose children who are going to get it right so that children who have more difficulty discriminating letters have a better chance of finding an "l". It works. Everyone is successful. I invite children who are beginning to track words up to the chart to point to the words in the poem as we read them again. This time, we jump up every time we hear

an "l". This meets the needs of the wigglers who need to move around. We make "l" with our body and with a friend. We write "l" in the air, on our arm, and on a partner's back. We search for "l" around the room and in books. I walk around with the two least-able children to help them search. I point close to a place where there is an "l" so the search does not become overwhelming or frustrating. The others are enjoying the challenge. Some are having no difficulty finding small and capital "l" so I assign them the more difficult task of finding the letter in the middle and end of words. Some children show me a number "l" and a capital "I" without the top and bottom bars, so I accept these as "l" given their shortage of context and ability to know the difference. Many children who are ready print the "l" words on a paper they carry on a clipboard. Finally, we go to a desk to print "l" in our printing books. Most children still need to trace over letters I have made with a yellow highlighter. Many need a dot to show them where to start, and a line to show which direction to print. Some have internalized the rule that tall letters are printed from the top down, so they need only the dot. A couple of girls are confident printers, so do not need the dot but need a mini lesson on which line to begin and end the "l". Two children need me to help them by placing my hand over theirs to make the first few letters before they are confident enough to try it alone. Soon everyone is quietly printing. We brainstorm a few words that begin with the /l/ sound. I ask the children who were most aware when they raised their hand as they heard the /l/ sound in the poem. Sure enough, most of them come up with a word that begins with "l". I draw simple pictures on the board and they choose one or two to draw in the half-page white space above their printing. Some choose to draw a simple ladder or lake. Others tackle the more difficult lion and lily. One boy wants to try a loader. I tell him he is on his own, and know he can

rise to the task because I've seen him draw plenty of big machines well. A little girl wants to draw her friend Leslie. Already, some of the children are hearing and applying the sound of /l/ independently. The children must show me the sign for "l" (arms crossed over chest is the sign we use for our "l" identifier word, 'love') as they put their book in the finished work basket and line up for play time. While waiting in line, we sing the alphabet rap while putting the music in our snapping fingers, in our flapping wings, in our quietly tapping toes, in our quietly clapping hands, etc.

11:15 *Playtime.* I have already modeled this week's special center (a restaurant) and children have had training in conflict resolution. With a little help they can work out social problems. I am taking individual children to do "letter box" during this time, allowing for children to come to me for help if they need it to talk out a problem with a classmate. "Letter box" is much like "word box" but instead of reviewing words, these kindergartners are reviewing letters. Everyone's word box has each of the letters we have learned so far (small only) and the letters each child knew at the beginning of the year. We flash through the familiar letters quickly. I add one new letter that we will work on briefly each day until the child has mastered it. Jack's letter today is "c." We talk about the letter's name and sound. We make a "c" with our fingers and draw a "c" in corn meal on a cookie tray. He rolls a playdough log and makes a "c" shape. He runs his finger over a sandpaper "c." Another day he will make a "c" out of junk at the craft table, he will hunt for "c" words in books. One day, he will show or teach his classmates this new letter in an alphabet showcase where I assess how well the children remember the letters I have taught them. Later he will find items at school and at home that begin with the /c/ sound. As I work the next student, a disruption breaks out at the

block center. I ask the boys if they need help. They nod "yes," so I go over. Each takes a turn telling his side of the story. John knocked over Danny's building and didn't even say sorry. It turned out to be an accident, so Danny decided on his own to apologize, and I asked him how he could help John. He offered to help rebuild the structure. All is well again.

12:00 *Lunch.* I leave the class in the capable hands of our lunch hour supervisors.

12:30 *Music.* A talented community choir leader runs our music program. I must be in the room when she teaches, so I use the time to assess skills and to encourage reluctant singers/actors/dancers. Today, Carrie is too shy to do the actions to "This little light of mine". I begin by sitting behind her and helping her hands to the motions. Soon she is trying, so I move beside her and she follows the motions I do. Before long, she has the motions mastered and joins in comfortably.

1:00 *Theme.* Last week we discussed three units we might study next. The curriculum was not specific, so our life science unit could be about any group of animals. I gave students a choice between land animals, sea animals, or dinosaurs. I could help children meet the objectives of the curriculum easily with either of these units. We voted, and it was almost unanimous that we study dinosaurs next. So, we are beginning a dinosaur unit today. I snuck out of music early and I have left fossils of large dinosaur footprints all over the room. Of course, the children noticed right away and our discussion of dinosaurs is off to an exciting beginning. Most of the children have seen several of the *Land Before Time* movies about dinosaurs. They are all fascinated by the large, extinct creatures. Most are aware that they don't live any more. A couple of

children think they still live in far away places, just not here. I have some work to do to convince them. I gather a bit of baseline data on a *Know, Wonder, Learned* chart. Most children know the familiar names of dinosaurs from the *Land Before Time* movies, like duckbill and long neck and most of them know T-Rex and raptor, but only two children could come up with a couple of scientific dinosaur names when I showed them my models. They knew that some were plant eaters and some were meat eaters, but nobody knew which was which except for T-Rex. They had no explanation or guess about why dinosaurs were not alive any more. One child was sure he had proof that they did live far away from here. One child knew they hatched from eggs. Most children thought they were all dangerous and they were all gigantic. We had a good look at the dinosaur footprint fossils and made some guesses about which dinosaurs left them. Their explanation for some of the smaller footprints was that they must have been babies.

1:30 *Centers.* The children go to centers to explore dinosaurs. Everyone must visit each center. Later in the unit they will have more choice, but for now I want them exposed to many aspects of this unit. One center has books about dinosaurs. They do "picture research" to find about dinosaurs and bring one fact back to the group. I assess who is searching for information that pictures can give by listening to their conversations as they share the books. One center is the dinosaur fossils so the children each get a good look and a turn to touch them and to discuss them with friends. I am watching for social interaction. One center is the models so they can make up a little play, or just explore the dinosaurs. I am watching for creativity and oral confidence here. Another center is paper, pencils and crayons to draw dinosaurs. At this center, each child will do a baseline drawing for me to compare to later drawings after I teach them to draw

several dinosaurs. After centers we meet as a whole-group to discuss what the children learned. Our 'Learned' section of the Know-Wonder-Learned chart is beginning to grow with facts about dinosaurs, and we are beginning to fill up the Wonder section with great questions to guide our unit.

2:20 *End of day routines.* We sing a couple of songs. We clean the floor and stack the chairs. Students leave their shoes on the shelf and bring their backpacks and coats to the carpet as I make sure the notes to go home go right into their backpacks before they line up. As we line up we sing the alphabet rap, using a different motion each time we begin the alphabet. If we had a good day we put up one hand. If we had a great day we put up two hands. If we had a supercalifragilisticexpialidocious day, we clap. When I see everyone clapping (including me), I know another great day has ended.

Chapter 5: Tying Up Loose Ends

Conclusions and Recommendations

Using and Analyzing the Data

I utilized the *Understanding by Design* model to reveal how the data and analysis helped me answer my research question. Just how did this research lead me to become a teacher who differentiates instruction and what evidence can I present?

Enduring Understandings

1. Data are information collected on a specific topic.
2. Data provide researchers with tangible records or evidence of thoughts, observations and actions throughout the course of a research study.
3. Data analysis is a purposeful, often methodical, examination of data designed to reveal the data's meaning in relation to the research question.

Essential Questions

1. What data will provide evidence that I am practicing differentiated instruction in a proactive, deliberate way?
2. How do I analyze and present the data in a meaningful way?
3. How will I use these data to improve my practice?

The data I used for this research project included stories, reflections, assessment records, observations, lesson plans, and responses to critical questions and inquiry. More often than not, the data raised questions more than they provided answers. These questions drove my research. Much of the data have been discussed and analyzed

throughout this research paper so the following is a summary of how the data and analysis helped me answer my research question.

My stories and reflections helped me compare past and present perceptions, beliefs and practice. By picturing the stories I told about past experiences, I conjured up the feelings at the time and compared them to how I feel about things now. I have certainly learned to trust my instincts more and to rely less on advice and affirmation from colleagues. This is particularly important as I break new ground implementing the philosophy of differentiated instruction. I am turning to my personal research and expert research to guide my practice.

I enjoyed taking a look at the teaching philosophy I wrote a few years ago while I was a student teacher. I have not written a revised version of my teaching philosophy since then, so I appreciated this opportunity to examine and record my most current beliefs and practices. When writing my first philosophy paper, I had not taught very much. I tried to keep my new philosophy paper based in the reality of my current practice. It is more a reflection of the teacher I am than of the teacher I want to become. I have not lost the dream. My ideal teacher self now resides in my professional growth plan as an ongoing teacher-research project--a promise to work diligently towards becoming the teacher I want to become. The dream feels more honest, deliberate and do-able when it is set out as a plan of action towards an attainable goal rather than as a philosophy.

The coding I did throughout this project revealed evidence of my changing philosophy, perceptions and practice. Four themes--student-centered, differentiated instruction, paradigm shift and questioning--emerged solidly from this examination in discussions concerning philosophy, perceptions, planning, classroom management and

practice. I took a closer look at the information I coded DI for differentiated instruction which provided me with insight into my practice that verified I am internalizing the philosophy, and I am unconsciously translating it into practice. I have moved towards a more child-centered, differentiated practice. I am asking many more questions, many relating to how to assess students, how to create learner centered opportunities, and how to differentiate instruction for the abilities and interests of my students.

I also used the coding method to track differentiated instruction in old and new lesson plans. In each case, there was a marked increase in the frequency of DI codes in the new lessons, evidence that my planning and practice is increasingly differentiated.

The data in Tables 1, 2 and 3 and analysis in Appendix A provided a tangible means of recording not only what students were learning, but how, when, and how quickly they were learning. It is the most meaningful data I have collected thus far in my teaching career. It provided information about who was learning the letters I taught, who was learning letters I had not taught and some suggestion of how and when they were learning them, and most importantly, who was not learning the letters I taught.

The data and subsequent analysis have provided important information and insight about how my research into differentiated instruction has resulted in a shift in my perceptions about myself, my students and the teaching/learning cycle, in my philosophy and in my practice. This teacher-research project has caused me to become more thoughtful, reflective, honest and confident about my practice.

Making a Paradigm Shift

> Teaching is fraught with contradictions. There is always a gap between our intentions and our actions as teachers. In some sense, we are always 'becoming'

> as teachers; that is there is always something new to learn—new students present new challenges and changing times require changing our ways of teaching. (Newman, 1998, p. 181)

The philosophy I have embraced required a greater shift in practice than I realized. Although I believe in and value the philosophy and principles of differentiated instruction, the actual practice takes a great deal of time and effort. Shortly after beginning this research project, I realized that making a paradigm shift of this magnitude would take years, not months. I can identify with Koller (1993) who sought to make a similar paradigm shift in his language instruction. He said:

> As I became aware of the unusual methods that brain-based teaching called for and the fundamental changes I would have to undergo, I came to know the real meaning of paradigm paralysis. It stands for a real monster that makes any significant change difficult, if not impossible…Making a significant change, a paradigm shift, means confronting a monster within us and it takes some courage and perseverance. (p. 133)

Tomlinson's (1999) advice for teachers beginning on the journey of differentiated instruction is "Build a career. Plan to be better tomorrow than today, but don't ever plan to be finished" (foreword [no page number given]). Looking back to the teacher attitudes section of my proposal I feel I have lost a lot of the self-righteousness that I had at the beginning of this project and I have a much better understanding of why teachers are reluctant to change their practice. Differentiated instruction is a time consuming endeavour.

Changing Philosophy

When I was in training to become a teacher, I was required to write my philosophy of education as a metaphor. It seems fitting to examine that philosophy and compare it to an evolving metaphor that describes my teaching now.

Lakoff and Johnson (as cited in Connelly and Clandinin, 1988) offer a profound explanation of the importance of metaphor in our personal and professional lives. According to Connelly and Clandinin:

> Lakoff and Johnson's notion of metaphor is close to our own. Here is how they introduce their book, *Metaphors We Live By*:
>
> We have found...that metaphor is pervasive in everyday life, not just in language, but in thought and action. Our ordinary conceptual system, in terms of which we both think and act, is fundamentally metaphorical in nature. The concepts that govern our thought are not just matters of the intellect. They also govern our everyday functioning, down to the most mundane details. Our concepts structure what we perceive, how we perceive, how we get around in the world, and how we relate to other people. Our conceptual system thus plays a central role in defining our everyday realities. If we are right in suggesting our conceptual system is largely metaphorical, then the way we think, what we experience, and what we do everyday is very much a matter of metaphor (Lakoff and Johnson, 1980, p. 30). We understand teachers' actions and practices as embodied expressions of their metaphors of teaching and living. It makes a great deal of difference to our practices, for example, if we think of teaching as gardening, coaching or cooking. It makes a difference if we think of children as

clay to be molded or as players on a team or as a traveller on a journey.

Metaphors structure a range of curriculum practices. (p. 70-71)

The metaphor I chose to describe my teaching philosophy before I began teaching is similar to my current philosophy, but it has gained a complexity that might be expected to come with experience. Then, as now, I believed in a developmental view of education, so I chose the metaphor of growing plants. However, the growth metaphor I used then (after quickly rejecting empty vessel and molding clay metaphors) was much different than the one I would use to describe my perception of students and teaching now. Of course, a growth metaphor does lend itself to many of my beliefs about students and teaching. For example, each plant, like each student, is different. Plants, like children, require nurturing and the proper conditions to grow and realize their potential, and there is great potential within each seed. Growth is inevitable. It can't be controlled, but it can be supported. It can be well tended, neglected or abused. The teacher's job is to provide all the right conditions for students to grow.

However, for two major reasons, I reject that growth metaphor now. First, I chose the metaphor from a list of metaphors provided by one of my instructors. The metaphor was not from personal experience because I had spent little time in a classroom. Connelly and Clandinin (2000) talk about "metaphors we teach by" (p. 71), which are best expressed in terms of our actions, rather than from our speech. "It is more telling," they say, "for you to examine your practices, interview material, stories and journal to capture metaphorical concepts of teaching" (p. 71). Further, they suggest, "you need to contextualize your metaphors within your experiences and to see them played out in your

practices. [Their] intent is not to have you see this way of understanding practice only as a way of talking about your practice, but also as part of your practice" (p. 71).

The second reason I reject the growth metaphor now is because it fails to illustrate the complexity of individuals and the interactions within a classroom community. A more apt metaphor for my current beliefs and practice begins with a single, pure violin solo, which soon blends into close harmony with other stringed instruments. Soprano woodwinds begin to float delicately over top, balanced by altos, deepened by basses. Drums interrupt periodically, but the interruption is well placed, and powerful. A skilful conductor translates black and white from the page of music into waves of colour and motion, interpreted yet again by a rapt audience.

The solo violin, the first child to enter my classroom in September, or on any day of the year, is soon joined by another until many personalities 'float' around the room in various stages of interaction from solo to parallel play, from duet to group play. A skilful teacher-conductor translates the black-and-white music in a way that utilizes the strengths of each instrument and each musician to produce a moving, colourful performance. The children, both musicians and audience members at times, must learn to play their own instrument first, then how to play beside, then in harmony with others. Some instruments are very different; some are similar, but each has its unique qualities; a small nick, a special label, or the degree to which it is cherished and tended by its owner. With the help of a masterful conductor, the musicians learn to appreciate each other's special talents, and learn to work together to produce harmonies. It is not expected that they achieve perfection in the beginning. Practice is essential. Process is valued.

Performers and audience, together, celebrate hard work and success and plan future performances.

This metaphor comes from my love of music and from the way I conduct my classroom. The developmental view of learning is evident in this metaphor, as it was in the growth metaphor, but it is in concert with others and within a context of *doing*, not just *growing*. Music also plays an important role in my teaching. It is a great connector in its joyful, playful way. It connects people, thoughts and ideas in a way nothing else can. Skills or content put to music create powerful learning tools. I have written many learning songs for children. The words are remembered easily with a tune long after purposefully memorized data has been forgotten. I often use music during transitions to gently call children away from one activity to another. I use music to calm the mood as often as I use music to excite the senses in my classroom. A day without music is like a day without sunshine.

Changing Perceptions and Practice

The questions I ask myself now have changed from the questions of the past. I used to plan my next day in terms of lessons I would teach, and follow-up activities children would do that related to the unit we were studying. I gave little thought to the starting point. I made decisions according to where I thought children in this grade should begin. I did provide challenges for children who needed enrichment, but it was often more work. I helped students who had difficulty, but there were sometimes too many of them for my help to be effective, and I often had to reteach small-groups of children. It was really a hit-and-miss way of teaching to children's needs. The questions I ask myself

now when I plan and teach (taken from the coding analysis I did on this project) include the following:

- How does this lesson relate to the big idea I want children to understand after this unit is over?
- Who will or will not be able to do this?
- What meaningful challenge can I give students who finish this work early?
- How can I make this more open-ended?
- What grouping will be most effective for this lesson?
- What level of Bloom's taxonomy are we working in?
- How can I meet the interpersonal and intrapersonal needs of students?
- How can I help all students be successful?
- How can I incorporate movement into this lesson?
- How can I provide opportunities for students to be original/creative?
- How can I reach all learning styles?
- How can I use multiple-intelligences?
- How can I assess student learning as I go?
- How can I evaluate the learning at the end of the unit?
- Is this just an activity, or a real learning objective?

I have become much more student-centered in my approach to planning, teaching, and classroom management. Differentiated instruction is becoming an internalized part of my teaching. The coding analysis in this study revealed many examples of student-centered and differentiated practice, discussion, and planning. The

lesson plan template in Appendix C is my scaffold for planning with the important elements of differentiated instruction in mind. The account I wrote of a typical day in my classroom (Chapter 4) provides evidence of student-centered, differentiated practice on many different dimensions.

Recommendations and Ideas for Future Study

The best advice I could give someone who wished to differentiate instruction for their students would be to give themselves the gift of time. Teacher practice cannot be changed radically in a single school year, and true paradigm shifts do not happen over night. By taking a close look at my practice (rather than my spoken philosophy) I gained a clearer picture of where I was within the paradigm shift. Appreciating that I was involved in a continuing process helped me to remain honest about who I am as a teacher. Acting as if I was already who I wanted to be as a teacher was perhaps the most helpful strategy I used to begin the paradigm shift. Setting goals for my growth made the experience concrete and celebrating kept me motivated to work hard.

I plan to continue to collect data about how children learn the alphabet. I hope to discover how my students learn by making comparisons of several groups of children over several years so I may provide appropriate learning opportunities for them.

Summary

"As Harste (1991) said, 'The function of research is to start new conversations, not to find truth.' I never feel sure about what I do in the classroom because each day, each class, each encounter with content, and each student is unique" (Isakson & Boody, 1993, p. 31).

This one sentence sums up the purpose for my research and the philosophy of differentiated instruction. I have examined and internalized much of the history, philosophy, and principles of differentiated instruction in order to use this knowledge to change my teaching practice. The discussion and analysis of my philosophy, beliefs, and practice (past and present) has led me to the heightened awareness, new insights, and experience necessary to shift my paradigm through changes in my attitudes, beliefs, and practice.

I have undergone a process of exploring research methodology and feel better equipped and more confident to write about my teaching experience. I understand, now, the importance of teachers taking on the task of conducting more deliberate research in their classrooms, writing about it, and sharing it with others. Any real change in education must come from within the teaching family, and from within the individual teacher. Lawrence Stenhouse expressed it well when he said, "It is teachers who, in the end, will change the world of school by understanding it (as cited in Johnson, 1993, p. 1).

I feel that the end of this project is really a beginning. I have learned more about my students this year than ever before. I have also learned more about myself personally and professionally. Armed with the experience of the past year I am prepared to deliver a more learner-centered program for my students, rooted in current research.

Appendix A

Table 1

Alphabet Recognition – Growth by Term (Based on 20 students in a half-time kindergarten)

Student	Sept. Base-line	Term 1 Gain (4 mo)	Jan.	Term 2 Gain 2.5 mo.	March	Term 3 Gain 3.5 mo	June	Gain For Year
1	4	+12	16	+1	17	+7	24	+20
2	1	+12	13	+3	16	+8	24	+23
3	23	+3	26	+0	26	+0	26	+3
4	10	+12	22	+3	25	+1	26	+16
5	1	+3	4	+0	4	+9	13	+12
6	17	+9	26	+0	2	+0	26	+9
7	11	+7	18	+2	20	+4	24	+13
8	15	+9	24	+2	26	+0	26	+11
9	0	+8	8	+0	8	+5	13	+13
10	0	+1	1	+2	2	+10	12	+12
11	1	+6	7	+1	8	+4	12	+11
12	1	+9	10	+2	12	+9	21	+20
13	12	+9	21	+0	21	+5	26	+14
14	15	+9	24	+2	26	+0	26	+11
15	15	+9	24	+2	26	+0	26	+11
16	6	+17	23	+3	26	+0	26	+20
17	4	+8	12	+3	15	+5	20	+16
18	16	+7	23	+1	24	+2	26	+10
19	0	+2	2	+2	4	+10	14	+14
20	3	+5	8	+2	10	+6	16	+13

Analysis of Table 1 Data

The data in this table were not as useful as I had hoped. It provided a record of the baseline alphabet recognition and gains over each term, but the information was not easily compared because terms were not of equal length and because the number of letters I taught were different each term. Term 2 was short, and I taught numbers rather than letters this term. It was also difficult to make comparisons when there was a finite

number of alphabet letters to learn. The record I took this information from was a more useful document that indicated which letters each student learned, and when.

I had expected that children who entered kindergarten with the fewest letters would make the smallest gains, but this was not true in any term. Some children with little alphabet recognition in September who made low gains through the year made stronger gains towards the end of the year. This was perhaps an indication of their readiness to observe the details of letters.

This data did alert me to a few students who entered kindergarten with little or no knowledge of alphabet letters, especially those who made low gains in the first term. I worked with these students individually more often during the week and kept a closer eye on their learning every day.

Table 2

Small Alphabet Letter Recognition by Letter (Based on 20 students in a half-time kindergarten)

Letter	Strategies Used	n/20	Term 1 Gain	Term 1 Total 4 mo.	Term 2 Gain	Term 2 Total 2.5 mo.	Term 3 Gain	Term 3 Total 3.5 mo.	x/20
a	8I	7	+6	13	+2	15	+5	20	All
b	7I; L; N2	7	+4	11	+1	12	+4	16	16
c	5I; L; N5	11	+3	14	+1	15	+5	20	All
d	4I	5	+3	8	3	11	+3	14	14
e	6I; L	7	+8	15	+2	17	+3	20	All
f	7I; L; C	5	+5	10	+2	12	+5	17	17
g	9I	0	+7	7	+2	9	+5	14	14
h	7I; N1	6	+4	10	+0	10	+4	14	14
i	5I	6	+5	11	+1	12	+4	16	16
j	2I	5	+3	8	+0	8	+3	11	11
k	2I; N1	7	+5	12	+0	12	+3	15	15
l	15I; L; N2	2	+13	15	+3	18	+2	20	All
m	14I; L; N3; C	5	+12	17	+2	19	+0	19	19
n	7I	4	+7	11	+2	13	+2	15	15
o	5I; L	9	+7	16	+0	16	4	20	All
p	4I; L; N1	7	+7	14	+0	14	+5	19	19
q	6I	1	+3	4	+2	6	+5	11	11
r	8I	6	+7	13	+1	14	+3	17	17
s	9I; L; C	10	+8	18	+1	19	+1	20	All
t	7I; L; N4; C	7	+9	16	+0	16	+2	18	18
u	6I; L	3	+7	10	+2	12	+3	15	15
v	3I	4	+1	5	+4	9	+2	11	11
w	1I; N1; C	10	+4	14	+0	14	+4	18	18
x		13	+3	16	+0	16	+4	20	All
y	5I; C	2	+8	10	+0	10	+3	13	13
z	3I	7	+6	13	+0	13	+1	14	14

I - (# of students) Individual Instruction
L - Lesson
N - Letter begins the name of (#) Student(s) in the class
C - Letter begins a word used every day at the calendar
n - number of students recognizing letter at baseline
x - number of students recognizing letter at end of year

Analysis of Table 2 Data

These data were the most useful that I collected about children's alphabet recognition and learning gains. I recorded which letters I had taught, and when. I could track by student with the information from Table 1 and by letter with the information from this table.

When I had taught a focused lesson, all or most students learned the letter. When 3 factors were present, all or most students learned the letter, and the number of students was highest in this situation. It is interesting to note that all students knew the letter x by the end of the year, though it was not presented at school in any way. Since only thirteen students knew it at the beginning of the year I am curious about which conditions helped the other students learn this letter. I believe the time children spend with parents on literacy contributes greatly to their learning. The game X and O could be one explanation for all students knowing both of these letters by June.

When these data was used together with the term in which each lesson was taught, they provided very helpful information for future teaching. I could arrange individual, small-group or peer instruction for students who did not learn a letter after a lesson.

Table 3

Alphabet Letter Recognition and Draw a Person Level

Student	Letter Recognition September	Draw a Person Level September	Letter Recognition June	Total Gain For Year	Draw a Person Level June
1	4	20	24	20	25
2	1	10	24	23	16
3	23	5	26	3	11
4	10	0	26	16	10
5	1	0	13	12	--
6	17	16	26	9	9
7	11	14	24	13	16
8	15	16	26	9	19
9	0	11	13	13	12
10	0	7	12	12	9
11	1	4	12	11	12
12	1	--	21	20	--
13	12	--	26	14	26
14	15	12	26	11	--
15	15	11	26	11	11
16	6	5	26	20	10
17	4	17	20	16	--
18	16	13	26	10	7
19	0	10	14	14	18
20	3	--	16	13	10

Analysis of Table 3 Data

I collected these data to see if there was a correlation between the detail children put in their human figure drawings, and their ability to recognize alphabet letters. There was little evidence that children who had low letter recognition in September had low gains in draw a person. There was also little correlation between children who had low gains in alphabet recognition for the year and those who had low gains in *Draw a Person.* There was also no correlation between the highs in either of these comparisons. This was a very small sample, but it did indicate that most children added more detail to their human figure drawings by June.

Appendix B: Sample Lesson Plans

Sample Language Arts Lesson – Old Template

Subject:	Language Arts	Date: September 28
Unit:	Alphabet Letters	Lesson # 3

Preparation:	Basket of "b" objects Individual chalkboards, chalk, erasers Printing books
Learning Objective:	Read and Write the letter "b"
Hook:	Guess my Rule game. Show the objects in the basket. Have students guess what is the same about them.
Introduction:	Sometimes we can make a new letter from another one. We already know "l" (write it on the board). Today we will make a new letter beginning with the same straight line.
Lesson:	Watch while I add the new part to make a "b". I added a ball to the side of the stick to make the letter "b". The ball has to go on this side or we would be making a different letter. If we read "b" like a word and a sentence, from left to right, the ball comes after the stick. The sound for "b" is /b/. You push air out of your mouth when you say it. Hands up if you know some words that start with this sound. Some of them were in the basket today.
Guided Practice:	Write b b l l b l b l l b b b b l on the board. Read these letters with me. Now write a "b" in the air with your finger, beginning with the straight line like "l" Now add the ball. Did you put the ball on this side? Try some "b's" on your chalkboards while I come around and watch. Make sure you are putting the ball on the right side. Raise your hand to let me know you need help.
Independent Practice:	In your printing books, make 2 rows of "b" Be sure to put your finger spaces in between each one. Do your neatest work.
Closure:	The new letter we made today was _____. We started by making the letter _____ and adding a _____ to the right side. Tomorrow we will go on a letter hunt for "b's"

Sample Language Arts Lesson – New Template

Subject: Language Arts Date: October 6
Unit: Alphabet Lesson # 4 The Letter "a"
Enduring Understanding: We can use what we already know to help us learn new things
Learning outcomes: Affective: Helping a partner
Skill: Write "a"
Knowledge: Read "a"

Preplanning: Resources and Materials: Chalkboards, chalk, eraser, for 1/2 class

Preassessment: All but 2 students can read and write "o" (Donny, Mathew)
4 students can read "a" (James, Cory, Elizabeth, Debbie)
2 students can write "a" (James, Debbie)
Partner up: Elizabeth with Caroline
James with Donny
Cory with Phillip
Debbie with Mathew

Lesson Hook: I have a letter under my scarf. It is round. Put up your hand if you have a guess.

Connect to Experience: I can use "o" to make many other alphabet letters. Let's practice our "o" in the air to be sure we have them going the correct way. Check students for direction. Help Donny and Mathew. Now write "o" on your desk with your finger. Check print direction. Now write "o" on your partner's back.

Gather Information: We will use "o" as the beginning of another letter today. By adding a small stick beside "o" we make the letter "a". You must watch for 2 things. The stick must touch the "o". and it must be on the right side. Try a few in the air. Check to make sure your stick went on the right side. Now try a few on your desk with your finger. Is your stick still on the right side? Now, while you make your "a", make its sound /a/. Your mouth should be wide open and your chin does not drop like it did for /o/. What are some words that begin with this sound? Make a few "a's" while saying the sound /a/.

Differentiated: Process: Donny and Mathew one on one help from teacher or a buddy. Correct others if direction is backwards or sound is incorrect.

Guided Practice:	Partner students up. You and your partner will take turns making the letter "a" on your chalkboard. How will you decide who goes first? How can you be helpful to your partner when he or she is printing? (encouragement, compliment, help if he asks).
Differentiated:	Process: May need to coach Debbie and James on how to help Donny and Mathew. May need to provide hand over hand for Donny and Mathew.
Independent Practice:	In your printing books you will make "a's" today. If you have yellow letters in your book, print over top, following the arrow. Some of you have only one yellow letter on each line. That means you have already had lots of practice with this letter, and you are ready to print it on your own after doing the first one.
Differentiated:	Process: Debbie and James, only one yellow "a" then go solo. Others, all yellow "a's" with arrows to show directionality.
When You're Finished:	Take an "a" card from the pocket chart. Draw the object in the white space at the top of your page.
Differentiated:	You may also print an "a" beside your picture, or you may copy the whole word from the card if you wish.
Closure:	What was today's letter? How did we use something we knew to make the letter "a"?
Assignment:	One of today's centers will be to look for other letters that have "o" in them.
Differentiated:	Level 1 match the letters with letters on cards. Level 2 find the letters around the room without Looking at cards Level 3 find and print the letters on paper Level 4 find and print words beginning with the letter on paper

Sample Math Lesson – Old Template

Subject: Math Date: October 16
Unit: Lesson # 1

Preparation:	Buckets of objects
Learning Objective:	Sort objects by an attribute
Hook:	When you think you know how the objects I am putting in this pile are the same, raise your hand.
Introduction:	In a few minutes, each group will have a bucket of stuff. Your job will be to make a pile of objects on your desk that are all similar in some way.
Lesson:	The first step is to decide how the objects will be the same. To do this, pick a colour, a shape, the way an object is used, etc. Let's say I am choosing things that you can play with. Will I put a doll into my pile? How about a fan? A piece of paper? An eraser? Make a pile of play things. Repeat 1 or 2 times. What was my sorting rule? Ready to try and make a pile?
Guided Practice:	Let's do a pile together. Everyone pick up 1 thing from the bin. What is your rule for that object? Brainstorm. Now keep adding things that are the same in that way. If you chose red for your sorting rule, then everything must be red. If you chose round for your rule, everything must be round.
Independent Practice:	Now, try again, using a different sorting rule, maybe things that have a pattern on them, or things you find in a classroom. Put your thinking caps on and create new rules. 1/2 class carousel. Choose 1/2 class to stand behind someone. Try to guess your partner's sorting rule. Switch places. If you are standing, go back to your seat. People who were sitting, stand behind a new person and guess their sorting rule.
Closure:	What were some of the ways people sorted objects? Make a chart.

Sample Math Lesson – New Template

Subject:	Math		Date: October 7
Unit:	Patterning		Lesson # 4
Enduring Understanding:	Patterns have a chunk, a section that is repeated over and over giving patterns an interesting and exciting look.		
Learning outcomes:	Affective:	Learning from each other	
	Skill:	Build and extend AABB patterns	
	Knowledge:	To build a pattern, begin with a chunk and repeat it over and over in the same order.	

Preplanning:	Resources and Materials: Patterns, Unifix cubes, pattern blocks, coloured tiles.
Preassessment:	All but one student can build and extend ABAB patterns independently (Nan).
Lesson Hook:	What do you notice about all of these things? (patterned fabrics, pictures, checkerboard, tiles)
Connect to Experience:	Patterns are all around us. Bring up students who are wearing clothing with patterns on them. We have been making patterns with blocks and cubes. At calendar the leaves with the date numbers are arranged in a pattern. As Emma pointed out the lines of the fall poem are written with a pattern, one brown line, one orange line.
Gather Information:	Today we are going to build a super pattern, which is a little more difficult than the ones we have already done. We need to know two important things about patterns to be able to make super patterns. First, we begin with a chunk. Second, the chunk has to be repeated over and over again.
Model:	Today, I am choosing red red blue blue for my chunk. When I have decided my chunk, I can't change it. I can't add another colour or take one of my colours away. I only repeat it over and over. Build more chunks with Unifix cubes and do not connect them until they all match. Read the pattern. Read with a big breath in between chunks. Connect the chunks together. Volunteers take the chunks apart and put them back together again.
Guided Practice:	Everyone gather black and orange cubes. We will begin with the chunk black black orange orange. Make another chunk just like it, and another. Let's read the pattern together. Now read with a big breath in between chunks.

	Put the blocks together. Do you still see the chunks? Read again, taking a big breath between the chunks.
Differentiated:	Partner those who are getting it with those who are not. Work together. Give Nan one on one help.
Independent Practice:	Now choose any two colours. Make your chunk. Repeat over and over. Check for understanding.
Differentiated:	Scaffold: Partners help. Teacher give one on one assistance where necessary (Check Nan). Give her a chunk to copy. Help her put chunks together and read pattern with her. Enrich: Experiment with a different beginning chunk. Get them started with aaabbb or abcabc chunk.
When You're Finished:	When you are finished leave your pattern on your desk. Walk around the room and read the patterns on the desks. Try to figure out what will come next in each pattern.
Closure:	What are the 2 most important things to remember when making a super pattern?
Assignment:	During center time, go around the room looking for patterns.
Differentiated:	Level 1 - point out the pattern Level 2 - draw the pattern

Sample Science Lesson – Old Template

Subject:	Science	Date: November 26
Unit:	Colours	Lesson #2

Preparation:	Blue, yellow red food colour, water jars, droppers
Learning Objective:	2 primary colours can mix together to make a new colour
Hook:	Magic trick. Add yellow food colour, then blue, to a jug of water. What happened?
Introduction:	There are 3 magic colours, the primary colours you used to complete your art projects last week. When any two of these primary colours are mixed together, they make a new colour.
Lesson:	You have just seen that yellow and blue mix to make green. We will do that experiment together and then your job will be to experiment with the remaining combinations of colours to learn the resulting colour.
Guided Practice:	Each group has 3 glasses of water. Put 5 drops of yellow food colour into the first glass. Add 2 drops of blue to the same glass. You have created magic. You have made green. Fill out the colour mixing sheet with me. Colour the first box yellow. Colour the second box, after the plus sign, blue. Colour the third box, after the equal sign, green. Read the equation Yellow + Blue = Green.
Independent Practice:	Continue with the other two glasses, using two other colours, and then with the third glass, try the remaining two colours. Fill out the colour mixing sheet for each experiment.
Closure:	What did we learn today? How might you use this information?

Sample Science Lesson – New Template

Subject:	Science		Date: December 8
Unit:	Animals		Lesson # 8
Enduring Understanding:		Animals' physical characteristics help them survive in their environment. Animals should be left in their environment so they can live.	
Learning outcomes:	Affective:	Treat animals with kindness	
	Skill:	Observe physical differences	
	Knowledge:	Animals in different environments have different physical characteristics.	

Preplanning:	Resources: Project Wild – Biodiversity binder, story book – The Bear and the Fish Materials: Fish, bunny, chart for recording physical characteristics
Preassessment:	What are some places where animals live? Why do some animals live _____ while others live ____?
Lesson Hook:	I have brought two of my pets today. Sunny is a goldfish, and Bunny is a rabbit. I will call a few of you at a time to see them.
Connect to Experience:	Who has a pet? Where does your pet live? How is ____'s pet different from _____'s pet? Why are they different?
Introduction:	You have talked about your pets, now I would like you to discuss my pets. You may move into groups by finding the people who have the same animal on their card as yours. You may not trade with anyone. As soon as your group is together, find a place on the carpet, sit down and quietly talk about what you know about the animal on your card.
Differentiated:	Animal cards given out so that groups will be heterogeneous with one high, two average and one low student in each group and with careful attention to dynamics of the children in each group.
Gather Information:	Read the story "The Bear and the Fish" about a boy who didn't know enough about animals, and made a huge mistake (tried to take a fish to school in his pocket). - Discuss bear's mistake (taking the fish out of the water)

	and the consequences (fish died). - Let's hope this doesn't happen to any of you. Sunny and Bunny are here to teach you some important things about animals. I will leave them at the front of the room so you may come up and look at them when you need to. If there are already people up here, wait until they finish looking. - Your group's task is to learn and record how Sunny and Bunny are different. The jobs are to observe, draw, lead the discussion, and encourage others. You may each choose one job, or if you cannot agree, you may take turns doing each job. Work that out now, you have two minutes. - You will observe differences in the two animals, and record one at a time on this chart. (picture of bunny and fish in each column with room to draw physical characteristics for more advanced students).
Guided Practice:	We will do one together. What is one difference you see right away between Sunny and Bunny? Draw the difference on the chart putting an 'x' through the thing that is different. E.g. Bunny has no fins, so put an 'x' through Sunny's fin on the first set of pictures.
Differentiated:	Pictures are labelled. Students may draw the physical characteristics instead of using an 'x'. Scaffold: Students need assistance to compare the two animals. Take note of these students. Enrich: Students may copy the name from the label. Take note of these students.
Independent Practice:	Fill in your chart, putting an 'x' through one characteristic in each set of boxes to indicate a physical difference.
Differentiated:	Some students may need help to find physical characteristics. Take note of these students.
When You're Finished:	Draw Bunny and another animal that lives in the forest. Colour the physical characteristics that are the same in one colour (e.g. Colour each of their legs green). Draw Sunny and another animal that lives in water and colour physical characteristics that are the same in one colour

	(e.g. Colour their tails blue).
Differentiated:	Scaffold: Provide the picture and number the areas to be coloured the same with the same number.
	Enrich: Label your drawing from picture/word cards.
Closure:	What did the bear learn about fish in the book we read today? What did you learn about fish today?
Assignment:	During center time today, the science center will be to finish your drawing and colouring activity.

Appendix C: Differentiated Lesson Plan Template

Learning Outcomes:
Understanding (Big Idea): _____
Affective: _____
Skill _____
Knowledge: _____

Preplanning: What resources/materials do I need? _____

Preassessment: What do students already know? Student/teacher conferences, teacher observation, assessment tools, tests, brainstorming, KWL strategy, thumbs up/down.

Baseline data: Beginners _____
Novices _____
Experts _____

Lesson: State in terms of what students do.

Motivate/Engage (Hook): Video, picture, interesting object, quote, problem, question, personal experience, demonstration, student experience, student volunteer, guest speaker, game, puppet, captivating story

Connect to Experience: Think of a time, Remember when…, Compare to…, What if…, Pretend…, Simile, Metaphor, Real life examples, How is ___ like you or your experience

Gather Information: Read, listen, ask, watch, do, explore, inquire, search, research, go, problem solve, think, compare (Alone, partner, small-group, whole-class)

Differentiate: Process, product, content, or learning environment:
Scaffold: _____
Challenge: _____

Guided Practice: watch, listen, try, inquire, talk, repeat, copy, write, predict, test

Independent Practice: _____

Differentiate: Process, product, content, or learning environment
Scaffold: _____
Challenge: _____

When you're done:
Beginner challenge _____
Novice Challenge _____
Expert Challenge _____

Physical:

___ Movement ___ Manipulatives ___ Alternative Environment

Creative/Original:

__Personal Interpretation __Musical __Artistic __Construction
__ Critical Thinking __Transfer __Connect __Math Thinking

Bloom's Taxonomy:

___Knowledge ___ Understanding ___ Application
___ Analysis ___ Synthesis ___ Evaluation

Formative Assessment/Assignment/Homework: _____

UNIT CHECKLIST:

Intrapersonal:

___ Individual Accountability
___ Personal Challenge
___ Personal Success
___ Self-evaluation
___ Personal choice/Decision
___ Personal Goal Setting
___ Working alone

Personal Learning Styles:

___ Auditory
___ Visual
___ Kinesthetic

Interpersonal:

___ Homogeneous
___ Heterogeneous
___ Random Draw
___ Student Choice
___ Interest
___ Other class
___ Relationship/community building
___ Group success
___ Social responsibility
___ Interdependence
___Cultural Awareness
___ Environmental Awareness

Learning Groups

___ pairs
___ triads
___ 4's
___ 6's
___ half class

Practice towards or part of Summative Assessment/Evaluation:

___ Test ___ Model ___ Student/teacher conference
___ Written Project ___ Oral Presentation ___ Other demonstration task

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