

Down Syndrome Association of Minnesota

Education Resource Packet

2005

October 2005

Dear Educator:

We deeply appreciate the fact that, by opening this packet, you are demonstrating interest in enhancing the educational experiences of students with Down syndrome.

The Down Syndrome Association of Minnesota is the only organization in this region focused exclusively on meeting the needs of people with Down syndrome and their families. Education is a crucial concern of the vast majority of our members. One of our major areas of focus, therefore, is on supporting educational professionals.

We offer the enclosed material as examples of the educational resources we make available. The Association maintains a Resource Lending Library offering video and audio tapes from national conferences, books and other materials addressing a wide range, including speech and language development, behavior, reading and math. Additionally, our Association is a resource for you. Our membership includes medical, educational and developmental professionals with deep insights into and broad experience with the developmental challenges of Down syndrome.

If you would like to know more, please visit our website at www.dsamn.org or give us a call at our office 1-800-511-3696 or 651-603-0720. Our offices are located in St. Paul and our staff welcomes your inquiries. We applaud your efforts on behalf of our children.

Sincerely,

The Down Syndrome Association of Minnesota

Education Resource Packet
2005

Table of Contents

Mission Statement and Services of the Down Syndrome Association of MN

What is Down Syndrome?

Dispelling common myths

Language Guidelines

How do Children with Down Syndrome Learn?

Curriculum Adaptation

Modifying Curriculum and Providing Student Supports

Encouraging Friendships

Behavior: "Stubborn is as Stubborn Does"

Successful Inclusive Schooling Practices

Full Circle on Inclusion - A Teacher's Perspective

Inclusion Study: National Down Syndrome Society

Resources

Recommended Books and Resources for Educators

Contact Information

DOWN SYNDROME ASSOCIATION OF MINNESOTA

Our Mission:

It is the mission of the Down Syndrome Association of Minnesota to provide information, resources and support to individuals with Down syndrome, their families and their communities.

Our Programs & Services:

Down Comforter information packets for parents of infants with Down syndrome

Down Comforter information packets for expectant parents who have had a prenatal diagnosis of Down syndrome

Grandparent Information packets

Teacher Resource Packets

Parent-to-parent visitation in hospital or home

Parent support groups

Special Times, our bi-monthly newsletter

Voices & Choices, newsletter written by and for people with Down syndrome

General Meetings held twice a year (education and medical issues)

Resource Lending Library

Social activities throughout the year (i.e., Fish Fry, Picnic, Buddy Walk, Pancake Breakfast, Holiday Party)

Regional Conferences every other year

Annual Conferences for youth and adults with Down syndrome

Resource and referral information through our local and 800 numbers

Speakers for groups interested in Down syndrome

Web site with our bulletin board at: www.dsamn.org

Local Phone # : 1-651-603-0720

Outside Metro: 1-800-511-3696

Email: dsamn@dsamn.org

What is Down Syndrome?

Down syndrome is a genetic condition that occurs in 1 of every 800-1,000 live births. It affects people of all ages, races and economic levels and is the most frequently occurring chromosomal variation. More than 350,000 people have Down syndrome in the United States alone.

The most common form of Down syndrome, Trisomy 21, occurs when there are three instead of two number 21 chromosomes in every cell of the body. Instead of 46 chromosomes, a person with Trisomy 21 has 47. This extra genetic material alters the course of development and causes the characteristics associated with Down syndrome.

Common Myths

Although information about Down syndrome is increasingly more accurate, there are still a few misconceptions that the general public may have about this condition.

Babies with Down syndrome are born only to older mothers.

False. The average age of a mother giving birth to a baby with Down syndrome is 28. 80% are under 35. However, the incidence does increase with maternal age.

People with Down syndrome are severely retarded.

False. Most people with Down syndrome have some degree of mental retardation. However, it usually falls into the mild to moderate range and is not indicative of the many strengths and talents each individual possesses.

People with Down syndrome are always happy.

False. People with Down syndrome have feelings, just like everyone else does. They respond to positive expressions of friendship, and they are hurt and upset by inconsiderate behavior.

Children with Down syndrome are such angels.

False. Most parents would disagree with this statement. Like all children, children with Down syndrome have good days and bad days. They are individuals with their own unique personalities and talents.

Language

Is it Downs, Down's or Down?

The correct terminology is Down syndrome. There is no apostrophe and there is no capital "s" in syndrome. The syndrome is named after the physician, Dr. John Langdon Down, who identified the common characteristics as a syndrome in 1866.

A child with this condition is a child with Down syndrome, not a Down's child or a Down's kid in the classroom. Parents will greatly appreciate your sensitivity when you address their child as "person first" and not merely as a syndrome.

Using "people first" language sends a conscientious message to others the people with disabilities are just that: people with a disability. This is not about political correctness; it is about avoiding using words and expressions that are hurtful and offensive to others. Remember, the emphasis should always be on the person first, not the disability.

How Do Children with Down Syndrome Learn?

Great strides have been made toward developing educational practices that meet the needs of people with Down syndrome...but, we have been at it for only just a few decades.

As with all children, there is a wide range of abilities, behavior and physical development among children with Down syndrome. However, as a general rule, most children with Down syndrome:

Are visual learners. Pairing pictures with spoken words may be helpful.

Require simple directions.

Work best with teaching methods that involve hands-on activities

Are not as strong with auditory memory and auditory processing. Allow adequate response time.

Have fewer short-term memory channels. Break down directions into smaller steps.

Need time to process new skills they have learned prior to moving on to others.

Have difficulty retaining directions or information that is only processed verbally.

Have a slower rate of learning than typical peers.

Work well with computer-assisted instruction. Computer programs are interactive, self paced and non threatening.

Work best with small group instruction or one-on-one rather than whole class instruction.

Curriculum Adaptation

Simplify, Supplement, Alter

We at the Down Syndrome Association of Minnesota believe that creative collaboration between all team members is the best strategy for success. Each child possesses a unique potential and when the parents, teachers, assistants, specialists, school administrators all work in the best interest of the child, your student will have a productive year.

There is no magic formula for adapting your classroom curriculum for your students with Down syndrome. Each student's needs will be unique. The process is simple but it does require that all team members work collaboratively.

Subtle adaptations - Subtle accommodations to daily work will assist your student without drawing attention to the adaptation. For instance, textbooks with the same cover but different contents will minimize the variation.

Same timetable/same subject - Materials and methods may vary but if all students work on the same subject matter at the same time, a student's sense of competence will increase.

Allow adequate response time. Most students with disabilities will need time to process the material.

Visual accommodations work best for your students with Down syndrome. Visual schedules may help compensate for memory difficulties.

MODIFYING CURRICULUM AND PROVIDING STUDENT SUPPORTS

Source: From Special to Regular. From Ordinary to Extraordinary. Inclusion & Parent Advocacy: A Resource Guide, University of New Hampshire, 1993

The process is simple, yet requires the creativity and commitment to team members working collaboratively.

When first including a student with disabilities in the classroom it is not uncommon for teachers to ask "How can this student participate in this lesson?" Answering that question requires two steps:

Determining if a student needs modifications and/or additional supports to participate in a lesson.

If needed, deciding which modifications and/or supports are appropriate for a student during a lesson.

The process is simple, yet requires the creativity and commitment of team members working collaboratively. This two-question process for developing curriculum modifications and student supports has been created to help teachers make decisions regarding what, where, when, and how to modify curriculum for students with disabilities. This process was formulated after talking to educators across the state who work in inclusive schools. It is not a tool that provides quick answers; rather it is designed to guide a team's thinking as they create effective solutions.

QUESTION ONE:

Can the student participate in this lesson in the same way as other students?

Tracy uses an augmentative communication system to complete all written assignments in her high school history class. Tracy types answers to questions, and writes the essays and reports that are assigned by the teacher. In the beginning of the year, Tracy's history work was modified by her team. She was assigned fewer questions to answer, shorter essays to write, and very simple topics for her reports. Eventually Tracy's team realized that these modifications were unnecessary. Just because Tracy uses an augmentative method of communication doesn't mean she needs the support of curriculum modification. Tracy is very capable of doing the work!

When a student with disabilities first enters a regular class(es), the team may believe there will be very few parts of the day that will not need to be modified. However, after several weeks, it is common for teams to report just the opposite. Educators are often surprised by a student's ability to participate in many regular classroom and school activities without modifications or additional supports.

Question 1, "Can the student participate in this lesson in the same way as all other students?" is the first step in the process of developing curriculum modifications and supports. It is essential to always start with this question first. There are *many* times throughout the day when students with disabilities can be doing the same thing as students without disabilities, with no modifications or individual supports needed. Teams sometimes forget to ask this question because it has been assumed that disability always means different.

When asking the first question, the answer will quite often be "yes," the student can participate in this lesson in the same way as all other students. In that case, no modifications or individual supports are necessary for that particular lesson, activity, or part of the day. When the answer is "yes," there is no need to continue to the next question. The team should feel pleased that the student is participating in the same way as all other students.

Examples:

Ty does not require any modifications during a music appreciation lesson in seventh grade. Katy, a tenth grade student, participates in a presentation on the Arctic timber wolf in the same way as all her classmates.

Margaret, a second grader whose academic work is often modified, does not need any modifications during recess or while eating in the cafeteria.

Bernard, a fifth grade student with severe disabilities, can participate in a creative painting lesson in art class with no modifications.

Anya listens to a reading of Julius Caesar in her twelfth grade English class.

If however, after asking the first question, the team finds that the answer is "no," the process continues. Teams should move on to the second question and use it to determine appropriate modifications and supports.

QUESTION TWO:

Which of the following (one or more) supports and/or modifications are necessary for the student's full participation in this lesson?

After answering "no" to question 1, the team should move on to ask Question 2. Please note that this question is not "Can the student participate?", but instead, "What is needed so the student can participate?" Participation is assumed and teams need only decide what supports and/or modifications are required for the student to do so.

The second question is one that good teachers ask themselves daily for all students in their classes. All students can learn, but not all students learn the same things in exactly the same way. This second question acknowledges the uniqueness of each student, but assumes

ability and competence. By asking what the student needs to participate in a lesson, the team is asking a question that ensures full participation for all.

While this question appears quite simple, it is, in fact, a question with many and varied answers. Asking this question ultimately enables the team to determine what the student requires to fully participate in a lesson – provision of individual supports, modifications of material, and/or modifications of the expectations. By simply adapting one or more of these variables, each student is able to participate and be equally challenged. While it would seem simpler if it was possible to have a set of “math class modifications” or “music class modifications” that worked for all students, this is not the case. Good education means looking at each student individually.

When team members determine that modification or support is necessary, they then need to determine the type of modification and/or support needed. Although the options are plentiful, three basic categories have been created to help teams plan most efficiently:

- Providing the student with supports.
- Providing the student with modified materials.
- Providing the student with modified expectations.

Chart 4, *Curriculum Modification and Student Supports*, gives an overview of these options, while the following paragraphs provide a description of the modifications and supports.

DOES THE STUDENT REQUIRE THE ADDITION OF SUPPORTS?

Hannah loves Biology and has developed an exhibit on the anatomy of a frog for the annual high school science fair. Although her teachers and peers recognize her interest in science, it is sometimes difficult for Hannah to work by herself during Biology labs. Hannah needs assistance getting materials, setting up her experiments, and recording her results. At first the team thought it would be necessary to assign a classroom assistant to support Hannah. Instead, they discussed the issue with Hannah and her friends and asked them their opinions on how best to provide this support. The students were adamant – they could support Hannah during Biology and if they needed and additional help they would be sure to tell the team.

As teams begin the process of answering Question 2, they can ask themselves, "Does the student require the addition of supports in order to successfully participate in this lesson?" Often, a student with disabilities who is unable to participate in a lesson independently can successfully participate in the lesson if provided with additional support. Support in this context does not refer to the equipment or technological supports a student uses on an ongoing basis (for example, a wheelchair or a hearing aid) but the support of another

person - peer or adult. This person(s) might be a peer, a teacher, a classroom assistant, a related service provider, or another member of the school staff.

As shown on Chart 4, the utilization of peer support should outweigh the utilization of adult support. Peers are a very natural source of support for all students, and inclusion is most successful in classrooms that recognize the ways in which all students learn from one another. Keep in mind that peer support is not the same as peer tutoring. If there is a class-wide or school-wide system for peer tutoring, then certainly students with disabilities can be involved as both tutors and recipients. Teams should be cautious of the student with disabilities always being on the receiving end of peer supports.

Regardless of whom the support comes from, it is important that support be provided to the student because of need, not out of habit. It is sometimes easy to fall into a pattern of providing adult or peer support all day long, even at those times when support isn't necessary. The support needs of a student change throughout the day and throughout the year. Although the utilization of support is important, teams should constantly assess the appropriateness of the type and the amount of support that is given. "Aid and fade" has become a strong practice in many New Hampshire schools.

Examples of peer support:

Emily's friend Kara pushes her wheelchair on the playground at recess.

Roberta, a ninth grader, writes down the Algebra homework assignment for her classmate Molly.

Frank's best friend supports him when he's using facilitated communication at the football team's party.

Cooperative learning group members help Paul study for the sixth grade spelling test.

Shawna, a Kindergarten student, asks whomever is sitting next to her in the cafeteria to open her milk.

The twelfth grade Economics class is studying the world monetary system and Juan's friend highlights the textbook for him.

Examples of adult support:

The classroom assistant records what Christopher says during journal writing time.

A speech pathologist joins Maria in the cafeteria to help her teach the other high school students how to use her communication board.

The occupational therapist attends Physical Education classes with Nancy and assists her during volleyball and aerobics.

The third grade teacher gives Lenny a secret cue when he begins to speak to loudly.

The librarian provides support to Luther and two other tenth grade students as they work in the town library after school.

DOES THE STUDENT REQUIRE THE MODIFICATION OF MATERIALS?

In Scott's sixth grade class, all students are expected to write, illustrate, and publish books for the school library. Scott has wonderful ideas for stories, but has difficulty writing sentences and drawing pictures. At first, Scott's team decided that he could listen to his classmates' stories instead of writing his own. But one of his friends said, "That's not fair. He should be able to write a book, too." The team reconvened. They agreed that Scott could cut out magazine pictures for his illustrations, and that he could dictate a story to his friend who would write it down. They also agreed to develop a computer writing program so that Scott could learn to write on his own. Scott published eight books that year!

Another way to answer Question 2 is by looking at the ways in which materials can be modified so that the student can fully participate in the lesson. It is important to be sure that all materials used and all modifications made are age-appropriate. Also, remember that the *regular* classroom curriculum and activities are the starting point whenever adapting materials.

There are three ways to change the materials being used:

The *addition* of materials.

The *adaptation* of materials.

The *substitution* of materials.

As clearly illustrated in Chart 4, in most instances, the addition and/or adaptation of materials is preferable to the substitution of materials.

CHART 4 Curriculum Modification and Student Supports

Can the students participate in this lesson in the same way as all other students?

If YES – stop here. If NO – go on to question #2.

Which of the following supports and/or modifications (one or more) are necessary for the student's full participation in this lesson?

Does the student have all the *necessary supports* (e.g., technology, medical)?

Does the student have a way to *communicate all day long*?

Are all modifications and materials *age-appropriate*?

Are modifications made taking into consideration the concept of *comparable challenge*?

Does the student have opportunities to *give as well as receive* support?
Are all modifications made keeping in mind the *highest expectations*?
Has the student been given all of the necessary instructional opportunities to gain *core skills* (reading, math and writing)?

The addition of materials

Additional materials can be combined with existing materials to better enable the student to be actively involved with the lesson. The student still receives the same materials as his or her classmates, but receives additional materials as well. For example, a student solving subtraction problems in a math textbook might need the addition of math manipulatives. The student still uses the same math book and works on the same math problems, but has the assistance of additional materials to complete the work. In most cases, any additional materials provided for a student can be found in that student's classroom.

Examples:

All students in Stacy's eighth grade English class receive a copy of *The Scarlet Letter*. Stacy also receives a cassette tape of the book.

Randy is assigned the same problems as the other students in his Business Math class, but is given a calculator to assist him in doing the work.

Stephanie is responsible for learning all of the second grade spelling words each week. IN addition to the list, her teacher gives her index cards with one spelling word printed on each to help her study.

Jeb's lines in the eleventh grade play are recorded by a friend. During the performance, Jeb activates a switch to say his lines at the appropriate time.

Like other Kindergarten students, Jean must put her name on all her work. Rather than write it, she stamps her name on each paper, with help from a classmate.

The adaptation of materials:

Existing materials can also be adapted. Teams might decide to alter the materials being used to ensure that learning is meaningful. Using the same math example, a team might change the directions of the math assignment and tell a student to add together the digits on the page rather than subtract them. The student is given the same materials as everyone else, but is asked to do something slightly different with them.

Examples:

All written materials are enlarges on the photocopier for Peter, a ninth grade student. When reading assignments are given, the teacher highlights key points in the text for Sharon, a fifth grade student.

The directions on the first grade worksheet ask students to match each letter to the picture

that states with that sound. Albert's teacher has changed the directions on his paper to read, "Circle all the letters that are found in your name."

Eddie, who has physical disabilities, participated in skiing with adapted poles.

The substitution of materials:

A third option involves replacing the curriculum materials with other materials. The replacement materials are part of the regular classroom, but are not what most students are using to complete the assignment. For example, the teacher might assign a different page in the math book for the student, or even give him or her a different worksheet to complete. However, materials native to a special education curriculum (e.g., hand washing skills, safety word flashcards) should not be substituted for the regular math assignment. Instead, regular curriculum, age-appropriate, challenging materials should be used. Obviously, the addition or adaptation of materials should precede the substitution of materials, though this option, used sparingly, can be part of the successful education of a student with disabilities.

Examples:

The Ninth grade class is taking an algebra test. The teacher gives Denise a test with subtraction problems.

The seventh graders are writing poems and illustrating them. Anthony uses magazine pictures instead of drawings.

Fourth grade students are given a worksheet to identify the parts of a plant. Pam used a real plant to identify the stem, petals, and leaves.

Students in second grade are assigned a page in their math workbooks. Jeff uses math manipulatives to work on his math goals.

DOES THE STUDENT REQUIRE THE MODIFICATION OF EXPECTATIONS?

Shannon is in fourth grade. At this time she does not yet read. Everyday after lunch, the classroom teacher asks all children to choose a book and read silently some place in the room. Shannon joins her friends sitting on the rug and listens to a friend read aloud. For most students in the classroom, the purpose of this activity is to practice reading skills and to enjoy books. For Shannon, the purpose of this activity is slightly different. Like her classmates, she is enjoying books, but instead of reading skills, Shannon work son gross motor goals related to sitting independently. She is a part of the regular class activity, but working on different goals.

As with the preceding two categories, modifying the expectations for students is a natural instinct of most teachers. Actually, all of the modification and support suggestions discussed thus far are simply extensions of what teachers do daily in their classrooms -

provide support and guidance, alter materials and assignments, and adapt expectations and requirements. This last category is focused on classroom expectations. Expectations can be modified in three ways:

Modification of *quantity*.

Modification of the *demonstration of learning*.

Modification of *priority goals*.

Modification of quantity:

One way to modify the expectations of a particular lesson is to change the quantity of work expected from a student. A teacher may decide to give a student more or less work to do than what is expected of most other students in the class. While there may be a tendency to think only of assigning less work to students with disabilities, it is critical to also consider assigning students additional work to do - more work than what most students are doing. Remember, the presence of a disability does not supersede the presence of gifts and abilities.

Examples:

Rather than read independently for the full 30 minutes of sixth grade silent reading, André spends 20 minutes looking at a book and then is read to by a friend for the last 10 minutes. Rather than write a 10-page research paper, Georgia writes a three-page research paper. José is assigned six books to read a month. The rest of the class is assigned four.

Modification of the demonstration of learning:

Another way to modify expectations is to modify the ways in which a student demonstrates knowledge and learning. Typically, students demonstrate learning by taking written tests, writing reports, preparing projects, or composing portfolios of their work. Regardless of the method that teachers request, teams can change the way a specific student demonstrates learning. All students do not learn in the same way, therefore it would be unwise to expect them to provide evidence of learning in the same way.

Examples:

Instead of a written report, Jesse, a fourth grader, makes a diorama about the country he has studied.

Ben creates a photo exhibit of family pictures rather than write an autobiography in eleventh grade Sociology.

When the Kindergarten teacher names the color, Kim points to the color named, rather than saying it aloud.

Rather than a written scientific description of each experiment in her journal, Sasha is

responsible for taking instant photographs of each step of the ninth grade class experiments.

Modification of priority goals:

Finally, a lesson can be modified by changing the priority goals on which the student is working. It is quite possible and very natural for people to do the same thing but expect slightly different outcomes. For example, one person may go to the beach to work on building a sand castle, another person might go to work on a tan, but both people go to the beach. It is possible that the person trying to get tan will spend part of his or her time building a sand castle, and probably the person building the sand castle will become tan, but the priority for being at the beach is different for each person. The same thing can happen in the classroom.

There are many components of a single lesson, and often students who are learning together can be working on different goals. Although many of the outcomes for students involved in an activity will be the same, it is sometimes helpful for teachers to identify the *most* important goal for a specific student in a specific activity. The term "priority goal" is used. For example, a student who needs to practice communicating with peers may be working in the school store. All students benefit from the experience of working together as a team, making decisions, and being held responsible for a relatively large amount of money. For many of the students, the priority goal of this activity is to learn about financial profits and losses. However, for one student, the priority goal might be different - the goal might be to practice communicating with peers as they come to the store to purchase something. All students are involved in the same activity, all students benefit from the overall experience, but students may be working on different priority goals.

Priority goals can be varied, but a few specific goal areas are worthy of mention. Communication, motor, and social skills are often areas of need - and ultimately areas of focus - for many students with disabilities. Nearly every activity has built into it a component requiring the use of communication skills, motor skills, and/or social skills. As in the classroom store example, the content of what students are learning may be academic in nature (profits and losses), but all students are using communication, motor, and social skills throughout the activity. It is wise to take advantage of opportunities to teach these important skills as it makes sense for students to learn skills in natural settings.

A strong word of caution is important here. Although students with disabilities may be involved in a lesson and working primarily on motor skills, for example, the regular curriculum goals *should not be ignored*. The content of the regular curriculum is important for all students, and too often it is incorrectly assumed that students with disabilities "aren't getting anything out of it." It cannot be assumed that someone is not benefiting from an experience. Shifting the priority goal for a student during a specific activity can create the potential for rich learning, but it is essential not to hold a focus so narrow that the priority

goal becomes the only goal.

Examples:

In first grade, Ann-Marie cuts four different kinds of butterflies out of paper. She certainly is learning about butterflies, but the priority goal is using scissors.

Giovanni works with his tenth grade cooperative learning group to predict the outcome of the Presidential election. He is responsible for interviewing five people. While it is important for Giovanni to learn about the election process, the priority goal is communication skills.

Josh's fifth grade class has a spelling bee on Fridays. Although he is responsible for learning several spelling words, the priority goals are standing independently in line and waiting his turn.

Appendix 1: Suggestions for Subject Adaptation

How To Encourage Friendships for Children With Disabilities

Research shows that friendships give people with disabilities social, emotional, and practical supports and integrate them into community life. People who have disabilities also bring certain gifts, such as acceptance, spontaneity, trust, simple enjoyment of life's pleasures, honesty, and several other contributions to their friends.

To facilitate friendships, you must be open to helping children develop friendships, by being flexible and persevering. Orient yourself toward the child's strengths and allow the child to make his or her own choices, because the ability to make good choices develops independence.

With younger children, you might have to teach the child how to interact with his or her peers in play. You will also need to educate peers. Start by discussing the child's disability with playmates. Ask for questions. This encourages tolerance and understanding of individual differences. If the child has a communication disability, help potential playmates learn ways to communicate with the child with a disability.

Studies indicate that group size influences the social play of children with disabilities. Small groups of two or three children often play better than larger groups with a child with a disability. Another tip is to vary the children in the group. More sophisticated children will be role models and have better communication skills. Less sophisticated children allow the child with a disability to display leadership and problem solving skills.

Play activity also factors in connections. Some toys (balls or board games) promote play with other children. Other toys (such as books or crayons) encourage solitary play. Organize materials to promote children's interaction and have them in a defined area with sufficient space to play.

With older children, research shows that peer tutoring, cooperative learning, and disability awareness training help children with and without disabilities to socialize, play, and just hang out together. Some successful strategies are:

One-to-one matching: Here, in a formal volunteer program (such as Best Buddies or Natural Ties), one person is matched with a similar-aged peer who has a disability. Some long-lasting friendships have emerged from these kinds of matches. You can find Best Buddies on the Internet at <http://www.bestbuddies.org/>

Existing or formal networks: In the McGill Action Planning System (MAPS), the child and family are asked to look closely at their environment and plan for a better life by examining the child's current relationships and coming up with ways to expand and improve those connections. A related method is Group Action Planning, which brings together family, friends, and community members to regularly problem solve for and with the child with a disability. For those who have few or no relationships, "Circle of Friends" is a method where peers are invited to make a commitment to a child with a disability. Often, this is done in the school setting and can be part of an existing or a new club. Promoted to students as an extracurricular activity, this "friendship club" should allow members to choose the relationship they want to develop and make sure the child with a disability is regarded as a peer at all times.

Community activities: Many places in the community actively encourage people with disabilities to participate in their programs. These include the YMCA, Boy and Girl Scouts of America, 4-H (which offers more than agricultural projects only), parks and recreation programs, community theater groups, and volunteer organizations.

Consciousness raising advocacy: This approach, where one person or a group goes into the community to discuss disability issues, often leads to friendships.

Winning Strategies:

Find opportunities to bring children together. A key trait of friendship is close proximity and frequent opportunities to socialize.

Highlight the child's strengths and gifts.

Have the physical environment accessible to the child with a disability.

Encourage independence. Follow the child's lead.

Collaborate with general education teachers.

Present information on disabilities to others to promote understanding.

Teach social skills. Talk to the child about how to make and keep friends.

Expect people to accept the child.

Have the child attend the neighborhood school.

While planning the child's school goals, include community activities and developing relationships.

Give the child time to spend with friends.

Invite community members to participate in the family's life

Prepare the child to answer questions other may ask, such as "Why do you use a hearing aid?"

Consider how the child can make the best possible first impression in terms of clothes, hair style, or greeting.
If the child has communication difficulties, offer meaningful comments to emphasize his or her similarities to other children.
Be open to different types of relationships.
Encourage the child to make friends with others who have empathy, those who can “stand in the shoes” of another.
Get information of Circle of Friends, Group Action Planning, or other person-centered future planning approaches.
Realize that true friendship needs some basis for exchange (reciprocity).

For additional information see the following:

Friendships and Community Connections Between People With and Without Developmental Disabilities published by Paul H. Brookes,

And

A Guide to Thoughtful Friendship Facilitation for Education and Families by C. Beth Schaffner and Barbara Buswell, available from
PEAK Parent Center, 6055 Lehman Drive, #101, Colorado Springs, CO 80918.

Copyright 1996
Content edit 2000

Stubborn isas stubborn does

*by Carol Johnson
Chaos Consultation ,Canada*

It is interesting, to me, how many people talk about their child's stubborn behavior as if it was part and parcel with having Down syndrome. It isn't. There are many people who are stubborn who do not have Down syndrome. In fact, in some situations being stubborn is seen as a positive trait. I have heard people say that the reason they came out as winners in a situation was because. "I was stubborn and no one was going to push me around". "They thought I would cave, but I was too stubborn to give up easily".

So, what is this stubborn behavior that we see with students who have Down syndrome and how could we think about it? I see stubborn behavior as a direct result of lacking the skills and/or language to negotiate a position. Often, we will take a stance on something we care about and, right or wrong, stick to that stance until we understand or agree with another's view. A student with Down syndrome will continue to do things in a specific way because it is safe, it is known and it has worked in the past. When we try to change their behavior, when we try to introduce new things, we threaten their "safe place." Some of us are open to change and will accept change far better than others, this is the same with students with Down syndrome. Some of us are able to argue our side of the issue, some of us can be persuasive and bring people to our view and not have to change - the other person changes.

Students with Down syndrome cannot do this as well. He/she lacks the language, the cognitive flexibility needed in verbal discourse and the larger world view to win many verbal arguments. So....he/she looks stubborn.

Think about it. If you were in a situation where you did not understand what was going on around you and people were trying to get you to do something you were unsure of, what would you do? You would resist, you would stay doing what you know, you would be seen as stubborn. What if you did not have the language skills to share your views, what if the other party did not understand you or did not care about what you had to say? Then, you were punished or censured because you were seen as stubborn. How would this affect your level of cooperation the next time? How would you respond to these people who "made you do something you did not understand nor even agree with?" You may become even more stubborn or resistive. And, they, in turn would see this as "non compliance" or as a "problem."

They would respond in a way that assumes that your stubbornness is something that exists on its own; apart from you having a different view of the same situation or apart from you being unable to communicate your point of view successfully. How can we change the pattern? By letting go of the myth of stubbornness and seeing stubborn behavior as resistance.

Resistance to something new, resistance to something that is not understood, resistance to having others being in control, resistance to someone they may not trust or understand. The only way to help anyone become less resistant is to help them to feel safe enough to try something new or different.

When a child is young, s/he will not respond very well to changes; s/he will withdraw. As s/he grows older, s/he will use the strategies that have worked in the past withdrawing, not looking, pouting, sitting, throwing herself down (stubborn looking behaviors).

The more stubborn a student looks, the more useful this behavior has been in the past; using this repertoire of strategies has allowed the student to remain in his/her safe place. Adults are part of the problem. We have taught the child what s/he needs to do so we will stop pushing or so we will leave them as they want to be. Then, sometimes, we become angry.

As we become angry, the child resists further as s/he does not understand what is happening and is often upset with the situation as well. How many of us respond to anger if we are nervous about a situation? How many of us would become less "stubborn" if someone demands that we do something that we are not sure about?

When faced with a student who appears to be stubborn, think about the following:

1. Although this makes sense to you, it must not make sense to this student. How can you help the student gain a better understanding of what it is you are wanting? Remember, saying that it is "good" for them is not helpful. Can

you show, act out, the positive outcome of the request? Can they try it in small steps? Can you find a way to make it clearer, less threatening? What kind of language are you using'?

2. Is there a way to help the student use other means to say "no", "wait", "this is scary", "you want me to do what?" other than the behavior that is being seen? Until a student has some way of communicating with others, the resistance will look like stubborn behavior. If you were in a situation where you did not understand what was going on around you and people were trying to get you to do something you were unsure of, what would you do? You would resist, you would stay doing what you know, you would be seen as stubborn.

3. Follow the old adage....."Win them over with honey" any human being will respond to positives over coercion. Always enter a new situation using something that the student likes. In other situations, go to what the student already knows and build on it. Pair a new experience with something that is already successful and liked by the student. Use play, songs, games etc. to help a student deal with new experiences. Watching another student have a success may not work as some students do not learn from watching others as they may not understand that they too could have that success.

4. You need to have a trusting relationship with anyone before they will try something new just because you told them to do it. Some students take a long time to reach that level of trust. You cannot be the "punisher" and build a trusting relationship with a student. You cannot coerce some behaviors and reinforce others; this inconsistency will stress a student; the student may never feel safe enough with you to let go of those behaviors that help him/her to feel safe.

5. When you feel yourself becoming angry, stop, laugh, walk, relax, count, etc. Release the tension in the situation and then try again maybe in a different way. Sometimes a student will come around just because you have calmed down and re-entered the relationship in a way that is not threatening to the student.

Some of the best people are just stubborn enough to hang in there when many others have given up on a child. So, join them. Be stubborn about a child's ability to learn and help him or her to feel safe enough to venture into new territory with you by his or her side.

First published in the Newsletter of the Canadian Down Syndrome Society - Spring 1998. Reprinted with Carol Johnson's permission.

Successful Inclusive Schooling Practices

Council for Exceptional Children, 1995

Diversity is valued and celebrated.

The principal plays an active and supportive leadership role. In order to ensure that an appropriate inclusive education occurs, principals and other general education administrators must be held accountable for the progress of all students, including those with disabilities.

All students work toward realistic educational outcomes based on high standards.

These outcomes are not just academic. They also include social, behavioral and independence goals.

Everyone feels accepted and supported by their peers and other members of the school community.

There is an array of services, including the supports necessary for students with disabilities to access extracurricular activities.

Flexible groupings, authentic and meaningful learning experiences and developmentally appropriate curricula are accessible to all students. Scheduling of the student's classes must be based on the student's needs and not on the basis of which teachers are willing to accommodate a student with disabilities.

Research-based instructional strategies are used and natural support networks are fostered for students and staff.

Staff have collaborative roles and teachers work together in and out of the classroom. To achieve meaningful collaboration, staff must be given high quality training and sufficient planning time.

There are adequate accountability measures to ensure that all individuals fulfill their responsibilities.

There is access to necessary technology and physical modifications and accommodations.

Parents and caregivers are embraced as equal partners. One way for parents to implement this partnership is to become involved in developing their school's annual improvement plan.

From a Teacher's Perspective - Full Circle on Inclusion

Anita F. Miles
Alta Vista, VA

Reprinted from © [Down Syndrome News](#), The Newsletter of the [National Down Syndrome Congress](#), Vol. 21, No. 9, p. 122

My definition of inclusion is simply that students with disabilities should be integrated into general education classrooms whether or not they can meet traditional standards of the curriculum and should be full members of those classrooms.

I remember the first time I ever heard the term Inclusion. Though I am a first grade teacher in a public school, school was not where I first learned this term. I first heard it from my sister Dru, Her son, Taylor, was born with Down syndrome 12 years ago. From that point, Dru began educating herself about Down syndrome, and channeling that information to our extended families. She now works for the National Down Syndrome Congress located in Atlanta, GA. She refers to herself as Taylor's CEO, a position to which she has given her utmost.

Before Taylor entered kindergarten several years ago, Dru started using the term Inclusion. Through interacting with Taylor as he has grown and a series of lengthy conversations on the subject, I realize my philosophy on Inclusion has come full circle. I saw it first from a teacher's standpoint, then from an empathic sister's standpoint, then back to an (enlightened and educated) teacher's standpoint. The culmination of my changing views was a trip to Phoenix, AZ to attend the National Down Syndrome Congress Convention. I was able to get to know many youth and adults with Down syndrome, and attended a workshop on Inclusion.

When my sister first started mentioning Inclusion, I (the teacher) had arched my back, rebelled, and defended teachers in general with thoughts such as, "How can you expect a teacher with 25 students to teach a student with special needs too? That one student would take up too much of my time! I'm not trained to teach special education! How would I grade him and be fair to everyone involved?"

After a while of watching my precious nephew grow, seeing his sense of humor and individuality, and seeing how he learns, my view of Inclusion changed. This time I saw it through the eyes of a sister and an aunt. I saw the difference it made to Taylor to change his placement from a "handicapped" class (kids with Down syndrome labeled severe to moderate, and kids with cerebral palsy, paraplegia and quadriplegia) to an inclusive setting. Children with Down syndrome learn an incredible amount through modeling from their peers. Think about it-on that basis alone there is a strong argument for Inclusion. But there are other benefits as well; I will never forget the day Dru called with excitement in her voice to tell me that Taylor had been invited to his first "real" birthday party. He had been totally included in the party planning by a friend who is a typical kid. Milestones such as this are so important. Studies show that occupational success or failure is tied to the acquisition of social skills.

This brought me full-circle to the view of an enlightened and educated teacher. I am excited about the challenges and possibilities of inclusion and willing to try it in my first grade classroom.

I have learned much about collaborating with other teachers how to make a mutual partnership successful, through trust, respect, time management, and space and role boundaries. I look forward to the challenge of implementing these skills. By having a working knowledge of co-teaching methods, a creative, trained teacher should be able to assess the situation and the needs of the student and use an appropriate teaching method.

I was especially motivated by a workshop presentation I attended at the [NDSC](#) Convention in Arizona. *Pathway to a higher I.Q. (Inclusion Quotient): Teaching Salient Achievable Information*, was presented by Christine Hockel, a sixteen-year-old with Down syndrome, her mom Judie Hockel, and two education professionals. The first step in the IEP process for the Hockel family is finding the Teachable Salient Achievable Points. This requires the classroom teacher or someone familiar with the curriculum to edit down the course content to the information or objectives that Christi most needs to learn.

The workshop discussed strategies such as communication, accommodations, modifications and adaptations to successfully carry out inclusion. Often, some of the vocabulary would be pre-taught. In the Biology class, for example, the special education teacher compiled a study guide with important vocabulary that the typical students probably already understood, such as "biodegradable" and "taxonomy." The special education teacher used her expertise to come up with creative ways to teach the study guide vocabulary, and in some cases bound the study guide for reuse. To learn "biodegradable" the two students with Down syndrome visited the teacher's compost pile and a recycling center where they helped sort the recyclables. To teach taxonomy the teacher made up sign language. For ten legged creatures, they signed with 10 wiggly fingers. Eight legged creatures became 8 wiggly fingers plus the sign symbol for "A" for Arachnids. Six legged creatures were 6 wiggly fingers plus the sign symbol for "I" for Insects.

If there were a lesson that Christi did not need the special ed. teacher would use that time to teach something more meaningful to Christi. For example, the time might be used to preview a video that would be part of the next day's lesson with her typical peers. Previewing the tape had the advantage of being able to start and stop the tape for discussion, and to review critical vocabulary. All of these require excellent teacher planning, communication, and coordination, but It is well worth It.

The issues of grades and the fairness of assigning those grades no longer seems like the "Big Hairy Monster" I once perceived it to be. Once you have your IEP and your Teachable Salient Achievable Points, the grade can be assigned with a "modified" notation.

Inclusion is an evolving process which requires communication, planning, coordination, and sometimes trial and error from everyone involved, from the administration to the custodian. I'm ready to sink my teeth into it.

"When your heart is in your dream, no request is too extreme..."

—Jiminy Cricket

The Educational Challenges Inclusion Study

Conducted by Gloria Wolpert, Ed.D. for the [National Down Syndrome Society](#), October 1996.
Bound copies available through NDSS for \$10.00.
NDSS permission is granted to print this study and use it in its entirety only.

Reprinted with the permission of [Andrea Lack National Down Syndrome Society](#)
666 Broadway, Suite 800
New York, NY 10012-2317
1 (800) 221-4602
(212) 460-9330

The Meaning of Inclusion and Down Syndrome

Inclusion is the act of including or belonging, being together from beginning to end (American Heritage Dictionary, 1982). From the moment of birth until the time of death, each individual has the intrinsic need to be included in society. The inclusion of people with mental or physical challenges into community settings such as schools, places of employment and neighborhoods has been mandated nationally with Public Law 101-336, or the Americans with Disabilities Act (1990). The purpose of this legislation is to end discrimination against individuals with disabilities in private sector employment, all public services and accommodations, transportation and telecommunications. A specific application of this philosophy was further enhanced by the Individuals with Disabilities Education Act (IDEA or PL 101-476), which greatly expanded the definition of special education to include nondiscriminatory and inclusive education in the least restrictive environment.

Inclusive Education

Inclusive education calls for systematic changes in the educational system. Traditionally, children with special needs have been pulled out or removed from the regular education mainstream and given specialized but separate services until they could "earn" their way back into the regular classroom. This separatist attitude has always been controversial and much research has uncovered lowered teacher expectations of special education students, which have resulted in poor self esteem, limited academic gains, restricted socialization, and minimal involvement in the employment sector (Gresham, 1982; Guralnick, 1981; Wehman, 1985). Parents and professionals have recently advocated strongly for a single education system that could provide an adequate support network for children with different educational needs.

The National Center on Educational Restructuring and Inclusion (NCERI) defines inclusive education as "home school placement" (which means that students attend their home school with their age and grade peers) with the availability of the supports necessary to ensure an appropriate educational experience for the student. Full inclusion is an approach where students with disabilities receive all instruction in a regular classroom setting, and support services come to the students on a "push-in" (to the classroom) basis. Partial inclusion involves students with disabilities receiving most of their instruction in regular education settings, but being "pulled-out" to another instructional setting (such as a resource room) when appropriate to their individual needs.

IDEA enables parents to be involved in the planning and development of their child's educational program. Planning has been shown to be of paramount importance, whether it be formal teacher training through workshops, or informal child or classmate preparation. Formal supports are provided and paid for by the public education system, and include extra staff, adaptive curriculum

materials and technological aids. Frequently, when a student with mental or physical challenges is included in a regular education classroom, that regular education teacher also receives the extra help of a full or part-time inclusion aide. Sometimes a consultant teacher acts as a curriculum specialist and provides assistance to the regular education teacher. Another option is a team-teaching approach, where a regular education teacher is paired with a special education teacher and both share classroom teaching responsibilities. This is sometimes called collaboration. Natural supports are more humanistic and consist of friends, family, professional advocates and classmates who take an active or supportive role in the inclusion experience. Some formal programs have been set up to help foster this humanistic interaction, such as a "Circle of Friends," which focuses on increasing the student's social support network (Perske and Perske, 1988).

- The philosophy or belief that all children, gifted, challenged or at-risk be included for all or part of the day in a regular classroom setting, with appropriate support services for meeting their educational needs;
- treating all children equally in the classroom by providing for the individual needs of each child;
- designing and managing a classroom to maximize the success of all class members; and
- providing a source for future goals, relationships and lifelong friendships.

Inclusion and Children with Down Syndrome

Inclusive education is based on the premise that children of different abilities and backgrounds can benefit both academically and socially in a learning environment that is programmed along with normally achieving students (Banarji and Dailey, 1995). Salisbury (1995) has stated that "the diverse needs of all children can be accommodated to the maximum extent possible within the general education curriculum." Children with Down syndrome have different learning styles that usually require more thought to curricular choices and experiences, which previously has prompted educational programming to be more segregated in nature, involving specialized services and smaller groupings.

Recently, parents of children with Down syndrome have voiced concerns that their children's education in a more specialized program was isolating, particularly when adolescence was reached. They want their children to have friends and be with peers during early childhood and the school years, in preparation for adulthood where they must get along with peers and function in a heterogeneous society. Some parents have gone so far as to forego academic achievement in order to maximize socialization (Salisbury, Gallucci, Palombaro and Pecj, 1995; Stainback and Stainback, 1992). Many parents have questions on the outcomes of inclusive programming and concerns about which methods of support and preparation work best. This prompted the [National Down Syndrome Society](#) to initiate a study on inclusion, its effects on children with Down syndrome, and parent and teacher satisfaction.

The Inclusion Study

This study on inclusion and Down syndrome was done to determine the success or lack of success of inclusive practices, and to survey national trends in inclusion programs for children with Down syndrome. This prompted the development and dissemination of two types of questionnaires, one designed to elicit parent case studies and opinions, and the second to examine school organization and what classroom practices teachers were using. Participation in the study was on a voluntary basis. The purpose of the study was to elicit parents and teacher expectations and reactions to their inclusion experiences, and to determine how beneficial they felt it was for a child with Down syndrome. Over 320 questionnaire pairs were mailed to parents of organizations affiliated with NDSS and their children's teachers (grades pre-kindergarten through 12th grade), with steps taken to match up the responses of each child's parents and teachers. Some questions were similar to see if there were any differences between parent and teacher perspectives with regard to inclusion. Several outside school districts were also solicited.

Parent Questionnaire (see Appendix A)

The parent study was designed to obtain write-in responses detailing parents' expectations, prior experience with inclusion, the transition process and their opinions of the professionals involved and their child's adjustment to the process. The following areas were considered as parent components:

- background and previous experience with the school district;
- basic classroom information (teaching arrangement and ratio of staff to students);
- the transition process/degrees of preparation;
- parental involvement and communication with the school;
- the child's adjustment, experiences and (any) behavioral changes; and
- the evaluation of parent and professional attitudes (i.e. contact with professionals, treatment from professionals, and confidence in professional judgments).

Parents also rated how successful they felt that inclusion was for their child in the following areas: academic gains, socialization, independence, language, self-esteem and the development of friendships.

Teacher Questionnaire (see Appendix B)

The teacher study was designed using write-in responses, rating scales (of 1 - 5) and checklists to elicit information detailing their prior experience and expectations, training and preparation, behavior

management and classroom operations, instructional curriculum and attitudes toward inclusion. The following areas were considered as teacher components:

- background/teacher information (experience, knowledge of special education and inclusion);
- preparation for inclusion and the transition process;
- classroom information on curriculum, class arrangement, therapies and support services (to include team teaching between regular and special educator, special education consultation, resource room pull-out and/or inclusion aide in the classroom); and
- classroom management, instructional and behavioral strategies and teacher attitude.

Teachers then rated the inclusion experience on how much extra work was required, and how it related to their expectations. The questionnaires were disseminated in spring 1995, and responses were collected through fall 1995. 125 parent and 120 teacher responses were returned, including 90 parent/teacher pairs.

Study Results

125 parent responses and 120 teacher responses were returned. Out of this population, 90 parent/teacher pairs were received. The high response rate to this study indicated high level of interest by its participants. The evaluation was conducted in three parts: an examination of the parent questionnaire, the teacher questionnaire and parent anecdotal records. The intent of this three-part approach was to examine all relevant factors of the questionnaire pairs from different perspectives and to systematically gather and evaluate evidence from various resources to arrive at conclusions regarding the effects of inclusion on education. No judgments were made on the quality of programs; the responses received complete confidentiality; and analyses were descriptive in nature to reflect what practices were currently existing.

Some descriptive statistics of the population are listed below:

• Attend their local neighborhood school	88%
• Mean age of child	9.3 years
• Mean grade of child	3.8
• Mean class size	25 students
• Class contained other students with disabilities beside the child with Down syndrome	56%
• Team teaching situation in class (collaboration)	30%
• Resource room (pull-out) service	32%
• Aide in class specifically for child with Down syndrome (almost all aides were also responsible for work with all of the students in the class)	82%
• Computer in the classroom	72%

Results - Part 1

Programming Outcomes on Parent Perceptions of Success

A successful inclusion experience was determined by parent report of achievement in the following areas (rank-ordered from most common area reported to the area least reported): self-esteem, independence in daily living skills, social interaction, speech and communication and academic achievement. Additionally, parents reported that their children with Down syndrome had good role models among the typical education students; adult attitudes towards the children with Down syndrome were positive; and the curricular style of the class was appropriate for their children. 33% of the parents reported that extra work was necessary at home with homework, and 36% reported a smaller amount of professional services in school (therapies), such as speech therapy or occupational therapy. In more than half of these cases, parents chose to refuse the related professional service offered to them by the school district.

Several factors were examined for the purpose of trying to determine differences between parent reports of successful and unsuccessful inclusion experiences. These were:

- child age and grade;
- teaching arrangements of collaborative or team teaching, resource room placement, and an extra inclusion aide in the class to facilitate the inclusion process;
- presence of computers in class;
- classroom management and parent report of teacher style with their child;
- prior inclusion experience of the child and teacher;
- preparation for inclusion as provided by the school district transition process;
- cooperative attitude of personnel;
- curricular format and materials;
- parental involvement; and

- child contact with peers.

The following tables show the factors that were examined to determine their relationship to parent perception of successful inclusion. It is always necessary to keep in mind that the results came from parents and teachers who chose to return their surveys, and that therefore a bias could be present.

Factors found to have little or no relationship to successful inclusion experiences as reported by the parents:

- child age and grade;
- teaching arrangement: collaborative or team teaching, resource room or extra aide in the class;
- prior inclusion experience of child or teacher;
- presence of computers in the classroom;
- inclusion preparation of child, parents or other students;
- cooperation of principal, higher level administration, regular education teachers, special education teachers, parents of other students in the class;
- parental involvement in planning and schoolwork; and
- behavior problem in class (as rated by the teacher).

Factors found to have a statistically significant relationship to parent report of successful inclusion experiences:

- preparation of the teacher;
- format of the curriculum (lesson plans and materials);
- curricular style of the teacher (as rated by the parents);

- classroom management and style of the teacher (as rated by the parents);
- unity between special education and typical education;
- parental confidence in professionals;
- child contact and encouragement from peers; and
- if the child had friends in class.

Factors found to account for the differences in parents who reported successful inclusion experiences as compared to parents who reported unsuccessful inclusion experiences:

- teacher style with the child (as rated by parents);
- initial easy placement experience (as compared to problematic first experience);
- if the child had friends in class; and
- unity between special education and regular education personnel.

These four factors were able to account for 43% of the difference in responses between successful and unsuccessful experiences, which indicates highly statistically significant and reliable results. These four factors were present in inclusion experiences that were rated as successful by parents, and *not* found in unsuccessful experiences.

Discussion

Teaching arrangement did not affect parent report of successful inclusion. More important than co-teaching (between special educators and typical educators) in a collaborative fashion, use of a resource room teacher or the extra help of an aide was the individual teacher's style with the child. This leads to the conclusion that the match of any teacher personality and skill to the student is important to successful inclusion practice. Parents stated that they preferred teachers who 1) treated them with respect, 2) had high expectations for the child with Down syndrome and 3) were willing to modify classroom materials as needed. This implies that open-mindedness, enthusiasm and confidence are helpful character traits of teachers for successful inclusion. Teacher preparation programs should also provide training in communication skills for use with parents, and ways that teachers can modify teaching for differently-abled students. This also ties into the many teacher

requests for further information of learning characteristics of children with Down syndrome and teaching methods.

Teacher preparation was highly correlated with parent perception of success. Teacher preparation for inclusion has been a focus of much recent research in education (Chalfant and Pysh, 1989; Fuchs, Fuchs and Bahr, 1990; Knackendoffel, Robinson, Deshler and Schumaker, 1992). It is unfortunate that 55% of the teachers in this study reported having no preparation or inclusion training before the inclusion took place.

Administrative attitude did not seem to play a role in a parent's report of success. Research on organizational change and leadership in education has shown that principal and administrative attitude are important to school change and educational achievement (Owens, 1981; Stogdill, 1974). However, the unity between special education and regular education personnel was a highly predictive factor of parent perception of success. This suggests that administrative attitude may play an indirect part in the fostering of a bonding or collaborative team between the special and regular educators. There is also much anecdotal reporting by parents in this study on the relationships between regular educators and special education personnel. Also, when parents reported a smooth, productive placement process, they found the inclusion experience successful. Those parents who had difficulty with the initial placement reported less satisfaction with the inclusion experience. It seems that first contact impressions tend to set up parent expectations for success or failure. This also indirectly indicates the need for preparation planning.

There did not seem to be any relationship between how involved the parents were in the education of their child, and how satisfied they were with inclusion. This could be due to the fact that there was a small range of variability on this response, with almost all (99%) parents being involved with meetings, their child's IEP and the daily operations of their child's education. Thus, no differences could be compared to successful or unsuccessful inclusion experiences. However, parents who had confidence in the professionals associated with the education of and decision making for their child found inclusion to be more successful than parents who did not have confidence in these professionals.

Whether or not the child was encouraged by their peers or presented a behavior problem in class had no effect on parent perception of successful inclusion. However, parents who reported their children had friends in class also rated the inclusion experience as most successful. This supports the research and anecdotal information that stress the importance to parents that children have friends in the educational environment. Parents stated that they were pleased to have their children join socially in both formal (sports, dances, birthday parties) and informal (playdates) activities.

The variable that showed the highest degree of relationship with report of successful inclusion was the format of the curriculum in the classroom. Teachers who were flexible with the type of student participation and who could alter their use of materials to be more concrete in nature for "hands on" activities were reported to be highly successful catalysts of achievement for students with Down syndrome. Also of importance was curricular style with visible cues as opposed to predominant reliance on auditory language, notetaking and workbooks.

To summarize, parental perception of successful inclusion relied on the factors of initial placement experience, teacher style with the child, the format of the curriculum, the unity between special and regular education, confidence in professionals and whether or not their children have friends in class. Teacher preparation should be increased, and include areas of communication skills,

curricular modifications and guidelines for working with special educators. This would suggest that it would be prudent to prepare teachers for skillful curricular design to include visual cues and performance (concrete) activities, as well as education of the learning styles of students with Down syndrome.

Results - Part 2

Teacher Perception of Classroom Management instructional and Behavioral Strategies

The purpose of the teacher questionnaire was to find out what works with inclusion and what doesn't, according to the typical education teacher's perspective. Little research has been done in this area. There were 120 teacher responses.

Background/Teacher Information: The majority of teachers had a bachelor's degree in education, with extra credits toward a master's or second degree. 63% of the teachers had some special education training through personally selected coursework or workshops. The average number of years experience was 14.

Student Information/Preparation of Teachers: 26% of the respondents taught either nursery school or kindergarten, and it is important to realize that these grades may have differing expectations in the academic area and curriculum. The average class had two other children with some form of special learning need, as well as a child with Down syndrome.

Classroom Information/Curriculum: 55% of the teachers reported receiving no inclusion preparation from the school district. The most common (87% of the cases) teaching arrangement (or inclusion model) entailed the regular teacher working with one additional inclusion aide (87% of the respondents), whose responsibilities included one-on-one tutorial with the child with Down syndrome and whole class assistance. The inclusion aide stays with the child from year to year, and teachers report that this arrangement provides stability with programming instruction. Team teaching between a regular educator and special educator occurred in 30% of the cases, and 51% of the teachers had consulted with a special education teacher during their inclusion experience. 94% of students with Down syndrome received speech services, 62% received occupational therapy and 37% received physical therapy. 46% reported "other" services, typically adaptive physical education and working with a language development specialist. Further study is needed to determine the comparison of "push-in" the classroom and "pull-out" services.

Teacher Arrangement and Instructional Methods: 85% of the classes studied had computers. The average number of computers in classes was 1; the nursery classes did not have computers. The teachers reported that children with Down syndrome effectively used computers for added practice and drill of math and reading skills, as did the other students. Teachers were asked to rate different types of learning arrangements, instructional and behavior management strategies on a scale of 1 (not effective) to 5 (very effective). The best learning arrangements reported were one-on-one and small group instruction. Peer tutors, computers and team teaching were found to be sometimes effective. (This was skewed by the nursery responses, where these methods were not used). Large groups and the whole class were reported not effective at all for students with Down syndrome. A statistical test (T-test) was performed to ensure that the ratings for the top and bottom instructional arrangement scores were statistically different. The ranking scores between best and

worst learning arrangements were significant ($t=17$; $p<.01$). This indicates that differing teacher arrangements and instructional methods for use with children with Down syndrome do have a meaningful impact, with individualized instruction and small groups being the most effective. Classroom arrangements were also examined. The most effective instructional place was reported to be the student's desk area (94%).

Materials Used: Teachers in the higher grades preferred the blackboard and overhead projector, while nursery, kindergarten and first grade teachers predominantly used informal seating arrangements. When asked to rank order which materials work best for instruction of students with Down syndrome, concrete or "hands-on" materials were reported the most effective. The computer, paper and pencil tasks and textbooks were sometimes effective (only in the upper grades), and workbooks were not found to be useful. The ranking score between the most effective and least effective materials used were statistically significant ($t=12$; $p<.01$). This indicates that the types of materials used in instruction made a tremendous difference when teaching students with Down syndrome. 74% of the teachers felt that homework was effective for two reasons: 1) to inform parents about what the child was doing in school, and 2) to give the child the necessary extra practice with basic concepts. Of all the adults involved with the students with Down syndrome, the regular education teacher and inclusion aide were reported as the most effective instructors for the child. However, 44% of the teachers also wrote that peers were extremely effective instructional agents.

Behavior Management: Teachers did not have to modify their behavior management systems for adequate class control due to the addition of a student with Down syndrome. Children with Down syndrome responded to the same behavior management techniques as the rest of the class. Teachers reported that praise was the best behavior management strategy or motivator for a child with Down syndrome. Material rewards, time out, peer pressure, loss of privilege, and contact with parents were reported as sometimes helpful. Ignoring the child's (mis)behavior, reprimands and punishment were not effective at all, possibly because a student with Down syndrome might be unable to link these consequences with his/her inappropriate behavior. The ranking score between the most effective behavior management strategy and least effective behavior management strategy was statistically significant ($t=28$; $p<.01$). This means that teachers who were able to use the more effective behavior management techniques, such as praise, had a much easier time managing the behavior of a child with Down syndrome than those teachers who used the lesser effective techniques of ignoring (mis)behaviors and punishment.

Teacher Attitude: 49% of the teachers reported that inclusion caused extra work in areas of modifying homework, class assignments, tests, grading procedures and necessitating more contact with the parent. Grading was determined from participation in class, effort and daily work. Homework and test scores were not related to grades. The ranking score between effort of the student (the best) and homework (the least helpful for grading) was statistically significant ($t=18$; $p<.01$). This indicates that teachers evaluated students with Down syndrome on their efforts and participation in class rather than primarily through tests or homework, which was different from the evaluation methods used with the typical education students.

Grading/Evaluation: Whether a child was determined to be an active or passive learner had no significant effect on instructional strategies chosen or student evaluation. Teachers also did not feel that there was unfair attention given to children with Down syndrome. Teachers had high expectations for their students with Down syndrome, and these were unrelated to variables such as staff preparation, model of implementation of inclusion and whether or not the students had behavior problems in class. When recommendations for improvement were requested, in order of highest to lowest, teachers desired more one-on-one individual instructional time, more planning time and more information on learning characteristics of children with Down syndrome. These

results were significant ($t=7$; $p<.01$), meaning that all teachers, whether or not they were ineffective or successful, requested more information and time related to planning and instruction. 66% rated the experience as more rewarding than they anticipated, both for themselves and other classmates.

Discussion

Learning Arrangements and Materials

As can be expected from previous research, teachers found that one-on-one individual instruction or small group instruction worked much better than instruction in large groups or with the whole class. This was one of the original reasons for the design of separate smaller special education classes in the 1950's and 1960's (Kirk and Gallagher, 1983). Materials that worked best were concrete activities or manipulatives (where the student had to perform an activity or skill using objects or teaching materials), and computer-assisted instruction and drill. Sometimes the same materials were used in different ways. One teacher reported that while the rest of her first grade class used Uniflex (small, colored) cubes for counting and adding, her student with Down syndrome sorted the cubes by color. Workbooks were not found to be useful at all. This is not surprising as most workbooks are either heavily dependent on language comprehension (a problem area for students with Down syndrome), or have too many distractions or problems on a page, which is confusing and overwhelming for students with Down syndrome. Doing a workbook page also requires a level of independence which may not be possible for slower learners. Teachers stated that written performance in a workbook does not adequately reflect the knowledge and abilities of students with Down syndrome. Computer-assisted instruction is ideal for these students because it is interactive, non-threatening, self-paced, and programs usually contain small, sequenced steps with a lot of repetition and drill. However, caution should be taken to ensure that computers are only a medium of instruction and do not replace instructional teacher contact. The humanistic nature of teacher-student interaction is necessary for good social development (Hasselbring and Coin, 1989). Also, a few teachers reported that their included students with Down syndrome did not have adequate fine motor coordination to use a keyboard or mouse effectively.

Grading and Behavior Management Strategies

Teachers found that daily physical performance or participation in class, and effort of the student was a much better indicator of learning or grades for students with Down syndrome than tests or homework. This could be tied to the fact that many parents help their children with homework, and therefore homework did not reflect the independent work of these students. However, teachers did feel that homework was very important for the students with Down syndrome because it helped to bridge the gap between home and school, reinforce concepts discussed in class and inform parents about what students were learning. Threat of lower grades was not an effective motivator for students with Down syndrome to work harder and try their best. Teachers stated that they usually graded students with Down syndrome in comparison to their own previous performance rather than norms or the other students. Praise from the teacher was by far the most widely reported best practice for inclusion of students with Down syndrome. One teacher with six years of inclusion experience said that "my children with Down syndrome soak up praise - the more they get, the more they want and the harder they will work to get it."

Punishment and ignoring inappropriate behavior did not work effectively as behavioral and instructional strategies. It is possible that students with Down syndrome did not understand why they were being punished and it was not adequately explained, so the unwanted behavior

continued. Ignoring behavior was also not an effective method for learning, possibly because slower learners generally need highlighted cues and more direct instruction to link concepts of cause and effect. They may not understand the relationships between behavioral causes and consequences unless these are explained. Teachers are generally better off calmly pointing out what behavior is not appropriate and the consequences. Then, following through on rules and contingencies is most important to facilitate learning. Emotional outbursts and punishments are also ineffective as these cause bad feelings for everyone (Westling, 1986).

Teachers reported that they want more one-on-one individual instructional time with students with Down syndrome, and more planning time for instruction. This is especially important if the teacher collaboration (team teaching) paradigm is used in schools. Planning time must be built in for teachers to work together in a consistent fashion. Teachers also requested more information on the learning characteristics of children with Down syndrome. This is provided in a separate section of this report. Teachers did not complain about extra work or added paperwork. They also stated that they did not want more input from parents, but this statistic could be misleading because most teachers said that they had already received a lot of information from the parents. In many cases, teachers said that although they were not prepared by the school district for inclusion, parents prepared them informally, with written material and personal information about their children. In more than one-third of the cases, parents also came into the classroom prior to the onset of inclusion, to prepare the prospective classmates.

The general conclusion of this study is that inclusion of children with Down syndrome, as it exists now, is successful according to both parents and teachers, although there is always room for improvement. Parents mainly report benefits in areas of social interaction, friendships, communication, independence and self-esteem. Teachers find the experience challenging, rewarding and of great value to their typical education students as well as children with Down syndrome. It was surprising that teacher preparation by the school district had no relationship to parent perception of success. Perhaps the type of training that was given was not relevant to teacher needs or requests. It was often difficult to pinpoint direct relationships mainly because of the overlap of factors such as involvement, cooperation, preparation, personality, attitude and parent perception of success. It is also possible that results are skewed by respondents who chose to return their surveys.

Recommendations

These results are encouraging for the continuation of inclusion of students with Down syndrome. The benefits are many to both the students who are included, and to the typical education students as well. These results also have implications for teacher training for inclusion, especially in the areas of behavioral management, instructional strategies and learning characteristics of students with Down syndrome. School districts are also encouraged to schedule more planning time among the teachers, therapists, parents and support personnel, in order to facilitate communication among staff, ensure educational collaboration and provide a smooth process for initial placement. Preparations for inclusion should begin early, at least one year before placement.

Results - Part 3

Anecdotal Vignettes/Parents

Parent questionnaire anecdotes provided much useful information. Parents tended to give examples to emphasize their responses. Consistent patterns emerged along four major themes:

- Teacher personalities make or break the inclusion experiences, especially the personalities of the regular education teacher. The principals selected the inclusion teachers individually and carefully;
- Communication between all personnel and parents is necessary for success;
- Classmates often make up for any shortcomings of the staff. Extra help in the class is not necessarily the way to go; and
- A balance should be struck between the developmental needs of students and chronological advancement. It was helpful to have curriculum geared for the needs of each child, and a multigraded class (1 grade/2 grade; 3 grade/4 grade, etc.).

Teacher Personalities Make or Break the Experience

Teacher Attitude: Most parents reported that the match of teacher personality to the child was crucial to having a successful year. This supported the finding that teacher style with children is a primary predictive factor. Many parents reported having problems with teacher attitude, while only two parents reported the teachers as not being competent to handle their child. One parent summed it up by saying, "Inclusion is no problem. The teachers who don't give it a chance are the problem."

Support of Inclusion by Professionals: Many parents reported that special education teachers were not helpful to the inclusion process. Often, special education teachers were reported as problematic with "poor communication, cooperation and liaison with regular educators." Examples were given of special education teachers insisting on pulling students out of the room for special services rather than remaining in the class to work with a group of students (push-in service). Regular education teachers usually voiced similar complaints, with too much pull-out services, rather than push-in services in the classroom. However, in a few responses the regular educators complained that there were too many adults in the room during push-in services. In a few instances, parents opted to forego speech or occupational therapy so that their child would not be removed from the regular class. A few parents have even moved to different school districts that were known to have better collaboration between special and regular education teachers.

Sharing Responsibility and Communication: Sometimes, the special education teachers had trouble "letting go" of what used to be "their territory" or primary responsibility. One parent reported, "I feel that the special education teacher is of great importance to my son's progress, yet often the biggest obstacle. She does not discuss her agenda with either me or the (regular) third grade teacher." Another parent stated, "I sometimes feel that the special education teacher does not trust the regular teacher to do a good job with my son, and thinks of his time in the regular class as "down time." Similar comments also related to other professionals.

The intent here is not to blame any specific educator for negative inclusion experiences. There were only seven teacher responses from special educators which do not give a balanced viewpoint. However, as unity between special education and regular education teachers was found to be a primary predictive factor of successful inclusion as perceived by parents, future study should focus on possible reasons for discord between the two.

Communication is Necessary for Success

Parents who were more involved and had better communication (e.g. phone calls, informal talks, daily notebook, meetings) felt much better about their child's inclusion experience. More often than not, teachers got most of their pertinent information about children from parents. Daily notebooks were reported as being an invaluable asset for communication, "because I sometimes feel funny about calling my child's teacher at night when I know she is busy with her own family." A few parents reported an interesting trend, "I communicate well with my child's teacher, but I find that in the school there is no communication between teachers!" This has also been stated by the teachers, that "there is never enough time to talk and plan together, and we often cram in several student lessons during a pressured lunch break." Teachers also report the desire to discuss and reflect on results of shared lessons, as well as plan future collaborative lessons. This clearly indicates a need for administrators to set up regular planning times among teachers as an everyday routine.

Classmates Often Make Up For Any Shortcomings of the Staff

Most parents reported that their child's inclusion aide in the class was the professional who worked best with their child, usually because he/she knew their child the longest. However, one-third of the parents preferred not to have an aide present. These parents reported that aides tend to sit next to the child and help the child with everything, which isolates and stigmatizes. One parent said, "I prefer it so much more when my child's aide is out (sick). Then the teacher pairs my child up with several students during the day to keep an eye on progress. My child comes home talking more about other classmates, and I think, feels better about her day."

All parents felt positive about the use of peer tutors in class. One said, "I love it that my son works with a top student in class. He tries to be more independent and do more on his own to be accepted by his peer tutor." Another parent stated, "The only time that I am absolutely sure my daughter is talking to friends is when she works jointly in groups. When the aide is with her the other kids tend to shy away." Parents of older children say that when they ask about school, their children say more about which students they worked with than the actual activity. Teachers also report having to balance work goals with friendly contact among their students with Down syndrome. One teacher stated that "the student with Down syndrome would be content to sit in his cooperative learning group the whole morning, and I must remind someone in the group to keep him focused on the task. Come to think of it, this helps the whole group as well!" Many teachers of sixth grade and higher reported that peer intervention worked better than teacher assistance. It is also interesting to note that very few teachers listed "extra help" as an option for program improvement.

There Needs to be a Balance Between Developmental and Chronological Needs

The discrepancy between slower development and chronological needs of students with Down syndrome as compared to their typical peers is not as apparent in pre-school or kindergarten, where the children assimilate more easily, but becomes more apparent when higher academic expectations are set for the elementary years and upper grades. Many parents and teachers reported difficulty in this area. One teacher's experience reflects the frustration many people feel. "I believe in inclusion and enjoy having this student in my class. It is wonderful when he participates and jokes around with the class. More often though, he has difficulty sustaining interest in his assignments, for which I blame myself. If only I knew what to use to maintain his attention. His parents have been most helpful and optimistic." Other teachers report assigning fewer problems to a page, or giving students with Down syndrome more freedom to choose their work activities. One teacher describes her philosophy, "She finds her own flow for the day. She starts off with the main lesson, as her other classmates do. Then she is free to go to one of the centers for quiet activity. When I pair her up with a student she does sit longer, but she always tries to do her best."

This is the crucial aspect of inclusion, having students learn with their chronologically aged peers when their developmental needs are different. Parents who reported successful inclusion describe their children's teachers as positive motivators who foster independence and self-reliance. The positive classroom atmosphere also motivates children with Down syndrome to achieve academically. Parents also cite independence, language development and self-esteem as great gains which they attribute to the other classmates as role models. One parent even says about her child's case, "My daughter is getting into trouble sometimes because she is so busy chatting with her friends. She has also come home with some objectionable language. This is all part of normal growing up and I am thrilled to have this problem."

The majority of teachers have allowed their students with Down syndrome to remain with the peer group, but modified the curriculum, as they would adapt the curriculum for other students. Many teachers stated that their expectations for students with Down syndrome were lower with respect to mastery of detail, grasp of concepts and retention of learning. Teachers did report having extra work, particularly in modifying assignments and tests, and that they needed to facilitate more one-to-one individual instruction for students with Down syndrome. The consensus was that the benefits were well-worth the extra effort. This attitude has been accepted by the parents, who have reported curricular modifications as being a successful inclusion practice. Some school districts have also gone the route of multiage grading, having a primary group (kindergarten through second grade) and intermediate groups (third/fourth, fifth/sixth). In the high schools, students with Down syndrome were usually placed in modified English or math classes. Parents of children in these programs reflected the same concerns as others: teacher style with students is still important, as well as format of the curriculum. Age of classmates has not come up as a variable much concern.

Learning Characteristics of Individuals with Down Syndrome

To better understand how students with Down syndrome learn, it would be helpful to examine six areas: attention, memory, concept attainment, mediational strategies, transfer of learning and motivation.

Attention

Attention is the ability of an individual to focus on a specific stimulus. Classic research in this area involves discrimination learning tasks (Zeaman and House, 1963; 1979). In this study, a learning problem was presented through a series of visual stimuli, and the subjects (mentally challenged and

typical individuals) were asked to choose the correct stimuli using feedback from previous trials. When the data were plotted, the learning curves of mentally challenged individuals showed a large difference in learning style. Those with typical intelligence showed a smooth learning curve, indicating that they are incidental learners, who can select relevant information from a variety of stimuli, form hypotheses and logically choose a response. The subjects who were mentally challenged showed more of a box-like learning curve with a flat line in the beginning of the graph. This indicates that it took them a longer time to identify the correct or relevant information in the problem, and form a hypothesis relating the concepts. However, once they "got it," they performed just as well as the typical learners.

With these results, Zeaman and House developed the two-stage theory of attention: stage one is the ability to attend to the task, while stage two is the ability to identify the relevant stimulus to the problem. They concluded that individuals who are mentally challenged enter the learning situation with a lower capacity to attend to the relevant (as opposed to distracting) stimuli than typical learners. The lower the mental age of the individual, the longer stage one is present. However, once they have mastered the attention stage and have identified the relevant stimulus, they can learn the task, and perform as well. Later attention theorists have pointed out the importance of training students to focus their attention and actively self-monitor its occurrence (Howell, Rueda and Rutherford, 1983; Kneeder and Hallahan, 1981). From these theories some practical methods can be applied to maximize attention for learning.

Suggestions for Classroom Practice

1. Present stimuli or objects that have clear and obvious dimensions, and vary on as few dimensions as possible (e.g. color or size or texture). Otherwise, the student may be responding to a dimension other than what the teacher is expecting.
2. Use attention-getting techniques such as prompts, cues or lighting. You can even make a secret signal with the student for fun.
3. Placing work on a different background color or texture may enhance attention.
4. Remove extraneous distracting stimuli such as pictures on walls, or too many problems on a page. Do not sit the students next to a window, door or high traffic area.
5. Reward correct responses immediately, to ensure that students are associating the reward to what was correctly done.

Memory

Memory has been defined as "the ability to store and retrieve (upon demand) previously experienced sensations and perceptions, even when the stimulus that originally evoked them is no longer present" (Lerner, 1971). There are four basic components of memory: 1) processes, 2) knowledge, 3) strategies and 4) metamemory. The basic processes of memory are the actual

hardware of the system, or organic structure, which develops by age two. Coincidentally, around two years of age, language abilities expand greatly, and some theorists believe that memory is a factor influencing this growth (Spitz, 1966). The second aspect of memory, knowledge, is made up of an individual's past experiences. What one already knows influences what one learns and remembers, because we interpret what we see. For example, think of the different descriptions a police officer, doctor or teacher would give about a car accident. Their varied training and interests may give them each a different perspective about the same occurrence. The strategies component of memory are activities that people use to facilitate "memorizing," or storage and retrieval of information in the brain. These range from the very simple and direct, such as rehearsal and repetition, to the complex and sophisticated, such as the development of acronyms. Metamemory is the supervisory or regulating mechanism that determines when to use which strategy. It organizes a person's ability to memorize or remember.

Memory theorists for a long time have generally agreed that there are two types of memory, short-term and long-term (Ellis, 1963). Once a stimulus passes through the sensory register, it impacts on the short-term memory, which is heavily based on language. An individual's short-term memory can handle between five and nine bits of information, which last from 30 seconds to a couple of minutes. From then on, the individual must act with the stimulus, either by performing a behavior or skill, or actively seeking to enter it into long-term memory, through the use of a memory strategy. These strategies can either be spontaneously applied, as in the case of an individual with a good memory, or can be improved by training to increase the repertoire of strategies, as in the case of individuals with poor memories. Long-term memory is based on meaningful impressions or relationships, that can last a lifetime. Individuals with Down syndrome typically have poor memory ability for three reasons: they are at a disadvantage for adequate short term memory due to language delays; they have a limited repertoire of memory strategies; and they tend to be "inactive" learners, when it comes to memory (Baumeister, 1981).

Suggestions for Classroom Practice

1. Use labeling or verbal associations to make up for any language deficits related to memory and learning. Use smaller clusters of information and sequence ideas.
2. Repeat and practice skills to promote learning.
3. Select interesting and meaningful tasks which individuals will enjoy repeating.
4. Teach the learner to use rehearsal strategies and practice them.
5. Provide opportunities to practice skills in many contexts and use multisensory approaches, involving hands-on activities.
6. Show patterns in things to be memorized and teach more sophisticated memory tricks.

Concept Attainment

Concepts are used to organize diverse stimuli in a meaningful order. A concept is an expression of a rule by which diversity is brought together and reduced for the efficiency of adaptation to the environment. The use or application of a concept means that relearning is bypassed.

According to Jean Piaget (1977), each child progresses through stages of development where various cognitive skills are acquired. These are: the sensorimotor stage (birth - 2 years), the preoperational stage (2 - 6 years), concrete operations, (7-11 years), and formal operations (12 years and older). In the sensorimotor stage, the infant experiences the environment through sensory experiences and motor activities, and learns to distinguish between him/herself and the world. The preoperational stage involves the use of language and intuitive thought to assimilate culture and concepts. Also, note that memory hardware is now in place, which helps to make sense of the world and how things are represented by language and symbols. A child remembers previous experiences and develops expectations. In the stage of concrete operations, logic develops and the child learns to organize his/her thoughts by ordering and classifying objects. The child must manipulate objects and needs hands-on activities to solve problems, and learn cause and effect relationships. The final stage, formal operations, involves abstract reasoning and the linkage of concepts. The individual is able to mentally manipulate symbols, rather than concrete manipulatives, and can hypothesize and predict events and consequences.

Individuals with Down syndrome take longer to learn, but show the same sequence of stages of concept attainment. However, their patterns develop at a slower rate, which necessitates attention to the mental age of Piaget's stages, rather than chronological age as he originally discussed. Mental age has been explained as $IQ = \text{Mental Age} / \text{Chronological Age} \times 100$. For example, a 13 year old child with Down syndrome could be expected to need tokens, rods or other concrete items to help solve math problems, because he is still operating in the stage of concrete operations, even though his chronological age would fall in the formal operations stage.

Suggestions for Classroom Practice

1. Children with Down syndrome learn best by active participation, rather than sitting and listening.
2. Allow for manipulation of concrete materials to solve problems and maintain interest.
3. As learning occurs in an ordered sequence, tasks should be presented step by step, making sure that the child has the pre-requisite concepts for the next step or level.
4. Be guided by the individual's mental age: his/her logic, interpretation of the problem and expression of an answer may be different than what is expected from chronological age.

Mediational Strategies and Paired Associates

Every individual varies on his/her ability to organize thought processes, store information and recall it as needed. As mentioned in the discussion on memory, individuals with Down syndrome have

difficulty in this area, which is heavily based on language and ability to categorize. Research has documented that slower learners will approach learning and memorization activities in the same way or style as younger peers do, relating expectations for this ability to mental age instead of chronological age (Brown, 1974; Spitz, 1966). Presenting new material to be learned in groups or clustering material in an organized fashion helps to facilitate learning. Spontaneous, or good learners, do this automatically, while poor learners need more structure or help in this area.

The most common type of grouping arrangements are according to physical similarities (same color or shape), functional categories (food or clothing), concepts (object permanence) and sequence or equivalence (pattern arrangement or order). A mediator is some prompt or cue that connects or links a stimulus and response to be learned. Paired associate learning is the ability to link concepts, ideas or words, such as people or places. Repetition, rehearsal or drill is then used for memory. Serial learning of concepts is when you pair concept A to B (e.g. If you touch a stove, it is hot), then B to C (if you touch something hot, you get burned). The final conclusion is A to C (if you touch a stove, you get burned).

Sometimes when we teach slower learners, we need to introduce a mediator, (or concept B) to break down a concept that may be too abstract to grasp on its own. In this example, concept B, or the mediator, is the concept of "hot." Other elaboration strategies include prepositional mediators (e.g. book "on the" table), interrogative mediators ("where is the" book? On the table.), and visual imagery (imagine a book on a table). Research has indicated that students who are educationally challenged have difficulty producing these mediational strategies to help them break down and combine concepts, but these can be developed and learned (Robinson and Robinson, 1976; Bray, 1979).

Suggestions for Classroom Practice

1. Restructure or organize visual and/or auditory presentations to break down the relationships to basic concepts, such as size, shape, pattern or categories.
2. Sequence activities from simple to complex with time lapses to facilitate responding from language or cognitive processing delays. Increasing response time allowed has been shown to improve learning abilities of slow learners (Judd and Bilsky, 1989).
3. Verbalize and repeat the instructional links between concepts
4. Use meaningful and familiar, relevant materials.
5. Repeat, rehearse and drill often.
6. Employ and train mediational strategies.

Transfer of Learning

The learning abilities of individuals with Down syndrome can be improved through highly structured, meaningful activities that are analyzed and sequenced from simple to complex. However, transfer of learning, or generalization of the learned concepts to different situations, materials and environments is very difficult. Individuals with Down syndrome typically show deficiencies in the ability to apply old knowledge or skills to new tasks or places (Stephens, 1972). Such difficulties usually come from the inability to recognize similarities between problems and situations (Stevenson, 1972). For example, some students who have learned to add numbers in school, would not be able to compute simple addition in a shopping situation. These students would not associate the learning in the classroom to the store environment. Also, these individuals do not use previous experiences to help solve future problems (Robinson, and Robinson, 1976), which leads to the phenomena that teachers often report, that their students learn something one day but forget it the next.

Suggestions for Classroom Practice

1. Use meaningful materials and experiences, to cut down on novelty which could confuse the learner.
2. Teach concepts in a variety of different learning environments and with different people, pointing out similarities and differences between them.
3. Use frequent review and repetition.
4. Practice newly learned skills with different people, materials and environments.
5. Use both verbal explanations and performance activities.

Motivation

Students with Down syndrome often seem stubborn or "passive" and uninterested in learning, but this can be misleading! Even before schooling begins, children with Down syndrome have frequently experienced failure due to delays with developmental milestones such as walking and talking. They may have also experienced negative responses from other adults and children. Because slower learners have a history of lower performance levels, they sometimes devote their energy to avoiding another failure rather than striving for success. Slower learners also settle for smaller degrees of success than their potential or capabilities allow. Typical behaviors that can be expected of slower learners are: they learn to expect corrections or criticism and are not surprised; they react passively or impulsively by making stereotyped responses, such as select the first choice, or say "I don't know;" they avoid situations prone for failure by asking to go to the bathroom, or by cutting class; and they sometimes accept a lower level of success, such as doing one problem correctly, without striving for a higher grade.

Zigler (1973) has documented that some slower learners have a dependency on external cues (called "outer directedness" or "external locus of control") and work less independently. They also

attribute success or failure to outside cues (it was too noisy, the question was bad, I was lucky), and not themselves or their ability. If they experience constant correction and criticism, they may give up and wait for someone else to answer the problem or perform the task, a situation called "learned helplessness." Thus, individuals with Down syndrome will probably need much more encouragement and positive feedback than the average learner. They will also need an accepting environment in which they can feel free to make mistakes and attempt to become more independent. Self-monitoring of performance should be encouraged.

Suggestions for Classroom Practice

1. Assign tasks that are appropriate to developmental level and are well explained.
2. Create a success-oriented atmosphere.
3. Use attractive, meaningful, familiar materials.
4. Allow students to participate in developing the rules or the design of the lessons.
5. Provide external cues and rewards, then gradually fade them so the rewards become internally based, and the student remains motivated.
6. Discourage the students from constantly seeking help, and reward independence.
7. Encourage social rewards and becoming buddies with peers.
8. Use positive language like "try another way" or "think it through again," rather than "you're wrong."

Conclusion

Learning is a process whereby practice or experience produces a change in behavior that is not due to maturation. It is a hypothetical construct that is difficult to measure except by observing performance. Individuals with Down syndrome usually perform below average on tests of intelligence and are also inefficient learners (Bieme-Smith, Patton and Ittenbach, 1994). They do not learn spontaneously from their experiences and need new concepts to be clearly presented in a sequenced format. They have slow processing of verbal information and limited retention of new concepts and details. However, children with Down syndrome can benefit from education in regular classroom situations and do make academic gains. Their learning problems are a result of differing learning styles rather than learning impediments. Use of teaching methods that involve physical participation and visual cues or objects is very effective with learners with Down syndrome, and it is not very difficult for a teacher trained in these techniques to modify curriculum in this manner.

To summarize, the learning characteristics of children with Down syndrome are more similar to their regular education peers than they are different. However, language and motivational deficiencies may necessitate more highly structured, sequenced activities, with smaller bits of information presented at a time, and lots of rewards and praise built into the design of the lesson. Meaningful, familiar materials work the best, and adequate time should be allowed for processing a response.

Recommendations to Practitioners: Be Enthusiastic and Flexible

Inclusion is a very successful, acceptable option for most children with Down syndrome. Little difference, if any is noticeable in a class between the children with Down syndrome and their typical education peers as young children. They usually play and get along well with other children. Friendships are formed in the classroom situation and at recess. In this study there were few cases where expressive language differences and stubbornness were concerns, but this is also a common complaint for many children across all early childhood programs. (Smart and Smart, 1973).

In the lower and upper elementary grades, teacher concerns regarding inclusion can be separated into three areas: 1) speech and language difficulties; 2) getting information from reading; and 3) math ability and problem solving. The limited number of high school responses prevents any judgments or conclusions.

Speech and Language

Speech and language problems have been known to occur more frequently among individuals with Down syndrome (Macmillan, 1982). Most teachers report difficulties due to 1) articulation problems, and 2) limited semantic concepts. This is understandable when one considers the learning style and genetic nature of Down syndrome. Many children with Down syndrome have a protruding tongue which affects the clarity of speech. Tongue reduction surgery has received much support from parents (Lemperle, 1985; Obrisch, 1982), although many professionals do not find better articulation patterns in those children who have had the surgery (Parsons, Iacone and Rozner, 1987). Using contextual cues can help teachers to understand their students with Down syndrome, as well as asking the students to repeat what they say a little more slowly.

Children with Down syndrome also have frequent middle ear infections, which can cause conductive hearing losses that can result in delayed language and speech problems (Balkany, Downs, Jafek and Krajicek, 1979). Semantic concepts can also be delayed due to their focusing on auditory language sequences (actual words and sounds), rather than underlying semantic or conceptual aspects (meaning). This can eventually lead to frustration with language, and disruptive behavior (Abbeduto and Nuccio, 1991).

The implications for teachers is that care must be given to the way directions for activities are explained, or questions are asked (e.g. "circle the..., in front of the..), as students with Down syndrome may have delayed language concepts. Also, if a student is being disruptive, it could be because they are not processing the language of the lesson. Sometimes, using a visual aid can help to convey the concept.

Reading

Reading researchers have discussed the strong relationship between self-concept and reading achievement (Wattenberg, 1964; Thompson and Hartley, 1980; Cecil, 1990; Gillet and Temple, 1994). This is of particular concern for included students with Down syndrome, because there are implications that poor reading performance can be associated with slower social development. Therefore it is important for teachers to allow reading to sometimes be a social or fun activity. Reading is made up of several components which may be more difficult for the students who are educationally challenged: 1) sensory/perceptual (hearing the sounds, seeing the letters); 2) sequential (left to right, top to bottom on page; also grammar rules for meaning); 3) experiential (vocabulary, understanding of concepts); 4) learning/ association (linking what is read to real life situations; transfer and generalization of information); and 5) affective (reading for pleasure, attitudes and interests). Students with Down syndrome need help focusing their attention on reading activities, and sustaining their attention over a period of time. When teachers break the story down into smaller parts and give a purpose for reading each part, it helps to motivate the student (Reis, 1986). Individual pacing helps a student with mental retardation feel more accepted as part of the group. Also, frequent review and re-reading helps to facilitate comprehension.

Suggestions for Classroom Practice

1. Use previous experiences of students to select reading topics.
2. Teach vocabulary words in context and review frequently.
3. Provide a variety of experiences to encourage re-reading for practice, such as paired reading or role playing.
4. Encourage students to self-monitor their own reading and ask questions.
5. Ask students to sequence the events of the story.
6. Teach students to use contextual cues for comprehension.
7. Encourage writing or re-telling of the stories.
8. Have students predict expectations for what they read.
9. Use multiple choice questions to assess reading comprehension if writing is difficult for the child.

Math Skills

In order to better understand how children with Down syndrome learn math skills, it is helpful to separate them into the two areas: 1) arithmetic/computational skills, and 2) word problem solving/concepts

Arithmetic computation involves two distinct processes that entail different skills. When a student first learns how to perform an arithmetic skill, he/she learns the procedures for performing the operation, or computation. Once these skills are repeatedly practiced, the computation is stored in a memory network, and becomes part of that student's "declarative knowledge." The student with Down syndrome has great difficulty achieving the stage of declarative knowledge, and will often learn something only to forget it the next day. Sometimes a visual cue or "song" helps to prompt the computational memory. It is also helpful to allow the student with Down syndrome to use as many manipulatives or concrete activities as possible to physically perform or experience the computation. Peer tutoring and computer assisted instruction is also very helpful and motivating for the student. Some teachers also allow the use of calculators, although this has had mixed results with children with Down syndrome due to fine motor difficulties (Friedman, 1991).

The solution of arithmetic word problems is an area of great difficulty for many students with Down syndrome (Friedman, 1991; Judd and Bilsky, 1989; Narayanan, 1983). Solving word problems is made up of two abilities: 1) understanding what is being asked, and 2) selecting and implementing a solution strategy. The first ability is heavily dependent on language and math concepts linked to vocabulary. In order to help a student with Down syndrome, teachers should explain the language or the vocabulary of the problem first. Again, a visual aid or concrete manipulative may be helpful to give an example. Memory is also a factor in this ability, so it may be helpful to repeat the problem or allow enough time for language processing. The second ability relates to recognizing the type of problem being asked (addition, subtraction, multiplication, division), pulling out the relevant factors of the problem, and performing the correct operation for solution. As a final goal for a student with Down syndrome is community participation and independence, rehearsal and repetition of practical problems would be helpful to prepare the student for future real-life math skills. Again, since transfer and generalization of skill is also an issue, care should be taken to role play or to visit the exact environment in which the skill will have to be performed (e.g. restaurant, store). Teaching independence and self-monitoring of math computations and problem solving is also important. Peer tutoring and computer assisted instruction are enjoyable, motivating methods for practice.

Suggestions for Classroom Practice

1. Look at individual common error patterns to try and decipher concept deficiencies.
2. Practice skills continually for fluency and automaticity.
3. Make sure student has developmental pre-requisites: one-on-one correspondence, more or less, quantity and numeration precedes computational skill.
4. Encourage the students to learn different problem solving strategies, pointing out commonalities and differences in concepts.

5. Show and label common word problem solving formats that can cue certain operations, such as addition and subtraction (e.g. "all together," "fewer than").

6. Teach the child how to identify relevant and ignore extraneous information in math problems.

Concluding Remarks

Recent trends in education and attitudes have become more accepting of differently abled students. This study has shown that the inclusion of students with Down syndrome in typical education classes is a valid option for educational programming. However, much administrative support is needed to provide well planned transitions and training of personnel. Good communication among parents and a multitude of professionals is the key to success with inclusion.

The learning characteristics of students with Down syndrome are more similar to their regular education peers than they are different. However, language and motivational deficiencies may necessitate more highly structured, sequenced activities, with smaller bits of information presented at a time, and lots of rewards and praise built into the design of the lesson. Meaningful, familiar materials work best, and adequate time should be allowed for processing response.

Thank you to all of the teachers and parents who participated in this study. Many parents had concerns about the educational adjustments that were necessary for their children placed in the typical education classes, but maintained their enthusiasm and optimism. Parents reported that they often provided information about their child's special needs instead of the school district. They recommend that parents new to the inclusion process balance persistence in the search for the best educational program for their children with patience and assistance in times of difficulty. Also recommended was "Negotiating the Special Education Maze" (Anderson, W., Hayden, D. And Chitwood, S., 1990).

Almost all of the teachers reported that they enjoyed the experience of teaching included students with Down syndrome. Teachers found the students responsive and eager when given any kind of encouragement. There were reported differences in learning styles that necessitated some modifications, such as fewer questions, different expectations and simplified curriculum. One teacher stated, "The best advice I could give to any new inclusion teacher would be to keep calm, get all of the information you can about the student and be enthusiastic and flexible." Another teacher summed up her response by saying, "I found inclusion to be the single most interesting and rewarding experience of my teaching career. I would advise new inclusion teachers to make friends with the students and go with the flow." The general consensus among educators is that "inclusion is a lot of work, but definitely worth it."

Bibliography

[Abbeduto, L.](#), and J.B. Nuccio. "Relation between receptive language and cognitive maturity in persons with M.R." American Journal on Mental Retardation 96(1991): 143-149.

Balkany, T.J., et al. "Hearing loss in Down's Syndrome: A treatable handicap more common than generally recognized." *Clinical Pediatrics* 18 (1979): 116-118.

Baneiji, M., and R. Daily. "A study of the effects of an inclusion model on students with specific learning disabilities." *Journal of Learning Disabilities* 28.8 (1995): 511-522.

Baumeister, A.A., and P.H. Brooks. "Cognitive Deficits in Mental Retardation." *Handbook of Special Education*. Eds. J.M. Kauffman and D.P. Hallahan. Englewood Cliffs: Prentice-Hall, 1981. 87-107.

Bieme-Smith, M., J.R. Patton, and R. Ittenbach. *Mental Retardation*. New York: Macmillan, 1994.

Bray, N.W. "Strategy production in the retarded." *Handbook of Mental Deficiency: Psychological theory and research*. Ed. N.R. Ellis. Hillsdale: Erlbaum, 1979. 699-737.

Brown, A.L. "The role of strategic behavior in retardate memory." *International Review of Research in Mental Retardation* 7 (1974): 5-11.

Cecil, N.L. "Diffusing the trauma: An exit interview for remediated readers." *Journal for Affective Education* 10 (1990): 27-32.

Chalfant, J.C., and M.V. Pysh. "Teacher assistance teams: Five descriptive studies of 96 teams." *Remedial and Special Education* 19.6 (1989): 49-58.

Ellis, N.R. "Stimulus trace and behavioral inadequacy." *Handbook of Mental Deficiency*. Ed. N.R. Ellis. New York: McGraw Hill, 1963.

Friedman, L.W. "The effect of problem content, semantic category, and difficulty in the solution of arithmetic word problems by learners with and without mental retardation." Unpublished Diss. Columbia, 1991.

Fuchs, D., L.S. Fuchs, and M.W. Bahr. "Mainstream assistance teams. A scientific basis for the art of consultation." *Exceptional Children* 57 (1990): 128-12

Gillet, J.W., and C. Temple. *Understanding Reading Problems: Assessment and Instruction*, 4th ed. New York: Harper Collins, 1994.

Hasselbring, T., and L. Goin. "Use of Computers." *Best Practices in Mental Retardation*. Reston: Council for Exceptional Children, 1989.

Howell, K.W., R. Ruden, and R.B. Rutherford. "A procedure for teaching self-recording to moderately retarded students." *Psychology in the Schools* 20 (1983): 202-209.

Judd, T.P., and Bilsky, L.H. "Comprehension and memory in the solution of verbal arithmetic problems by mentally retarded and non-retarded individuals." *Journal of Educational Psychology* 81.40 (1989); 541-546.

Kirk, S., and J. Gallagher. *Educating Exceptional Children*, 4th ed. Boston: Houghton Mifflin Co., 1983.

Knackendoffel, E.A., et.al. *Collaborative Problem Solving*. Lawrence: Edge Enterprises, 1992.

Kneedler, R.D., and D.P. Hallahan. "Self-monitoring of on-task behavior with learning-disabled children: Current studies and directions." *Education Quarterly* 2.3 (1981): 73-82.

Lemperle, G. "Plastic Surgery." [Current Approaches to Down's Syndrome](#). Eds. D. Lane and B. Stratford. New York: Holt, Reinhart and Winston, 1985.

Lerner, J.W. *Children with Learning Disabilities: Theories, diagnosis and teaching strategies*. Boston: Houghton-Mifflin, 1971.

Mental Retardation in School and Society. Boston: Little Brown, 1982.

Narayanan, K. "Sources and order of difficulty in word problem solving in EMR and nonretarded individuals." Unpublished Diss. Columbia U, 1983.

Olbrisch, R.R. "[Plastic surgical management of children with Down's Syndrome](#)." *British Journal of Plastic Surgery* 35 (1982): 195-200.

Owens, R. *Organizational Behavior in Education*. Englewood Cliffs: Prentice Hall, 1981.

Parsons, C.L., T.A. Iacone, and L. Rozner. "[Effect of tongue reduction on articulation in children with Down's Syndrome](#)." *American Journal of Mental Deficiency* 91 (1987): 328-332.

Piaget, J. *The Origins of Intelligence in Children*. New York: International Universities Press, 1977.

Reis, E.M. "Advance organizers and listening comprehension in retarded and non-retarded individuals." *Education and Training of the Mentally Retarded* 81.40 (1986) 541-546.

Robinson, N.K., and H.B. Robinson. *The Mentally Retarded Child*, 2nd ed. New York: McGraw Hill, 1976.

Salisbury, C.L., et al. "Strategies that promote social relations among elementary students with and without severe disabilities in inclusive schools." *Exceptional Children* 62.2 (1995): 125-137.

Smart, M.S., and R.C. Smart. *Preschool Children: Development and Relationships*. New York: Macmillan, 1973.

Spitz, H.H. "The role of input organization in the learning and memory of mental retardates." *International Review of Research in Mental Retardation* 2 (1966): 29-56.

Stainback, S., and W. Stainback. *Curricular Considerations in Inclusive Classroom: Facilitating Learning for all Students*. Baltimore: Brookes Publishing, 1992.

Stevenson, H.W. *Children's Learning*. Englewood Cliffs: Prentice Hall, 1972.

Stogdill, R.M. *Handbook of Leadership: A Survey of Theory and Research*. New York: The Free Press, 1974.

Thomson, M.E., and G.M. Hartley. "Self-concept in dyslexic children." *Academic Therapy* 16 (1980): 19-36.

Wattenberg, W.W. "Relation of self-concepts to beginning achievement in reading." *Child Development* 35 (1964): 461-467.

Westling, D. *Introduction to Mental Retardation*. Englewood Cliffs: Prentice Hall, 1986.

Zeaman, D., and B.J. House. "The role of attention in retardate discrimination learning." *Handbook of Mental Deficiency: Psychological Theory and Research*. Ed. N.R. Ellis. Hillsdale: Erlbaum, 1963. 159-223.

— "A review of attention theory." *Handbook of Mental Deficiency: Psychological Theory and Research*, 2nd ed. Ed. N.R. Ellis. Hillsdale: Erlbaum, 1979. 63-120.

Resources

Down Syndrome Association of Minnesota
668 Transfer Road
St. Paul, MN 55114
800-511-3696; 651-603-0720

www.dsamn.org

dsamn@dsamn.org

National Down Syndrome Society

www.ndss.org

National Down Syndrome Congress

www.ndscenter.org

We are deeply appreciative of the following organizations for portions of this text:

Down Syndrome Association of Greater Cincinnati

National Down Syndrome Society

Down Syndrome InfoSource, Inc.

PREP Program

Recommended Books and Resources for Educators

Teaching Math to People with Down Syndrome and Other Hands-On Learners
(Basic Survival Skills)_by DeAnna Horstmeier, Woodbine House

Classroom Language Skills for Children with Down Syndrome: A Guide for Parents and Teachers By Libby Kumin, Woodbine House

Teaching Reading To Children with Down Syndrome: A Guide for Parents and Teachers by Patricia Logan Oelwein, Woodbine House

Children With Down Syndrome: A Guide for Teachers and Learning Support Assistants in Mainstream Primary and Secondary Schools by Stephanie Lorenz, David Fulton Publishers, London, England

Fine Motor Skills in Children with Down Syndrome, Maryanne Bruni, Woodbine House

Down Syndrome Issues and Information, Sue Buckley, The Down Syndrome Educational Trust

Inclusion: 450 Strategies for Success, Peggy Hammeken, Peytral Publications

Visual Strategies for Improving Communication, Linda Hodgdon, QuirkRoberts Publishing

Early Communication Skills for Children with Down Syndrome, Libby Kumin, Woodbine House

The Down Syndrome Nutrition Handbook, Joan Medlen, Woodbine House

Handwriting without Tears Teacher's Guide, Jan Olsen, www.hwtears.com

Effective Teaching Strategies for Successful Inclusion - A Focus on Down Syndrome, Barbara Tien, The PREP Program

Gross Motors Skills in Children with Down Syndrome, Patricia Winders, Woodbine House