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NRC/GT Revisits Grouping Beliefs and Practices

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It is hard to believe that over a decade ago there were numerous debates about how to orchestrate students' learning experiences. The debates started as educators and researchers questioned classroom practices that limited students' progress or separated students into learning groups. Making decisions about students' current abilities and future potentials is difficult at best. Students' performances may not look like or sound like prior expectations. Does that mean that performance expectations based on student observations in the learning environment are incorrect? Does it mean that students' motivation influences performance in such a way that expectations are not always accurate? These types of questions should always be part of any discussions about how to organize large or small groups for instructional purposes.

Sometimes, test performance was used to divide a classroom of students into one or more groups by content area or across content areas. Decisions may have been informed or arbitrary. If test performance was the only criterion, the placement may not have been appropriate. Other times, detailed information about students' past and current educational performance was considered carefully and subgroups of students were formed for specific learning purposes. As educators, we are trained to recognize and understand individual differences such as the following:

- prior knowledge or skill expertise
- learning rate
- cognitive ability
- learning style preference
- motivation, attitude, and effort
- interest, strength, or talent (Burns et al., 2002)

Should these characteristics of students be part of any decision-making about grouping students for instructional purposes? The following three scenarios illustrate how students' academic needs can be met:

Scenario 1: Prior Knowledge or Skills Expertise

Asking questions about students' prior knowledge or expertise about a specific topic provides a wealth of information. Students' familiarity with a topic varies considerably. Have you tried to assess students' knowledge before you begin a new unit? K-L-W charts are a quick check of what students already *know*, what they would like to *learn*, and in what *ways* they can illustrate their learning and understanding. Students who are just starting a geology unit may be asked to respond to questions about rock formations, topographical changes due to earthquakes, or origins of predominant minerals in the local area. Completed K-L-W charts can be checked for breadth, depth, and accuracy of knowledge and understanding and provide direction for the unit. Some students will need basic information and others will be ready for advanced topics.

(continued on page 2)

Inside

Exploring the Conflicts Involved With Ability Grouping 3
Tailoring Instructional Groups 8
Co-teaching in a Differentiated Classroom 12

(continued from page 1)
One grade 5 student was a rock hound. Sara's collection was gathered from family vacations. She carefully organized all of her treasures in boxes with appropriate labels about origins and locations. When she realized that we were starting a unit on geology, she wanted to share her treasures with others. She met with small groups of students and talked about her interest in geology. Her enthusiasm encouraged others to start their own local collections. Groups of students starting forming based on their specific geology interests. Membership in the groups changed, depending on students' prior knowledge and developing levels of expertise.

Scenario 2: Learning Rate

Learning rate varies for each individual within and across content areas. Darren loved to read about astronomy and could not wait to find a new book or article that would unveil information about our universe, especially when more sophisticated tools probed distant planets and stars. He consumed astronomy books and mastered the content rapidly. It would not be possible or even appropriate to have this young person sit in a class focusing on the basics of the nine planets and their distances from the sun. How could this student be challenged in astronomy? One challenge was the opportunity to work with a local mentor who built his own telescopes and photographed the planets and stars. Astronomy as a topic of interest became Darren's passion. He was so excited about the possibility that he, too, could build a telescope that he convinced several students to help with the process. This group of students read advanced books on how-to build telescopes and how-to photograph constellations. Their knowledge of astronomy became quite extensive.

Scenario 3: Motivation, Attitude, and Effort

Motivation, attitude, and effort are attributes that really influence student productivity. Most people realize that connecting students with content makes them want to learn. Learning takes on new directions as student engagement increases. A small group of students developed an interest in architecture after they attended a presentation by a guest speaker who had just completed a design for a local museum to house artifacts from the town's history. The architect entered his design into competition and was selected as the top designer by all judges. He contacted his children's school and asked if he could share his drawings and models with students. What a great opportunity for about 50 students! All were very attentive during his presentation, but a few were clearly responding in a different way. He organized students into small groups and gave them drawing paper, pencils, balsa wood, and glue. He asked them to think about creating a small building that would be erected near his museum and serve as a visitors' information center. He encouraged students to sketch their ideas, share them with others, provide feedback, and then create a final drawing. Students worked quickly and could hardly wait to start building models. One group of students hovered over several drawings and checked in with everyone for feedback and then made revisions. They started building, but soon realized that they really needed extended time to complete their visitors' center. They left the presentation with a commitment to keep working and checked in with their math teachers to see if they could use some of their class time to finish their projects. The teachers agreed and met with them to ensure they would apply some of the mathematical concepts they were currently learning about scale drawings and models.

Many educators have experienced similar learning events with the students and discussions about how they addressed students' academic needs would be very productive.

Recently, three educators questioned grouping beliefs and practices and wanted to learn more about historical and contemporary perspectives. Their reflections and comments are the focus of this issue of *The National Research Center on the Gifted and Talented Newsletter*. Valerie Pare, Elizabeth Fogarty, and Gina Masso started their search for more information on separate paths. Valerie gathered information about past practices, analyzed terminology associated with dividing students into various groups based on preset criteria, studied varied practices, and then related it to her own experiences as a student teacher. Elizabeth Fogarty studied the learning profiles of her students and recognized that 4 students displayed various strengths that required curricular options. Her years of experience as a classroom teacher and advanced-level coursework helped her to understand the strengths and abilities of all of her students and provided her with knowledge, resources, and tools to address students' academic diversity. Gina Masso spent 1 year in an internship focusing on collaborative teaching in mathematics.

(continued on page 15)

Exploring the Conflicts Involved With Ability Grouping

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Introduction

Most everyone has a special talent that sets him or her apart from everyone else. Some people are phenomenal musicians, mechanics, artists, athletes, or chefs, while others may be phenomenal mathematicians, scientists, writers, or historians. Each of these specialized skills requires a certain degree of innate ability, a certain degree of training, along with a willingness and desire to excel at that skill. An expert musician or an expert mathematician will not benefit from instruction designed for a beginner, nor will a beginner benefit from instruction designed for an expert. Instructors in any of the above-mentioned areas must recognize the level of mastery that their students already possess and be able to create an instructional regimen accordingly.

As Walberg (1989) indicates, "Teaching students what they already know or are as yet incapable of knowing wastes effort" (as cited in Fiedler, Lange, & Winebrenner, 1992, p. 7). Therefore, classroom teachers are responsible for finding ways to teach material in a manner that reaches a diverse set of students effectively and productively. Tracking and ability-grouped classes are designed to account for these differences by matching a student's needs with appropriate instruction. As uncontroversial as that statement may seem, many difficulties arise during its implementation. Creating a classroom

among a teacher's greatest challenges. Even after many generations of research, researchers still struggle to agree on the most effective way to create academically and socially productive environments for students. Ability grouping and tracking have been both advocated and protested over the past 100 or more years, since their benefits and harms are still predominantly unclear.

It is important to take a comprehensive look at both the detrimental and beneficial effects that ability grouping and tracking can have, since "the last thing any educator wants to do is to be responsible for educational decisions that are harmful to anyone" (Fiedler, Lange, & Winebrenner, 1992, p. 3). Ability level classes and tracking have become so frequent within American classrooms today that educators have grown dependent on them. As a result, we must also examine and research alternative methods of dealing with students' diverse needs.

Historical Bases for Ability Grouping

It is plausible to assume that early civilizations recognized that particular members within their society possessed talents or abilities that surpassed the majority. In many civilizations, these individuals were given special opportunities or were offered training that others were not. Distinguishing the most talented individuals (whether that talent involves music, art, intellect, athleticism, or strength) and pulling them aside for specified training, is one form of ability grouping (Shermis, 1994). Gifted education and specialization programs, in this sense, have been around for centuries. According to Shermis, it was in the best interest of these beginning civilizations to identify and provide special training to those members of their society who had the promise of becoming priests, soldiers, or rulers. In some instances in history, educational opportunities were offered exclusively to the upper class. Many people assumed that ability was related to wealth and social status. Therefore, in many societies, higher education was not available to anyone demonstrating potential, but only to those within the upper realm of society.

There was not great concern for distinguishing ability or offering differentiated education for children of early America. Schooling during this time became available and mandatory for all children, and particular ability considerations were not the priority (Davis & Rimm, 1994). Ability grouping within the public education system was not regularly implemented until the mental testing movement of the early 1900's. Alfred Binet produced an instrument that was created to identify below-average students who required an alternative form of education. However, this instrument was later used to also distinguish normal, above-average, and exceptional children (Davis & Rimm). Kulik (1992) states that many teachers in the 1920's recognized that they needed to meet the needs of a diverse set of

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students and that "no solution seemed more appealing than grouping together for instruction students who were similar in ability" (p. 5). Mental testing began to make this solution possible and many educators welcomed classifying students according to their performance on such tests.

Although mental testing was frequently questioned in the years to come for its accuracy, ability grouping was still relatively undisputed up until Dewey expressed his belief that grouping schemes were essentially insufficient (Kulik, 1992). Dewey's argument involves a description of multiple intelligences and a realization that one's ability in arithmetic computation does not necessarily correspond with one's ability in reading comprehension. Ability-grouped classes became less commonplace throughout the years that followed since teachers and researchers learned that children were too unpredictable and too inconsistent for grouping to work effectively (Kulik). Burr (1931) and Keliher (1931) conducted many studies that came to these conclusions and highly influenced mainstream opinions during the 1930's. And thus, interest and practice in ability grouping began to decline.

During the 1950's, American education became the focus of much scrutiny, primarily because of American competition with Russia, where Russian technological advances and abilities seemed to surpass our own. As a result, government officials began to offer their support in the implementation of special opportunities to foster the needs of intellectually talented students (Kulik, 1992). The focus of school systems seemed to be geared towards these students alone, and gifted students were not merely separated from their peers, their curriculum was adjusted to meet their demanding needs and potentials.

Kulik notes that the first major movement away from these specialized programs for gifted and talented students occurred during the civil rights movements of the 1960's. During this time, equity became a major theme in American schools. For the first time, educators and civil rights activists were looking at the disadvantaged student, not the student of average or high ability. Many educators wanted to ensure that no student was overlooked and that every student was given a fair amount of educational opportunities. This goal was difficult to implement, since every student requires a different degree of instruction and benefits from a different set of opportunities. Clearly, we can conclude from this back and forth attitude over ability grouping that our ever-changing society results in our ever-changing attitude over its benefits and/or potential damages.

Common Models of Ability Grouping

Ability grouping is more than a one-dimensional program when implemented in educational systems. There are many different levels and intensities of ability grouping, and many different ways to separate students who are perceived to have different abilities. Kulik (1992) distinguishes five different grouping plans that in certain school systems are used either independently or simultaneously.

- XYZ classes: This grouping plan divides a single grade into several different abilities for a particular subject and each ability level is instructed in a separate classroom.
- Cross-Grade Grouping: This model takes students of the same ability across several grades and groups them together. In this setting, students are taught exclusively with peers of a similar ability.
- Intra-class Grouping: In this model, each classroom includes students with a wide range of abilities. In general, there is whole-group instruction when appropriate and small-group instruction when ability differences need to be taken into consideration. Within these classes, teachers form ability groups and offer separate instruction to each group when necessary while students of different abilities work on separate, ability-appropriate assignments.
- Advanced Placement and Accelerated Classes: The fourth grouping plan refers exclusively to the instruction of gifted and talented students. In this plan, most classes include students of high, average, and low ability. However, it provides specialized instruction and accelerated classes for students with extremely high aptitudes in specific subject areas.
- Enrichment Programs: The final grouping plan refers to only those who are gifted and provides more varied and richer experiences than those that are offered in the regular classroom.

The first time the XYZ approach was used to divide students by ability, the top 20%, the middle 60%, and the bottom 20% had their own classes. Students could move from one classification to another based on the teacher's perception of whether each student seemed to belong among his/her peers. In this initial effort to implement ability grouping, no adjustment of curriculum or of instructional methods was made. The major purpose of this grouping was to reduce ability variation in each classroom to make things easier for the instructor. Few school systems used grouping as an opportunity for students to be exposed to different curriculum that adequately aligned to their needs. Eventually, XYZ classes did evolve to the point where the groups of students with successively higher abilities received more extensive work. This type of ability grouping gives teachers the opportunity to present a differentiated curriculum that is suitable and challenging for each ability level.

XYZ classes and cross-grade grouping are both typically associated with the term tracking. Within these structures, there are generally three different types of classes for students: college preparatory, general, and vocational (Lush, 1994). The college preparatory track includes students who anticipate attending college and whose parents and teachers expect them to. The academic demands for this track are typically quite high and often contain Advanced Placement or college-credit opportunities. Students in the general track are encouraged to try their best and may also be encouraged to consider post-secondary schools and colleges. And finally, the vocational track is for students who may not choose to further their academic education after high school. Students in this track may join the work force directly out of high school.

Intra-class grouping is perhaps the most widely accepted form of ability grouping that exists within the above-mentioned systems. Several concerns are addressed in this plan: first, students of all abilities have the same instructor, thus leveling what some believe is an unfair advantage to higher ability students; second, it addresses the fact that certain students have exceptional capabilities, thus it provides the opportunity for enrichment opportunities; and third, students who are struggling have the opportunity to express their questions in a less intimidating environment. In an intra-class grouping environment, teachers present a lesson to some of the subgroups, while the remaining subgroups work on other projects or assignments (Kulik). While this is the philosophy of intra-class grouping, and in theory there seems to be worlds of potential, there is no complete analysis of techniques that would make such a system work. In practice, this form of ability grouping calls for differentiated instruction, which would hopefully challenge each student appropriately. When this within-class grouping was practiced in a mathematics education research study of 8 separate classrooms, Kulik found that the effects were either positive or not significant. Thus, the study did not find that there were any adverse effects to the intra-class grouping technique, and therefore, that it was a worthwhile practice.

Self Perceptions That Result From Grouping Practices

In adolescent years, self-esteem will always be challenged, no matter the circumstances. Society worries that intellectually gifted students cause the average and below average students to make "such day-after-day comparisons that can devastate self-concepts and devitalize children" (Davis & Rimm, 1994, pp. 11-12). It is difficult for school systems to know how to respond to society's growing concern. If a school system pulls these students out of regular classrooms and offers them programs to nurture their intellectual capabilities, people think it is giving the students who are not included a negative feeling of self-worth. They worry that providing the intellectually gifted students with opportunities not made available to the regular population will make them feel unimportant and undeserving.

If this is a legitimate concern, then one would expect there to be similar concerns and outrage when students with non-academic talents are offered special enrichment opportunities. However, this is not the case. People tend to view special opportunities for these students (i.e., students with a remarkable ability in the arts or in sports) to be necessary for their development (Davis & Rimm). These opportunities probably have a similar effect on the population of students who can be made to feel unimportant and undeserving because they were not offered special enrichment in these areas. However, there only seems to be hostility when special programs cause students to feel intellectually inferior (as opposed to musically or artistically inferior) to their peers.

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It seems that the findings regarding how ability grouping situations influence a student's self-esteem are slightly ambiguous. On the one hand, the research previously discussed mentions that ability grouping and tracking systems force (almost always negative) labels onto students. For instance, Merina (1993) implies that students in a low-end classroom setting will, as a result of being distinguished as being of low ability, see themselves as untalented and unintelligent. Clearly, this reflects a poor self-image. When a student determines that he/she is labeled, it may limit his/her potential and performance. Unfortunately, labels are difficult to break and even more difficult to avoid all together. Supporters of the de-tracking movement seem to think that the elimination of tracking will result in the elimination of labeling. Even if tracking were replaced with heterogeneous classes, students would probably still feel the presence of a label by their teachers and peers. The only difference is that this label would not necessarily be determined by the class schedule, but rather by each student's performance and reputation or according to some other means. Regardless of how classrooms are constructed, labeling, will always exist, and subsequently self-esteem may always suffer.

What are other self-image concerns that can result from heterogeneous classrooms for the lower ability student? Hallihan (2000) asserts that there can in fact be damaging effects when students are challenged beyond their ability. She references research that shows that an intimidating environment can lead to "a loss of self-confidence [and a] fear of failure" (p. 26) that will be detrimental to any child's learning. In addition, Kulik (1992) references many studies where the research also reflects that without ability grouping students' self-esteem can still be lowered or destroyed. When students see themselves struggling more than the rest of their peers, they will be too intimidated to ask questions or seek the educational assistance that they may require. These students may not feel as though their gifted or more abled peers value their opinions and contributions in class. Student involvement in the classroom is critical for meaningful student learning. Many argue that students who do not express their misunderstandings and confusions to their teachers and peers will not benefit from the classroom experience. If a student believes he/she lags too far behind peers, he/she may be hesitant to ask for clarification or to ask for more time to complete an in-class activity. Without being able to express individual needs in the classroom, students may lose motivation to achieve.

Intuitively, students of high-perceived ability have an improved sense of self-esteem when placed in heterogeneous classes as opposed to homogeneous higher level ones. These findings are a result of a 1992 analysis by Kulik, which compiled data from 13 different research studies that measured self-esteem in students of ability separated classrooms. Self-esteem was measured through a series of self-acceptance and self-perception surveys. High ability students who are in a classroom of mixed-ability peers have gained the perception that all levels of learning come easily to them. They tend not to encounter many difficult learning struggles and have the confidence to contribute to classroom discussions. When these students are placed in classrooms where they are exposed to higher-level material and are among peers who are of similar ability, they lose some of their confidence. It is not necessarily a bad thing for these students to struggle in the learning process understand that learning does not always come so easily. However, it is still necessary to notice that there are self-esteem problems to consider with grouping practices and the intellectually gifted.

Ideally, educators would implement programs that promote self-confidence, high self-esteem, and a positive self-image. However, it seems that all structures of classrooms whether they distinguish ability or not, may give reason for a student to feel poorly about him/herself. According to Kulik's (1992) findings, he concludes that the effects on self-esteem have a leveling effect, and no one program is really any more detrimental than any other program in producing negative self-concepts. It is difficult to claim that a student has a negative self-image because of a grouping practice, since many circumstances can cause the same insecurities.

Effects on Achievement

The ideology behind ability grouping is to raise the achievement level of all students by creating an environment that is most suitable to fit their needs. It is important to determine whether the goals of grouping are in fact being met. To understand the effects of ability grouping on achievement, the impact on overall achievement must be addressed. Gamoran's (1990) study of ability grouping in the eighth and ninth grades for both English and History

classes determined that overall achievement was not affected by grouping. More specifically, ability grouping prompted higher ability groups to learn more and lower ability students to learn less. In essence, the improvement in achievement for the higher ability groups was canceled out by the decline in achievement for the lower ability students. This seems to be the trend in most studies done on how achievement is affected by grouping practices; the highly able students benefit while the less able students suffer.

Kulik agrees that the most profound and positive outcomes that ability grouping creates are on the high aptitude students, in all ability grouping systems. Enriched and accelerated classes for gifted students raise their achievement and broaden their experiences in school. Kulik concludes that enrichment classes advance students' achievement and have many other benefits. For instance, highly able students are granted the opportunity to be exposed to material that moves beyond what is measured on standard achievement tests or that is offered in statewide curriculum. Such material is valuable and inspirational for students, even if its effects on achievement are not easily measured.

Discussion

Those in favor of eliminating ability grouping, which would include many gifted education programs, worry that the mere practice of identifying intellectually gifted students is, in itself, elitist (Shermis, 1994). People ask, "[W]hy give 'gifts' to the gifted," (Schwartz, 1994, p. 2) when they already have advantages over their peers? Today's society is so concerned with fairness and equity in education systems that any specialized program is being attacked (Sykes, 1995). As a result, mixed-ability classrooms are replacing all forms of differentiated classroom structures, including gifted education programs in certain school districts.

Intellectually gifted and sometimes just intellectually motivated students are often the objects of ridicule within society. The "My Kid Beat Up Your Honor Student" bumper sticker phenomenon summarizes some people's perception of the gifted student (Sykes). Essentially, this perception is that distinguishing and showing pride in academic arenas is arrogant and conceited. Among such a culture of ridicule, many people in society do not like the idea of smart students receiving what some may argue is a richer education (even if they are more capable of receiving one). Society is so worried that the school system is promoting elitism that it wants all students to receive the same curriculum at the same time. With this perception in mind, ability grouping is being challenged. Some people fear that separating the most intelligent of students into their own classroom harms the average and below-average student, and should therefore be abolished.

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Tailoring Instructional Groups: Alterations to Fit Differentiated Reading Curriculum

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> The most extraordinary thing about a really good teacher is that he or she transcends accepted educational methods.
>
> -Margaret Mead

Marcus was a talented reader who came to fifth grade with a love of learning. He particularly enjoyed learning about dinosaurs and the solar system and outside of school his work consisted of putting together models of dinosaurs and traveling to museums. He also enjoyed researching the solar system on the Internet, in magazines, and in college level texts.

Kara had a passion, too; hers was writing. Kara also had a talent for reading and was working on a novel that she intended to illustrate and publish. Occasionally she brought the novel to school to show friends.

Andy was a developing reader who had recently seen the movie *The Fellowship of the Ring*. He intended to read the entire J. R. R. Tolkien trilogy, just as he had read determinedly the first four Harry Potter books. However, Andy had been a struggling reader since first grade when he had been held back.

Allie was a typical fifth grade reader, who usually preferred not to read. At the beginning of the school year, she frankly admitted her disinterest in reading. Although she was not defiant, Allie was certainly not a motivated reader.

I taught fifth grade reading to a class of 24 students that included Marcus, Allie, Andy, and Kara, whose reading abilities spanned eight grade levels. These students and other students of varying ability and motivation comprised a class of readers as unique from one another as they were similar. This scenario is the rule, rather than the exception, for today's teachers.

Students come to school in various stages of the learning process. Some have had many opportunities to develop as readers, mathematicians, or scientists through exposure to books and other resources by caring adults. Others bring gifts and talents beyond those of their classmates that need to be nurtured. Some bring a motivation and passion for learning. Others may have learning disabilities or an inability to pay attention. Because students do not enter school with equal achievement abilities, educators must treat each student as a unique, individual case and attempt to appropriately meet his/her learning needs. To do so, educators must provide instruction that will challenge students, rather than frustrate or bore them.

Instructional grouping is a tool that tailors instruction to the unique learning needs of students, allowing teachers flexibility in altering the content and the level of difficulty of the material they teach their students.

A Controversial History

Instructional grouping has been a teaching tool for many years, probably originating by necessity in one room schoolhouses. Even in today's modern classrooms, it continues to be used to meet the varied learning needs of students. This tool has, however, been a source of controversy for several decades in the education field. In 1985, Jeannie Oakes wrote *Keeping Track: How Schools Structure Inequality*, a critical analysis of one form of grouping called tracking. Tracking is the rigid placement of students in instructional groups for assignment to classes based on standardized test scores (Rogers, 2002). The inflexible nature of this type of grouping can pigeon-hole students as either good or poor based on class assignment; which may lead to negative self-esteem. Oakes' study found that the students in a "higher track" typically received instruction that was of a much higher quality than those students in the "lower tracks," even alleging that the practice promoted racism and elitism. Of particular interest, however, is that gifted students were found in all track levels (Rogers, 2002).

The effects of Oakes' study were so far-reaching that all types of instructional grouping came under scrutiny by teachers and administrators. Often,

grouping was abandoned by well-meaning teachers who had been scared away by the controversy surrounding Oakes' study. They believed that all forms of instructional grouping were equivalent to the structure and effects of tracking. Although a considerable amount of research has been published on instructional grouping, few researchers have been able to adequately encompass all of the variables of grouping to produce quality research studies.

Often, only part of the picture has been included and very important factors have been left out. In Robert Slavin's 1986, 1987, and 1988 studies, for example, he asserts that instructional grouping and differentiation for gifted or special education students were ineffective. However, Slavin's 1986 research did not include gifted students in the sample studied. Furthermore, his 1988 research was not a best-evidence synthesis as the 1986 study had been, but was a narrative review in which he concluded that programs for the gifted were ineffective (Allan, 1991). Schools have, however, used Slavin's research to determine programming options for gifted and special education students in elementary schools without closely examining the data.

Another study by Moody, Vaughn, and Schumm (1997) examined views of special and general education teachers on instructional grouping for reading. This study found that general education teachers primarily tended to use whole-group instruction, while special education teachers used homogeneous grouping. This tendency to use whole-group instruction primarily seems to be in response to the studies condemning ability grouping. Whole-group instruction does not have a greater benefit for gifted students than ability grouped instruction, however, and studies show that gifted students should spend part of their day with like-ability peers (Kulik & Kulik, 1991; Rogers, 1991). Although both groups of teachers believe that grouping decisions should ultimately be left to the teachers, the general education teachers felt that these decisions were commonly dictated by the administration.

Flexible Grouping

Educators and administrators need to realize that instructional grouping is not an inherently flawed practice. Flexible grouping arrangements, for example, allow teachers to make membership changes to accommodate student readiness, learning styles, and interests, while balancing social needs (Rogers, 1991; Unsworth, 1984). Unsworth lists several guidelines for the use of flexible grouping.

1. There are no permanent groups.
2. Groups are periodically created, modified, or disbanded to meet new needs as they arise.
3. At times there is only one group consisting of all pupils.
4. Groups vary in size from 2 or 3 to 9 or 10 depending on the group's purpose.
5. Group membership is not fixed; it varies according to needs and purposes. (p. 300)

Also, it is what happens in *concordance* with grouping that determines its effectiveness. When thoughtful, *flexible* grouping arrangements are used along with appropriately differentiated instruction, for example, instructional grouping is beneficial for students (Renzulli, 1994; Tomlinson, 1999; Westberg & Archambault, 1995).

Differentiation is a form of flexible grouping. Teachers modify methods and/or materials when teaching to meet the needs of learners at varying levels of readiness. Recently, differentiation has gained popularity as teachers receive more training and researchers show its effectiveness. Practitioners of differentiation acknowledge that students come to the classroom with varied learning needs. Like a tailor, these teachers work to fit their instruction to the sizes and styles of their students. Teachers have learned that a few alterations to a one-size-fits-all curriculum result in a better fit for more students. By "hemming" the curriculum, for example, I could modify tasks to make them more manageable for Andy. On the other hand, the curriculum can also be "hemmed" through curriculum compacting for a learner of high ability like Marcus. In Kara's situation, I could adjust the curriculum to "let out the waist" and leave a little breathing room to implement more choice in the day. A little "mending" of book choices even helped Allie choose books that she enjoyed.

Teachers have also learned that differentiation takes a considerable amount of time to do correctly. Some teachers may shy away from differentiation because of this. Effective use of flexible grouping, however, can make time spent differentiating more practical when instruction is delivered to several students in a group.

(continued on page 10)

(continued from page 9)

Using Flexible Grouping to Teach Readers

Instructional grouping in reading is not a new concept to teachers, but today's flexible grouping arrangements are more varied than the ability-grouped arrangements of years past. There are three main purposes for grouping in reading: to increase reading skills, to increase content-area knowledge, and to increase enjoyment of reading. Teachers have the responsibility of developing these three facets of readers and can effectively do so using flexible grouping.

Increasing Reading Skills

I used several types of assessments to determine the reading skill level of my students. I used reading response records to determine readers' fluency. I also used the Accelerated Reader STAR test to determine comprehension levels. On the basis of these assessments, I learned that there was a span of reading levels from the fourth through twelfth grade. With so many students reading beyond grade level, differentiation would be the only way to accommodate all learners in the class.

I was particularly concerned about the students reading above a sixth grade level because the grade level curriculum would not provide an adequate challenge for them. Therefore, at the beginning of every unit, I offered students the opportunity to take a pretest on the content of the unit to demonstrate their prior knowledge. It was made clear to the students that if they demonstrated mastery of content on the pretest, then they would be excused from lessons involving that material during the unit of study. Intensive study on a topic of interest would replace the time that would have been spent in class.

Marcus and Kara were eager to demonstrate their prior knowledge of the content. They were motivated by the fact that they would have the opportunity to work on a project of interest to them. Other students also took advantage of the opportunity to demonstrate their knowledge of the content, with the incentive of getting out of instruction time. Allie, who had never shown much interest during reading class, was one of these students.

The decision to offer pretesting as an optional activity rather than a requirement was purposeful and done for several reasons. I assumed that high-ability students would want the opportunity to demonstrate their prior knowledge of the content area and be compacted out of lessons that would be otherwise redundant. I also assumed that optional pretesting might demonstrate which students would be likely to take responsibility for their learning and which might not. My third contention was that the pretest material would be difficult for students without prior knowledge of the subject matter, and may lead to unnecessary frustration and unpleasurable association with reading.

I noted that the high ability students almost always opted to take the pretest. Sometimes, however, a high ability student opted not to take the pretest. In these cases, I asked the student individually if he or she was sure about not taking the pretest. Once in a while the student changed his or her mind. In other cases, the individual maintained his or her position. In these instances, the students' decision not to take the pretest demonstrated a very important message for me; for some reason, this student was demonstrating a reluctance to put forth effort.

By making the pretest for each unit the student's choice, I placed the onus of learning responsibility on the student. In one case, Connor, a capable student, opted not to take the pretest. When Connor's classmates were excused from lessons on previously learned material, he began to see the benefits of compacting. Connor indicated that he would like to take the pretest for the next unit. In this way, I enabled Connor to assume responsibility for his own learning. Perhaps this element of responsibility and choice can help alleviate underachievement in learners.

Once students had taken the unit pretest, the teacher was able to discern what each student knew. Those who did exceptionally well (90% and above) were able to compact out of the posttest and use their pretest grade as their final grade. If there were any concepts they had seemed to have completely missed, they were asked to join the class for that lesson, but were usually excused from skill practice. Students with a moderate mastery over the content were excused from selected lessons, but attended those on topics they had not yet mastered.

Grouping arrangements were formed based on the strengths and weaknesses of the students, as evidenced by the pretest. The group working with the teacher changed daily according to the students'

prior knowledge. Some days the group was small, comprising only a few students. The smaller group size meant the teacher could spend more time with the students who had little prior knowledge or needed reinforcement on the topic being presented. On days when a new skill or concept was presented, the group was larger because more students were being introduced to a new skill.

Guided reading, the practice of grouping 3 to 8 readers together for small-group reading instruction, was another way I accommodated all of the reading needs in the classroom (Fountas & Pinnell, 2001). Group membership was flexible to allow for changes in students' reading progress. In this format, students read text targeted toward their zone of proximal development. Although text selection was not the same for all students in the classroom, all students engaged in meaningful reading experiences at their current instructional level.

Increasing Content-area Knowledge

Teachers also develop a knowledge base about their students during reading class. Thematic study is one method that has been used to increase students' understanding of a topic; particularly in the areas of science and social studies. I incorporated novels into a thematic study of Native American culture. Because the students in my classroom were readers of such diverse ability levels, I needed to offer a variety of literature choices. I decided on four books that had all been written by Native American authors, an important factor in my choice. The books represented variety in both difficulty and interest. I helped the students choose their groups based on their reading levels and interest. Each group was responsible for reading its novel, as well as gleaning information from the story about the lives of Native Americans. After reading, all students participated in a discussion on Native American culture. Although they had read different novels, all students were able to participate in the discussion, sharing specific information from their novel.

Increasing Reading Enjoyment

A positive association with in-school reading experiences can stimulate reading interest that permeates the classroom walls. A goal of creating lifelong learners includes creating lifelong readers. Experiences that are far too difficult or too easy can make reading a frustrating experience for some students. Making curricular adaptations using grouping and other methods can alleviate this problem and maintain positive associations with reading for all students.

Kara was a passionate reader and writer. Her high pretest scores excused her from many of the unit lessons, a process of telescoping the curriculum for high ability learners called curriculum compacting (Reis, Burns, & Renzulli, 1992; Reis & Renzulli, 1992). Kara and I worked together to come up with an alternative activity that would stimulate Kara's reading and writing growth in place of the unit lessons that would offer no challenge for her. Kara decided to read the book *P.S. Longer Letter Later* by Paula Danziger and Ann M. Martin, in which two female protagonists write letters back and forth to one another. Her idea was to write a book of her own in the same style by writing letters to a friend who had recently moved away. Together Kara and I collaborated on the standards by which the project would be judged. Kara's project was challenging enough to produce growth, yet stimulated interest as well.

Conclusion

Many teachers and administrators cite "creating lifelong learners" as one of their goals. Creating lifelong learners involves developing not only reading skill, but interest and motivation as well. Using instructional groups can help teachers alter one-size-fits-all curriculum to validate students' readiness and ability levels and ensure that all students feel appropriately challenged and motivated.

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Co-teaching in a Differentiated Classroom: The Impacts on Third Grade Gifted and Talented Math Students

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Behind the varying levels of student intellect and motivation in any given classroom lies the challenge of meeting each student's individual learning needs. This includes not only the needs of struggling students, but also the needs of intellectually advanced or gifted and talented students. A classroom of students with a diverse level of ability and motivation requires the use of a differentiated instruction model. The most common way teachers group students in a differentiated classroom is by intellectual ability. However, such rigid grouping may stigmatize a child as a member of "the high math group" or "the low reading group." A method that alleviates this grouping stigma is flexible ability grouping.

In-class flexible ability grouping is an instructional approach in which students' knowledge is assessed prior to each unit in all disciplines. Based on their prior knowledge of the subject matter, students within the general education classroom are placed in small groups by their ability and understanding. "When ability grouping is utilized in a flexible and temporary manner, with appropriate curricular adjustment, significant achievement gains can be realized" (Tieso, 2003, p. 29). Teachers can then differentiate the level, depth, and breadth of instruction to provide learning opportunities that maximize student strengths and potential.

There has been some resistance from elementary teachers regarding the use of differentiated flexible ability grouping within a general education classroom. Some teachers feel that differentiating the curriculum to meet individual learning needs is too

much additional work or is too time consuming due to the amount of planning and preparation needed to successfully differentiate. "The teacher must develop curriculum according to the unique needs of the group, rather than utilize a 'one size fits all' approach to curriculum development" (Tieso, 2003 p. 29). Because most teachers are isolated in their classrooms, differentiating the curriculum by creating tiered activities, projects, and assessments may be overwhelming and intimidating for some teachers. One solution that may help elementary educators to overcome this negative perception of in-class differentiation is the implementation of a co-teaching model in the classroom. Collaborating with a co-teacher reduces the frustrations that accompany the creation of a successful differentiated classroom.

As a pre-service teacher studying at the University of Connecticut's Neag School of Education, I am familiar with methods of differentiated instruction and studied pedagogy associated with student grouping practices. However, it was not until my Master's internship that I truly discovered the positive impacts that differentiation, flexible ability grouping, and co-teaching could have on student learning. Elementary school administrators created my internship in an attempt to provide their third grade students with differentiated instruction through team teaching and flexible grouping. It was my role as the co-teacher to create differentiated lessons and tiered activities for the varying ability levels in a third grade classroom. After working in this classroom for a month, I began to see interesting trends in the motivation of the four identified gifted and talented math students in the classroom. I decided to conduct a small investigation to uncover these four students' feelings and attitudes towards whole group versus small ability grouped math instruction. This article is designed to communicate my personal experiences involving the influence of co-teaching and flexible ability grouping in a differentiated classroom on the enrichment opportunities and level of engagement of four identified gifted and talented math students in my third grade class.

After working with these four students for a few weeks, I came to the realization that relying on the pullout gifted and talented math program for enrichment opportunities was educationally inadequate. Teachers must not rely solely on pullout programs to meet the learning needs of students. More must be done within the classroom to differentiate the curriculum to align with students' abilities.

I took several steps in an attempt to uncover these four students' attitudes towards differentiation and small group math instruction. Methods for collecting information included daily observations, student surveys, and student written responses. The aim of gathering this information was to implement change based on the students' attitudes regarding their learning opportunities and level of engagement in the classroom.

Most lessons during the first month of school were taught using the traditional whole-group method of instruction. A student survey was distributed to the four gifted and talented math students in my class. It was designed to uncover the students' feelings regarding the first month of whole group math instruction in the classroom, prior to the implementation of the flexible ability grouping model. The survey asked students to respond to 10 statements on a three point Likert scale. Sample items included: "I would like my classmates to move more quickly through math lessons," and "I almost always get perfect scores on my math assignments." All four identified gifted and talented math students agreed that they almost always got perfect scores on their math assignments during whole-group instruction. Three of the four agreed (one student was neutral) that the math they did in class was too easy for them. Also, three of the students conveyed that they always completed their math assignments quickly, before their classmates; therefore math time was sometimes spent reading a book. These findings demonstrate the low level of engagement these students encounter when being instructed in a whole-class model. The survey revealed that the identified students understand that they have high math ability, they feel that math done in class is often too easy, they have mastered many math skills prior to learning them in school, and that their level of engagement during whole-class math instruction is often low. These findings supported the need for a differentiated classroom model. These students were not receiving the level of course work they needed to feel challenged.

After the first month of school, my co-teacher and I began planning, preparing, and implementing flexible ability groups for mathematics in the classroom. As

(continued on page 14)

(continued from page 13)
a result of co-teaching, we found it easier to collect resources, pool ideas, and plan activities and lessons geared towards the varying levels of ability in the classroom. Students were pre-tested prior to each math unit. The students who proved mastery were automatically exempt from lessons within the unit, allowing more time for enrichment opportunities. Time can be used to teach a topic in greater depth than what would normally be taught in a whole-class lesson. Working in a differentiated classroom through a co-teaching model allows for smaller learning groups that can be easily facilitated and managed. Within each group, content is specifically tailored to meet individual learning needs. Tailoring the curriculum to meet many varying levels of understanding can be overwhelming for a single teacher in an isolated classroom to manage. Through the co-teaching model of instruction, the teachers benefit from a well-organized, collaborative, easily manageable instructional model, while students benefit from working with classmates who comprehend mathematical concepts on a similar level.

In math, there are currently three instructional groups. The identified gifted and talented math students form one group. One of the co-teachers works with these students on challenging math problems that require higher-level thinking and strategies. The group discusses possible answers to questions, the ways they derived their answers, and alternative solutions. Students in this group also create their own mathematical problems and work with a partner to find solutions.

After working in a small math group in the classroom for several weeks, the identified students were asked to fill out a second survey regarding their feelings about the new instructional model. Important findings emerged from this survey. Of the four identified students, three agreed (one was neutral) that they liked working in small groups better than with the whole class for math. Of the students surveyed, three of the four also agreed that the math done in small groups is more challenging than the math done as a whole class. All four students agreed that they were more interested in math when they work in small groups. Also, three of the four students admitted to daydreaming less when they work in small groups for math. These responses convey an increased level of engagement as a result of differentiated instruction though co-teaching. Again, three of the four students believed the other students in their small group were about the same ability level. Other interesting information gathered from this survey was that all four students understood that there is varying mathematical ability among their other classmates. The fact that they understand this may help to explain why they believe working within small math groups is beneficial to their learning.

All four students also agreed that they would like to study math topics usually studied in higher grades. Their responses to this statement reveal that they have the confidence in their math abilities to try new problems and challenge themselves. Finally, all four gifted and talented math students agreed that they like having another teacher in the classroom because they can do more fun and challenging math work. This consensus is important because it demonstrates that the students observe the benefits of the co-teaching model. Through the co-teaching model, gifted and talented students receive more face time with a teacher who can facilitate meaningful, in-depth assignments that challenge and excite these students in math. The children felt that having an additional teacher creates more and better opportunities for enrichment activities. The students were also asked to respond to two open-ended questions regarding their reactions to working in small math groups. The first question was: Do you feel more excited about math when you are being challenged with a math activity? One student said:

- Yes, I feel more excited when I am being challenged more because I have to think more.

The second open-ended question was: Do you think working in a small group with kids with similar abilities in math is better than working with the whole class? Why or why not? Some responses were as follows:

- I like being in the smarter group because it's easier to concentrate and I seem to work easier.
- I like working in small groups because it is . . . quiet and easier to work.
- I think it is better to work in smaller groups with harder math because I get to do harder math, and I don't have to wait for everyone to catch up.
- Yes, because they are at my level.

These written responses gave us further insights as to student attitudes about ability groups in math. The first noticeable finding that emerges is that these students are aware of their abilities. They understand that they are able to comprehend mathematical concepts at a faster rate and greater depth than most of their general education counterparts. However, teachers must be aware of the elitist attitudes that may form as a result of leveled grouping. Although flexible ability grouping allows for student shifting and eliminates the rigid lines of tracking, stigmas and elitist attitudes may form if teachers are not careful. Some responses to these open-ended questions can be interpreted as elitist. For example, one student claims, "I am better than other kids. . ." while another student writes, "I like being in the smarter group. . . ." These attitudes can deconstruct the sense of class community and can reflect on other students' self-esteem and self-concept. This is why it is important that teachers use flexible ability groups based on a variety of assessments so students are constantly being shifted and working with different students for units within each discipline. These responses also helped us to understand the necessity for differentiated groups based on the needs of the students; many of the written responses address the fact that these students believe working in smaller groups allows for easier concentration and fewer distractions. Also, the students enjoy and are excited by challenges presented in their small math group. We would not be doing our jobs if we denied these students the opportunity for mathematical challenge, passion, and excitement.

In conclusion, from the gifted and talented students' perspective, the whole-class model of instruction that was used throughout the first month of school was inadequate. The gifted math students reported feeling unchallenged about math. However, when small flexible ability groups were introduced to the classroom, the gifted and talented math students were more excited about math, more challenged, and enjoyed working with students who were "on their level." The students also enjoyed having a co-teacher in their classroom to facilitate higher-level activities and teach abstract concepts. As a result of this investigation, flexible ability groups will continue to be used in our classroom; the benefits outweigh any negative aspects of this instructional model. Negative aspects discussed in this article, such as the creation of elitist attitudes, stigmas, or stereotypes, can be alleviated or even eliminated by teachers. Teachers must understand that by using multiple methods of pre-assessment and by constantly shifting students from group to group throughout the year, the problems associated with grouping practices may be eliminated. Then teachers and students will be able to work in a well-organized, student-centered environment, where each child's individual learning needs are being met to the fullest extent.

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Grouping Beliefs . . .

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In working with primary students, some of the students displayed advanced levels of knowledge and concepts. She learned that even with documented evidence about the students' abilities, other factors had to be considered in designing curricular options.

Each of these authors/educators studied the research and practices surrounding the debates about grouping students for instructional purposes. They made decisions about what and how to teach students and kept asking questions about issues surrounding decisions to group students for instructional purposes. As teachers, they watched and listened to students' reactions to curricular options.

As they reviewed existing research, it was evident that there very different viewpoints. In this issue of *The National Research Center on the Gifted and Talented Newsletter*, Pare, Fogarty, and Masso share their knowledge about grouping practices and provide perspectives on how they interpreted prior research and practices.

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