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ABSTRACT
        This booklet addresses current research on the needs
of gifted students and the relationship of these needs to the
philosophy and intent of some of the major trends in educational
reform and restructuring. Eight major reform trends are examined in
terms of definitions, philosophy, key elements of the literature,
examples of practical applications, strategies for success with
gifted students, and examples of successful programs. The reform
trends examined are: (1) grouping practices, (2) cooperative
learning, (3) underachieving gifted students, (4) outcome based
education, (5) integrated curriculum, (6) site-based management, (7)
middle schools, and (8) business/education networks. Several
references are provided for each trend summary. (DB)

The Reform Movement:

Where do Gifted Students Fit?

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The Reform Movement: Where do Gifted Students Fit?

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Preface

For the past few years, school districts across the country have been making changes in the way their schools operate, both in response to current research and the movement for educational restructuring and reform. Many of these changes are soundly based on current research about the way children learn and develop, and the educational practices which best support healthy growth and development. However, it is difficult to generalize about *all* children when our school populations are composed of many groups with special needs, interests, abilities, and learning styles.

Parents, teachers, administrators, and community members with an interest in the education of Washington's highly capable (gifted and talented) students, have met annually for the past several years with the support of the Office of Public Instruction and other advocacy groups, to discuss and plan for the special needs of these students. In August of 1991, the Gifted Leadership Conference met once again, with the goal of examining current research on the needs of gifted students and comparing it with the philosophy and intent of some of the major trends in restructuring. The group's goal was to find a way to summarize and communicate this information to parents, teachers, and administrators in order to help them better plan for the needs of gifted students in their overall restructuring programs. The result was this booklet.

Seminar participants broke into groups by topic, and worked intensively over a period of time to accomplish their research and composition goals. Since each group approached their topic independently, some variations in format resulted.When necessary in order to avoid losing the intent of the authors during the editing process, products were left in their original format.

"Man's mind stretched to a new idea never goes back to its original dimensions." (Oliver Wendell Holmes). The authors hope these ideas ensure that educational change will continue to lead to progress.

Acknowledgments

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Grouping Practices

Definition and Philosophy

Grouping may be defined as the provision of a variety of organizational structures of either long or short duration whereby students of like ability or characteristics work together (Robinson, Davis, Fiedler, and Helman, 1982). The most common forms of ability grouping are:

1. Between class ability grouping for one or more subjects, also known as tracking.

2. Within-class ability such as reading or math groups.

3. Non-graded groupings within which grade level designations are removed.

4. Flexible groups based on student interest or characteristics such as temporary skill groups, project groups, and independent study groups.

Recently, the widespread practice of grouping students both within and between classes has received much attention. Many claims have been made regarding both positive and negative effects of grouping on all students. Much research supports the conclusion that "tracking," because of its inflexibility, restriction of options, and tendency to label students, may not be in the best interests of most students. While the use of grouping into tracks in order to enhance student achievement remains a controversial issue for many educators, research findings do indicate that there are a variety of other grouping arrangements which have proven to be effective for all students, particularly for the highly capable.

Grouping programs typically follow one of three general formats:

1. Programs in which all ability groups are taught with the same methods and use the same or similar materials at a somewhat different pace.

2. Programs in which the materials have been adjusted to fit

the needs of a specific aptitude group.

3. Programs of accelerated instruction which affect the content and pace of a student's learning.

These three types of grouping differ both in the nature of the curriculum adjustments that have been made to individualize instruction and accommodate different student needs, and in the effects each has on student achievement. The majority of studies have been conducted on the effects of the first type of grouping on students of average to above average ability (Slavin, 1990), and almost always specifically exclude gifted students from their studied populations. Since most of these studies do not use valid instruments to test gifted students out of their grade level in order to accurately demonstrate academic achievement gains, few conclusions may be drawn which apply to gifted students. Further, those highly capable students involved in the second or third type of program, both of which are less frequently examined, were not included in most of the research. In her recent study on the effects of grouping on high ability students, Karen Rogers used both a "best analysis" and "meta-analysis" approach, and concluded that the research base had not been analyzed comprehensively to support many of the conclusions that some current reformers are proposing. As a result, a careful examination of research is necessary in order to find and verify those studies which examine the effectiveness of grouping practices on gifted learners.

Key Elements of the Literature

In her synthesis of the research on the effects of grouping practices on gifted students, Susan D. Allan (1991) states that certain kinds of grouping practices, such as acceleration or classes specifically designed for the gifted, result in measurable, positive academic effects for these students. Both gifted students, and those of average and low ability, were found to benefit from grouping in specific subject areas such as math and

reading. According to Allan, student attitudes toward subjects are improved by ability grouping in those subjects.

While Slavin is generally opposed to tracking and certain other forms of ability grouping, some of his research (1986) indicates that instructional grouping in core academic areas, cross-grade grouping, and special-interest grouping all benefit gifted students, and that such grouping of the gifted does not affect the achievement of other groups of learners. He further states that gifted programs "can be justified under certain circumstances. First, they are most justifiable when the content of the special program represents true acceleration or in any case a markedly different curriculum which would be inappropriate for average or low achievers. For example, I would favor providing advanced mathematics to bright middle or high school students, or providing advanced placement courses at the high school level. At the elementary level, acceleration can best be achieved by allowing students in one grade to receive reading or math instruction in a higher grade class..." (1990) He goes on to say, "Philosophically, I do believe that all students, including the gifted, have a right to achieve their full potential, a view which I am sure I share with all readers of this journal. I would certainly be opposed to any plan that would "hold back" the gifted children from achieving as much as they are able to accomplish, as long as efforts are equally made to ensure that all children achieve their full potential, and all meet a reasonable minimum standard of achievement" (1990).

Kulik and Kulik (1982, 1987) in two meta-analyses of research on ability grouping, concluded that there is a significant positive effect favoring grouped classes for all students, and no evidence that homogeneous grouping is harmful to any group of learners. Further, when high-ability students were grouped and provided with enriched and accelerated instruction, the effect on achievement was large. When within-class groupings designed for high ability students were used, academic achievement was raised significantly and students tended to develop more positive attitudes toward the subject matter.

In 1982, the Kuliks studied the effects of grouping arrangements on high school gifted students, and found clear evidence that these students achieved more in special honors classes than they could have in mixed ability classes. They also found a positive effect on self-concept. Based on this and other evidence, the Kuliks concluded that "grouping can be a powerful tool in the education of gifted and talented students." (1987).

Van Tassel-Baska (1989) refers to a study in which significant gains were made in cognitive abilities as a result of ability grouping for gifted students, and makes the point that "educators cannot differentiate instructional plans for gifted learners effectively without ability grouping in some form. Thus, to eliminate ability grouping for all is to eliminate special programs for the gifted and talented" (1991). She quotes Slavin's research (Slavin, 1986) which indicates that the mixing of ability groups typically results in no growth for the high ability group.

In his review of the literature on the effects of grouping on gifted youth, Feldhusen (1989) concludes that ability grouping when combined with differentiated curriculum and instructional methods leads to significant gains in achievement and positive attitudes for the gifted, and does not adversely affect the achievement or attitudes of students of lesser ability. He also concludes, as did Kulik (1987), that low- and average-ability students do not model on gifted students, but do better when working with peers of similar ability who are succeeding at a given educational task.

Karen Rogers, in her recent study (1991) concludes that:

- grouping produces both marked academic achievement gains and moderate increases in attitude toward subject matter for gifted students

- ability grouping produces substantial academic gains for grouped students in general.

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Strategies for Success
with Gifted Students

Research indicates (Cox & Daniels, 1985; Davis & Rimm, 1985, Kulik & Kulik, 1985) that ability grouping is most effective for the gifted when students are placed together according to ability levels in the specific subject areas being taught; when groups are flexible enough to allow for movement as achievement gains are made; and when the pace and level of instruction is flexible, and is adjusted to reflect student needs and interests. After examining this body of research, Slavin concluded "The best evidence from randomized and matched equivalent studies supports the positive achievement effects of the use of within-class ability grouping in math and the Joplin Plan in reading . . ." (1987). (In the Joplin plan, students regroup for reading instruction across grade lines throughout a school.)

In conclusion, grouping as a strategy will be most effective when instruction is designed to meet the needs of a diverse population of learners, rather than providing the same level, pace, and teaching methods for all. An appropriate, effective education for highly capable students requires a differentiated curriculum, teachers trained in methods which facilitate learning for gifted students, and the thoughtful, consistent use of a variety of flexible grouping methods as well as other instructional strategies. For highly capable students, certain types of flexible grouping provide much-needed opportunities for interaction with intellectual peers, work at an appropriately challenging and complex level, positive outcomes for self-esteem, and significant academic achievement gains. The primary value of grouping in any form must continue to be the enhancement of instructional delivery for students at all achievement levels within the larger goal of appropriate, successful education for all students. Flexible grouping remains an effective and important strategy for meeting the unique needs of gifted learners in our schools.

Based on conclusions drawn from a recent research synthesis

compiled by Karen Rogers (1991), six guidelines should be considered when considering grouping options:

1. Students who are academically or intellectually gifted and talented should spend the majority of their school day with others of similar abilities and interests.

2. Cluster grouping of gifted students within an otherwise heterogeneously grouped classroom can be considered when schools cannot support a full-time gifted program.

3. In the absence of full-time gifted program enrollment, gifted students might be offered specific group instruction across grade levels, according to their individual knowledge acquisition in school subjects.

4. Gifted students should be given experiences involving a variety of appropriate acceleration-based options which may be offered to gifted students as a group or on an individual basis.

5. Students who are gifted and talented should be given experiences which involve various forms of enrichment that extend the regular school curriculum, leading to the more complete development of concepts, principles, and generalizations.

6. Mixed-ability Cooperative Learning should be used sparingly for students who are gifted and talented, perhaps only for social skills development programs.

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Cooperative Learning

Definition

Cooperative learning has been defined as a set of instructional strategies which employ small teams of pupils to promote peer interaction and cooperation for studying academic subjects (Sharan, 1980). These strategies include cooperative student-student interaction over subject matter as an integral part of the learning process (Kagan, 1990).

There are five basic elements of succesful cooperative learning: (Johnson, Johnson, and Holubec, 1988).

- Positive Interdependence—students feel that they need each other in order to complete the group's task.

- Face to Face Interaction—verbal exchanges such as oral summarizing, giving and receiving explanations, and elaborating.

- Individual Accountability—teachers need to frequently assess the level of performance of each group member.

- Interpersonal and Small Group Skills—teachers need to teach the appropriate communication, leadership, trust, decision making, and conflict management skills to students and provide the motivation to use these skills in order for groups to function effectively.

- Group Processing—students need the time and procedures to analyze how well their groups are functioning and how well they are using the necessary social skills to achieve their goal.

Philosophy

Cooperative learning is based on the belief that:

- all students are capable of understanding, learning and performing leadership tasks;

- the most effective student groups are those which are heterogeneous;

- students need to learn to recognize and value their dependence upon one another;

- the ability to work effectively in a group is determined by the acquisition of specific social skills;

- student groups are more likely to attempt resolution of their problems if they are not "rescued" from these problems by their teacher (Dishon and O'Leary, 1984).

Key Elements of the Literature:

There is considerable research on the positive effects of cooperative learning on student achievement, especially from well-known researchers Johnson & Johnson and Robert Slavin. However, the effect of cooperative learning on gifted students has not been adequately researched. The potential disadvantages of cooperative learning for academically talented students are those of limiting instruction to grade level materials, presenting material and projects at the pace of a grade level group and evaluating primarily on basic skill measures (Robinson, 1990).

Research also indicates that students gain from peer models who are strong learners only when there is not too wide a discrepancy in abilities. Grouping gifted learners together for cooperative learning, while grouping all other students in the class in mixed ability cooperative groups has been shown to be an effective strategy: further, the removal of gifted students from cooperative learning groups has not been shown to harm the work of those groups (Schunk, 1987).

High achieving students should not always work in heterogeneous cooperative groups. There are times when gifted students should be segregated for fast-paced accelerated work, or should work alone, in isolation from all other students (Johnson and Johnson, 1989).

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Robert Slavin, director of the Elementary School Program at Johns Hopkins University, believes that:

"Many of the concerns expressed about high achievers in cooperative learning are based either on misconceptions or on experience with inappropriate forms of cooperative learning. First, many educators and parents worry that high achievers will be used as 'junior teachers' instead of being able to move ahead on their own material. This is a confusion of cooperative learning with peer tutoring; in all cooperative methods, students are learning material that is new to all of them. . . . Sometimes parents are concerned when their youngsters' grades are made dependent on those of their groupmates. This does happen in some forms of cooperative learning, but I am personally very opposed to the practice. Certificates or other recognition work just as well, and grades can and should be given based on individual performance (Slavin, 1991)."

According to Grace McDonald, lead supervisor of gifted programs in Broward County, Florida, when there is more than a two-grade-level difference in ability among students in a cooperative group, "I don't think anybody benefits." (ASCD Update, October 1990). Linda Silverman, director of the Gifted Child Development Center in Denver, Colorado, believes gifted students are most likely to learn humility and democratic values among their intellectual peers. "If you really want to create an elitist child, make her the smartest kid in the class for 12 years," she says (ASCD Update, October 1990).

"Children at all levels need learning opportunities that are challenging," according to John Feldhusen, director of the Gifted Education Resource Center at Purdue University. Gifted students in heterogeneous cooperative learning groups are often limited by the pace determined by the group. He believes it is unethical to use them as "assistant teachers" because they have a right to work to their own potential (ASCD Update, October 1990).

According to Ann Robinson (1990), Associate Professor at the University of Arkansas at Little Rock," . . . practitioners risk

overgeneralizing the use of cooperative learning as a panacea for the social and achievement ills of all students in the schools. The extent to which cooperative learning is substituted for educational provisions like subject matter acceleration for academically talented students or is used as the justification for not attending to their special needs is the extent to which it becomes disadvantageous."

Marian Matthews (1990) at the University of Connecticut is conducting a study to determine gifted students' attitudes toward cooperative learning. "Because of the lack of research on gifted students in particular, we must move cautiously as we examine the claims made for cooperative learning. According to the research in this field, cooperative learning appears to be a good teaching strategy for students in the regular classroom and may even be a good technique to use at times in a gifted classroom. It is a strategy for teaching, however, and not a program; and therefore, should not be substituted for gifted programs."

Strategies for Success with Gifted Students:

Teachers should look carefully at the activities planned and make thoughtful decisions.

- Is the activity really appropriate for a cooperative group effort?

- Which activities are more appropriate for totally heterogeneous groups?

- Which activities require gifted students to work in their own cooperative groups with appropriately challenging tasks?

Additional guidelines for successful use of cooperative learning with gifted students are:

1. Teachers need to be active facilitators in fostering positive social skills through modeling, reinforcement, role assign-

ments, structuring, and processing.

2. Flexibility in varying group formation: homogeneous, self-selected, random, and heterogeneous assignments (based on a variety of characteristics and not exclusively on IQ).

3. One very important exception to the general use of heterogeneous teams is homogeneous grouping for specific objectives such as math and language.

4. Gifted students can benefit from cooperative learning by grouping them together occasionally, or allowing them to choose their own groups. Make sure gifted students have opportunities that require higher order thinking, and create projects or assignments that do not allow groups to depend on one person's efforts. (Long, October 1990).

5. When the composition of the groups is changed frequently, students can learn and transfer cooperative learning skills to many different situations. On the other hand, when teams are held together for a long period of time, students can form a strong team identity.

6. The most effective team size is from two to four members. Using four members allows pair work which doubles participation and increases the lines of communication (Kagan). Teams larger than four tend not to be as productive because they limit participation and are harder to manage (Johnson & Johnson).

7. When team building skills are taught, respect and trust create a context within which maximum learning can occur. (Kagan). It should not be assumed that all highly capable students automatically possess these skills.

8. For skill acquisition, the process needs to be structured so highly capable students have opportunities for self-selected, independent investigations, subject matter acceleration, or extra curricular activities.

9. When assigning a high-achieving student to a heterogeneous

cooperative learning group, consider the appropriate criteria for success and adapt the lesson, i.e., using different criteria for success for each group member or varying the amount each group member is expected to master keeping in mind quality rather than quantity. Students should not be expected to do work they already know.

10. To ensure effective group dynamics, it may be helpful to carefully consider who should collaborate with high achieving students. Highly creative students (who may not be high academic achievers) and highly interpersonally skilled students (who are middle achievers) may be good matches for high achieving students and encourage them to think divergently and relate to others skillfully (Johnson & Johnson).

11. There may be a few students who should be studying material far above their grade level. This may be accomplished by having them study advanced material in homogeneous cooperative groups (Johnson & Johnson).

12. Allow time for students to review their own group process by asking:

    a. Did we help each other?

    b. Did we ask for help when we needed it?

    c. Did we participate?

    d. What can we do to improve next time? (Kagan, 1990)

"Recognize each member has something to offer and capitalize on the diversity of the group for creative problem solving." (Martinelli, 1991)

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Underachieving Gifted Students

Who are gifted underachievers?

A gifted underachiever is a person of high intellectual and/or creative potential whose performance consistently fails to reflect his/her abilities. Underachieving behavior is most commonly identified in academic and school related settings through testing and observations of a student's performance.

Dowdall and Co. ingelo's (1982) working definition of underachievement states that the discrepancy between potential and achievement is generally measured by:

- two standardized measures (e.g., IQ and achievement tests).

- a standardized measure and performance (IQ and grade point); or

- two nonstandardized measures (e.g., teacher expectation and daily assignments).

Being gifted does not guarantee high academic performance. People with high ability may find it difficult to measure up to either personal or societal expectations of giftedness. Characteristics such as perfectionism, extreme sensitivity, a recognition of the gap between mental ability and physical capability and a lack of adequate work skills can cause frustration and serve to lower the motivation of these children or alter their image of themselves. The wish to be "like others" may also lead bright children to mask their high abilities thus creating a pattern of underachievement that is sometimes hard to detect.

While underachievement is a broad term, some qualifiers may enable us to better define the problem. Whitmore (1980) suggests that we consider four categories in identifying the nature of underachievement.

1. the discrepancy between aptitude and achievement

2. the duration of the underachievement

3. the scope of the underachievement

4. the effects of the underachievement on the individual and others.

It is also useful to consider the context within which a child is considered to be underachieving. Physical and learning handicaps or learning problems created by substance abuse can also contribute to inadequate academic performance. The systems which surround the child such as the family, the school, peers, and societal and cultural expectations are key contributing factors that may affect underachieving children's chances of success. Solutions for assisting these students can also be found within this framework enabling them to gain a better understanding of themselves and their abilities in relation to these social forces.

Strategies for Success in Working with the Gifted Underachiever

In designing a plan to help a gifted child overcome the pattern of underachievement, it is important to consider all the factors that bear on a child's performance: strong reasoning abilities, their own ability to perceive the quality of their performance, relationships with peers, and the basic skills needed to experience success. All of the significant adults in a child's life, (e.g., parents, teachers, psychologists, tutors, counselors and friends) are critical in ensuring that children obtain assistance in a timely and continuous manner.

A common characteristic of underachieving children is a perception of a lack of control over decisions that affect them. Hence they do not feel "empowered" to change the pattern of underachievement. They may also struggle with a fear of failure or a fear of success and subsequently develop behaviors such as chronic procrastination which prevent them from being productive and enjoying the fruits of their labor (Adderholt-Elliott, 1989). Strategies for working with such children include:

1. the setting of realistic goals with built-in positive rewards,

2. teaching them to manage their time wisely while building enough challenge into every task.

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Children develop confidence and an internal sense of control if power is given to them in gradually increasing increments as they show maturity and reponsibility (Rimm 1986).

The combination of high ability and poor performance promotes feelings of isolation in underachieving gifted children, some of whom may feel poorly equipped to have positive peer relationships. Low academic skills or language barriers may sometimes cause these children to be grouped with students who do not match their intellectual level or share common interests. Helping these students find a peer is an important first step in designing successful social experiences. Moving on to structured positive, small-group activities will enable them to practice and appreciate newly learned skills and consolidate their feelings of success. Some examples include bibliotherapy (the use of literature to discuss common problems or issues), role-playing (use of drama to express feelings or unresolved questions) or group discussion on self-chosen topics which relate to their underachievement or their giftedness (Adderholdt-Elliott 1987).

The regular classroom setting is often a difficult place for an underachieving child who is constantly comparing him/herself to peers and is unable to cope with the competition. Their frustrations may take the form of extreme behavior that might surface as withdrawal or disruptive actions. The goal would be to restore the child's ability to function productively in a classroom setting. A plan could include learning to focus to help them derive meaning from learning materials, exhibiting self-control, displaying tolerance of others, and accepting responsibility for their own behaviors.

The lack of an appropriate match between the learning needs of a child and the demands of a curriculum is often found to be a source of conflict for the underachieving child. Since the learning profiles of gifted underachieving children indicate that they have strengths and weaknesses, any successful program must take both of these into account. Early identification of the problem, followed by a program design that builds on students'

strengths and creates the opportunity for choice and acceleration where appropriate, will build on their sense of self-worth.

The task of understanding the motivation of the under-achieving gifted child is challenging. Since underachievement can be exhibited in many ways, it is important that we use all of our knowledge of how and why children learn in planning for these children who have the potential of being personally satisfied, successful, and productive.

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Outcome Based Education

Definition/Philosophy

The underlying assumption of all Outcome Based Education (OBE) programs is that all students can learn. OBE provides a process for setting goals for education and for aligning educational experiences for students with a belief system developed by the local school community.

Key Elements of the Literature

In the state of Washington, the term Outcome Based Education has become commensurate with restructuring of our schools. Our present educational delivery model states that the teacher is responsible for input to students. Ir a student does not learn, then the teacher must provide further input until learning takes place or time runs out, whichever comes first. OBE states that all students can learn and that it is the teacher's responsibility to provide both time and materials to assure that this occurs.

In order for OBE to be successful, everyone—teachers, parents, administrators, support personnel, and students—must have a clear vision of what the purpose of the school is. In conjunction with that vision, a set of beliefs is developed by the school community. Everything that happens in the school supports that belief system. So, if we believe that all students can learn, given enough time, then time must become a priority both for those who need extra time as well as those who need to use extra time to extend their learning.

Spady, Sizer and Goodlad, three proponents of OBE, believe that "restructuring . . . pertains to the organizational patterns . . . that define and shape the core instructional system of the schools." Their goal is to "fundamentally alter any pattern that inherently limits all students from learning successfully. . . ." (Spady, 1990). This will require commitment from teachers, parents, and administrators.

The decisions about how and what to teach need to be consistent both with the beliefs developed and with the strongest

research and learning data available.

"When appropriate educational planning and delivery of services occurs, the following components are in alignment: (1) assessment and evaluation, (2) instruction and (3) outcomes." (Smith 1990). Thus, in a school where appropriate educational planning and delivery of services occurs, each student's knowledge level will be assessed before instruction begins, instruction will be based on what the student already knows in relation to what the desired outcome is, and evaluation will indicate that student has demonstrated competence with the learning.

Strategies for Success with Gifted Students

1. Maintain programs for gifted until acceptable options are available . . . i.e., acceleration, self-contained classes, advanced classes, etc.

2. Educate all staff so they are able to identify and provide appropriate curriculum for gifted students.

3. Do pretesting before initial instruction and provide gifted students credit for prior learning.

4. Provide an enriched curriculum for all students, and acceleration and/or in-depth study for gifted students.

5. Ensure opportunities for flexibility in scheduling so that students can be appropriately grouped and re-grouped.

6. Provide gifted students the opportunity to work with their academic/intellectual peers.

7. Match new learning experiences that capitalize on the students' strengths and interests to the expected student outcomes, and provide appropriate assessment opportunities.

8. Match the curriculum to the student's learning rate.

9. Eliminate the ceiling on learning (i.e., if a student is ready to learn algebra in fifth grade, the system must not only permit it, it should support it).

10. Extend the depth and breadth of the lessons.

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Integrated Curriculum

Definition

The integrated approach to curriculum design is gaining support nationwide, at all educational levels. The term integrated curriculum may also be referred to as "multidisciplinary", "transdisciplinary", "interdisciplinary curriculum", "teaching across the curriculum", or the "thematic approach".

Integrated curriculum is an approach to organizing and designing curriculum which emphasizes the connections or overlap between content areas, and builds connections between subjects. Integrated curriculum uses common themes or concepts. Many educators are now expanding this approach to include the visual and performing arts in an effort to utilize a wider range of brain functions and to address various learning styles and talent areas. Some educators are moving towards the concept of student-centered integrated curriculum, in which teachers and students together develop units of study, crossing over many content areas (Vars 1991).

Philosophy

The intent of interdisciplinary curriculum is to encourage learners

- to find meaning in school subjects by connecting content in engaging ways with other subjects

- see relationships among various disciplines or subjects

- learn "naturally" from the themes and problems that emerge from their own interests

- emphasize broad concepts as opposed to segmented facts

- actively participate in their learning

Advocates believe that such an approach provides a scaffold to unite the entire curriculum, avoiding the common fragmentation that occurs with separate, unrelated subject areas (Greene, 1991). Fogarty (1991) explains, "The integrated model views the

curriculum through a kaleidoscope: interdisciplinary topics are rearranged around overlapping concepts and emergent patterns and designs."

Joan Palmer (1991) expresses her belief in this approach. "Educators must try to help students understand the information they are learning in some real context. Unless students are able to recognize the connections between and among various facts they learn in their separate courses, they will not have an understanding of what was, what is, and what may be coming. Cross-curricular (interdisciplinary) teaching adds meaning to learning." Hurd (1991) says, "The reform movement of the 1990s calls for an integration of school subjects: a conceptual convergence of the natural sciences, mathematics, and technology with the social and behavioral sciences and the humanities into a coherent whole. A unity of knowledge will make it possible for students to take learning from different fields of study and use it to view human problems in their fullness from several perspectives."

Examples of Practical Applications

Whole language/Thematic approach—Uses literature as a cornerstone, with an emphasis on the teaching of reading and writing. This method focuses on using children's own language and a wide variety of trade books rather than basal readers. It is often expanded to include activities in the arts and sciences, all connected by a unifying theme, for example "Nocturnal Animals".

All School Themes—All or most of the staff agrees to to deal with some aspect of an all school theme for a brief period of time

Science-Centered Curriculum—An elementary school model that makes science the focus, and connects all other areas of the curriculum to it.

Middle School Block Classes—Revision of the traditional schedule so that a group of students meet together in a block of

time which includes two to three class periods, with a team of teachers, working with curriculum that integrates several curricular areas.

High School Humanities—A class for 12th graders that combines world literature/composition and U.S. government/economics.

Integrated Social Studies/Science Curriculum—Designed around a theme that combines both social studies and science. Many newer programs include a technology component.

Key Elements of the Literature

Caine and Caine (1991) have studied the connection between neuropsychology and the integrated curriculum approach. They verified that integrated curriculum and thematic teaching help to *"take information off the page and the blackboard and bring it to life in the minds of students."* (pg. 107, italics in the original).

Van Tassel-Baska (1988) in her book *Comprehensive Curriculum for Gifted Learners* refers to interdisciplinary curriculum as a model which focuses on talented students, "understanding and appreciating systems of knowledge rather than the individual elements of those systems." She notes that many writers in the field of gifted education have lauded this approach to curriculum because it integrates cognitive and affective domains and is very effective with gifted learners. The author emphasizes, however, that no model or strategy alone is appropriate.

Clark (1986) believes that interdisciplinary curriculum should strive to connect integrated subject matter to the four functions of the brain; thinking, feeling, the senses and intuition. In her research based on this model she concludes students taught in this way are found to be:

• more relaxed

• more positive, caring and respectful of each other and their teachers

- more creative, trying more unusual solutions and engaing in more alternative and higher level cognitive activities

- initiating more learning activities

- more positive and enthusiastic about their learning, more highly motivated, more independent and responsible

"In view of the excitement and success this integrative approach has been seen to bring to gifted students of all ages it deserves to be considered the next step in your planning." (Clark, 1986).

Hayes Jacobs (1989) is a proponent of the interdisciplinary approach. She suggests, however, that to be most effective teachers should use a cognitive model such as Bloom's Taxonomy, to ensure higher level thought. She presents two potential problems with integrated curriculum, what she calls the "potpourri problem" and the "polarity problem". The potpourri problem refers to integrated curriculum lacking depth or direction. Polarity refers to educators' protection of their own subject matter. Hayes Jacobs (1991) presents solutions to these problems. "Teachers need to be empowered with the skills and the time to examine what they're going to teach and how. Time is crucial." She also says, "What's exciting is not only that several subjects are involved, but that teachers are working together."

Brophy and Allen (1991) caution that the interdisciplinary approach is not necessarily beneficial unless it is designed to accomplish specific educational goals. They suggest that many activities promoted in the name of integration are actually counterproductive. Teachers should carefully assess the inter- disciplinary activities they plan and apply these criteria:

1. Activities chould be educationally significant, ones desirable even if they did not include the integration feature.

2. Activities should foster, rather than disrupt or nullify, accomplishment of major goals in each subject area."

They conclude ,"An activity is appropriate because it promotes progress toward significant educational goals, not

merely because it cuts cross subject-matter lines."
Gordon Vars (1991) analyzes the historical perspective of integrated curriculum. He finds that efforts to integrate the curriculum have a long history. This approach, earlier known as "core curriculum" was known as far back as the 1800s. Vars refers to several different educational movements that have promoted such an approach. He says, "The most important of these, the progressive education movement, included a strong emphasis on student-centered, integrative approaches to education, usually under the name of core curriculum." He goes on to report that more than 80 studies have been carried out on the effectiveness of integrated programs. He concludes, "In nearly every instance, students in various types of integrative/ interdisciplinary programs have performed as well or better on standardized achievement tests than students enrolled in the usual separate subjects."

Strategies for Success with Gifted Learners

- Ensure that curriculum offers adequate depth and breadth, with opportunities for speeding up the pace of instruction. Regular students as well as gifted students benefit from interdisciplinary curriculum, however gifted students tend to progress at a faster pace and at higher levels of thinking.

- Allow students to pursue an independent study that parallels or supplements the interdisciplinary theme. Gifted students may have intense interests and want to explore topics individually at their own pace, level and depth. Make time available by evaluating children's competence in regular curriculum and releasing them from these experiences when appropriate.

- Teach specific process skills in the areas of critical thinking , creativity, problem solving, etc. Research indicates that gifted students should be functioning at the higher levels of thinking

approximately 80% of the time, but may not reach these levels without guidance.

- Guard against over-reliance on one instructional strategy such as whole class grouping or cooperative learning.

- Be aware that highly capable students may have already explored classroom themes and reading material. Repetition could result in lowered motivation and underachievement on the part of the student.

- Provide adequate training and planning time for any teacher using an integrated curriculum model.

- Integrated curriculum approaches do not supplant the need for programs specifically designed for the gifted.

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Site-Based Management

Definition and Philosophy

Gallagher (1991) defines site-based management in this passage: "One of the strongest of the educational reforms involves the desire to return power and authority to the local school level. This 'site-based management' aims to empower teachers and principals to make key decisions regarding children and programs rather than relying on policies developed in a central office, often far away geographically, and psychologically, from the educational process."

Characteristics of a Site-Based Management System

- Decisions are made at the level where there is the most impact on student learning; e.g. teachers make decisions about curriculum, each building determines its own budget, district sets policy.

- Buildings have primary control of program, budget, configuration of classes, calendar, and staffing.

- Administrative structure is less hierarchical, with principals playing the role of facilitator rather than acting as authoritarian figures.

- Leadership roles are more flexible and tend to be task-oriented; they may be assumed by teachers, parents or community members.

- Parents, business, and community collaborate with educators in designing educational programs.

Key Elements of the Literature

Since site-based management is a new movement in education and is still in the planning stage in many districts, little

research has been done on its effectiveness, especially as it relates to gifted education. Many authors are currently discussing the characteristics of this movement; legislators are attempting to mandate that this format be applied in education; and some school districts are implementing site-based management. However, the long term results can only be inferred at this time.

A review of literature does not provide an appropriate time frame for a site-based management model to be successfully implemented. Based on the knowledge of experiences in organizational changes, it is likely that at least several years are needed for the necessary changes to be introduced, requisite skills to be learned, teams to be built, and infrastructures to be developed.

Strategies for the Success with Gifted Students

To assure that the needs of the highly capable are met in a site-based system, the following strategies should be employed:

District Level:
- Central district commitment to the gifted program should be maintained to assure district support in the face of differing building emphasis.

- Advocates for highly capable students and parents need to serve on building and district committees which make decisions about site-based programs.

- Teachers of the highly capable should actively encourage a district-wide parent support group, and advocate for the needs of the gifted to the school board.

- Highly capable building advocates need time to meet across the district for mutual support and planning.

- The highly capable program needs to maintain a high profile;

eg. brochure describing program, publicity for activities and achievements, benefits of program for every school population explained to others.

Building Level:
- Each building should have at least one person who is responsible for advocating for the highly capable students and following the progress of identified students through the grades. Time and money need to be allocated for this.

- The highly capable program should be flexible enough to fit the characteristics of each building and to become an integral part of the school program in which it operates.

- All building teachers should be inserviced on:

    - characteristics and needs of highly capable students

    - curriculum differentiation

    - creative problem solving

    - higher order thinking skills

    - learning styles

    - cooperative learning and its appropriate use with highly capable students

- Teachers of the highly capable need to assist and to serve as resources for other teachers in order to gain their support for highly capable students.

- All teachers need to be encouraged to network among themselves to meet the needs of highly capable students.

- Buildings should develop some mechanism for monitoring program effectiveness.

- Highly capable advocates need to maintain persistence, flexibility, and a sense of humor in working in a site-based model.

Concerns:

Advocates for highly capable programs should be aware that they may need to detect and respond to the following concerns in a site-based system:

- The highly capable program may find it difficult to compete successfully for a fair allocation of resources, materials and space.

- Support for highly capable students may be diluted when control moves from district to building level.

- It may be difficult to maintain parent support for highly capable programs in the individual buildings. There may be little opportunity for them to network with a larger group from other buildings.

- Individual buildings may choose not to recognize their gifted population, especially if it is small.

- Schools serving a high proportion of low socio-economic students may lack parent advocates for highly capable programs.

- Decision-making in the site-based model may be time consuming. Issues related to highly capable programs need to compete with a multitude of other issues for time and attention.

- A teacher of highly capable students in an individual building may feel isolated.

- Teachers may be so overwhelmed by the wide range of needs of a mainstreamed population, that they may not be able to address the needs of the highly capable in the classroom.

- Buildings may keep a highly capable program in name only for political reasons without valid content.

- It may be difficult to justify highly capable curriculum based on standardized measures of core curriculum such as achievement tests.

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- It may be difficult to ensure continuity of highly capable curriculum between buildings and levels within the district.

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Middle Schools

Definition and Philosophy

The middle school reform movement has sought to provide an appropriate transition from the self-contained elementary to the departmentalized high school, and may involve students in 5th through 8th grades. In part, the middle school model is predicated on research that concludes that the average child reaches a plateau in brain growth during the middle years (Toepfer, 1981). Often, academic programs target the review and reinforcement of previously learned material, and include the use of specific strategies to meet the social and emotional needs of the adolescent.

In general, middle schools tend to share these common elements, which also differentiate them from the more familiar "junior high school:"

* Core subject teaching teams which are designed to encourage instruction across disciplines and allow students to form close relationships with several teachers and a smaller group of peers.

* Elective classes which may give students opportunities to investigate new interest areas; eg., technology, the arts, languages, vocational studies.

* A daily advisory period with the same teacher throughout the middle school years in order to create a nurturing connection with one adult.

* Concern for students' self-esteem throughout the curriculum.

With this focus on meeting the unique affective and academic needs of the middle school student, and the openness to flexible scheduling, middle schools are in a position to offer significant benefits to their gifted and talented students. While many of the following concerns and strategies for success have relevance for all students, they are especially important for the highly capable, whose learning patterns, social and affective needs, and brain growth often differ significantly from their age peers.

Key Elements of the Literature

When James Binko and James Lawlor (1986) examined 75 middle schools for evidence of the 24 "best practices" rated by educators and supported by the literature as crucial for middle school students (including opportunities for the gifted), they found large discrepancies between research and practice. The absence of teams of teachers or provisions for special interests was of special concern.

Thomas Buescher's (1991) research explores the issues facing talented middle school students in a system which sometimes sees talent as incompatible with normal physical and psychological changes during adolescence. When students who have strengths in a subject or skill area have that instruction interrupted or delayed for a two or three year period in adolescence, they pay a significant cost in skill development, self-esteem/ego development, motivation, and attitude.

John Feldhusen and Michael Sayler (1990) surveyed 35 Indiana school districts to check for the effectiveness of special classes and teaching methods for gifted, and found that "special classes with well-trained teachers can produce superior achievement" for the gifted.

Pamela Sicola's (1991) research summarized current middle school philosophy and practice, and pointed out the serious problems that gifted students may face when all students are treated similarly regardless of ability or individual development. She calls for flexibility in grouping which would allow the school to retain its overall philosophy for the majority of the school program, but be more responsive to individual needs for acceleration or instructional grouping for individual students.

Special Concerns for Gifted Learners

• While all students benefit from a nurturing environment, gifted learners may need more academic challenge than their

age peers.

- While tracking is generally disadvantageous for all students, flexible grouping is an important tool for providing appropriate curriculum and instructional strategies for gifted learners.

- Cooperative learning, which has replaced flexible grouping and tracking in many middle schools, has not been shown to meet the learning needs of gifted students.

- When course content is driven by textbooks only, gifted students may be repeating previously learned material.

- Textbooks and reading materials should be available for highly capable readers.

- Elective classes should be offered which are challenging for highly capable students.

Strategies for Success with Gifted Learners

- Set high expectations for all students, but especially for the academically gifted.

- Develop positive consequences for outstanding academic performance.

- Structure the master schedule to include block classes and utilize thematic, integrated curricular approaches which allow for exploration of a topic in greater depth by individual students.

- Plan the master schedule around significant instructional needs, such as teaming and common planning times.

- Prc ide alternative coursework choices, and acceleration as needed to provide the appropriate instructional level for gifted students.

- Allow flexible grouping for in-depth exploration of topics.

- Group all students with their intellectual and/or academic peers for part of their school program.

- Provide opportunities for activities such as Odyssey of the Mind, Future Problem Solving, or special-interest seminars.

- Provide mentors for those students who show the talent and interest for an in-depth study.

- Teach leadership skills to all students, and provide real opportunities for students to lead and make decisions.

- Develop support networks through the counseling office so that gifted girls' affective needs are addressed, a Talent Search is supported, at-risk students (gifted and otherwise) have a safety net, and college/career awareness activities are initiated.

- In research and independent study projects, encourage the use of primary sources for information.

- Accept alternative products which encourage the use of the skills and talent areas of gifted students.

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Business/Education Networks

Effective partnerships between business and education result from a common goal, namely the best educational opportunities to meet the academic needs of each child in order to maximize his/her fullest potential. This happens when business and education are mutually supportive.

Basic strategies for networking with business include the following recommendations:

1. Develop a clear mission statement.

2. Define goals and objectives reflecting personnel, resources, time, funding, and expectations.

3. Identify who will be involved (parents, business, community, existing groups, students, etc.).

4. Maximize the effectiveness of those involved by capitalizing on individual strengths of all participants to achieve the common goals.

5. Establish an ongoing evaluation process that provides feedback to and from all involved.

Examples of Effective Programs

Foundations: Spokane Business Assisting Scholastic Excellence (SBASE) is a nonprofit foundation established in 1983 by local business people. SBASE is governed by a volunteer board of directors composed of business people, school district superintendents, public and private educators, and the local Northwest Gifted Child Association (NWGCA) president. SBASE helps recognize and motivate educators by providing scholarships of up to $350 in order to provide financial assistance and recognition to administrators, counselors, and teachers for their continuing professional development in the field of gifted education or another major field or discipline. Examples of courses which have been funded include teaching methods, curriculum models, the gifted child in the regular classroom, and underachievement issues. Scholarship recipients

have included teachers for the gifted, classroom teachers, administrators, and counselors from both public and private schools in Spokane County. Between 1986 and 1990, SBASE received annual contributions of between $12,000 and $18,000, and granted 35-50 scholarships per year. SBASE also sponsors an annual symposium featuring nationally recognized authorities in the field of gifted education.

Strategies: Identify a group of influential community business leaders who share common educational concerns and give them the opportunity to become involved; develop contacts with company policy makers who have a personal interest in gifted education; develop a plan together (mission statement, goals, objectives, etc.); implement the program; establish an ongoing system of evaluation providing feedback from all involved.

Personnel-Based Programs: One example of a business-education partnership in Washington state is Partners in Public Education (PIPE). PIPE is an organization of business professionals committed to working with schools and the community to enhance and improve education in Seattle. PIPE's goals are to improve academic achievement, help prepare students for the world of work, and to instill responsibility and citizenship values in students. PIPE acts as a networking system to match Seattle schools with local businesses. Together, the school and business develop a partnership work plan, matching the business' personnel resources to the needs of the school. PIPE acts as a source of training, idea sharing, and troubleshooting, and recognizes model partnerships for future replication. Annual awards are presented to partnerships and individuals who have met the program goals.

The Xerox Corporation (Tukwila District Office and downtown Seattle Business Systems Office) is one of PIPE's many success stories. Xerox is partnered with Coleman and Riverview schools, and provides word processing, print reproduction services, on-site field trips, incentives and awards to the schools

involved. About 100 Xerox employees volunteer to be pen pals, tutors, and mentors to students. They also assist with PTA fundraising and assemblies. In September, 1990, Governor Booth Gardner presented the most valuable Partner Award to Xerox Corporation for their successful partnership with Seattle schools.

Strategies: Assess your building or district needs and define your problems, goals, and objectives; identify resources; share your concerns with influential resource people; jointly develop strategies to facilitate solutions; recruit business volunteers; implement program; establish ongoing evaluation process and method for public and private acknowledgement.

Joint-Venture Programs: An example of coordinating resources between different agencies was piloted by Moses Lake School District and the Moses Lake Museum and Art Center. This partnership resulted in the NOVA (New Opportunities for Versatile Learners) Invention Convention and Art Show.

The Nova Invention Convention was sponsored by the highly capable program and intermediate students. The students displayed and presented their own unique inventions created during an inventions unit. Artwork by elementary through high school students was also displayed.

The Museum and Art Center provided an exciting atmosphere for students to share their products and receive recognition for their creative endeavors.

Strategies: assess needs, define problems, goals, and objectives; share concerns with key influential people; identify resources unique to each agency; coordinate resources; implement program; establish ongoing evaluation and feedback process, and method for public and private acknowledgement.

In-Kind Programs: In-kind programs involve schools making use of materials, supplies, equipment or services which are donated by a business. As part of a unit on self-esteem in a Puget Sound school, students decided to create banners to help

celebrate individual differences. Parents, students, and community members networked to find free or inexpensive materials and experts in graphic design and fiber construction who could help with the project. Working through volunteer room-resource parents, personal contact with contributors was made, and services and materials were delivered to students.

At a parent-teacher meeting in a private school in North Seattle, members decided to develop a Community Resource Survey which would identify resource people, interests, and areas of expertise for sharing with students. Students in a 5/6 grade class used this data as part of a computer skills project, and created a directory which was made available to all interested parties.

Strategies: identify needs; network and find available resources; match in-kind donations with feasibility of acquiring materials and services; arrange for delivery, storage, and dispensing of donated resources; establish an ongoing evaluation process and method fr₁ public and private acknowledgement.

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