

# Piagetian Techniques in School Psychological Assessment

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*Piaget's stages of development are reviewed and ways in which his theory has been applied to education are discussed. His assessment procedures are described and compared with other assessment procedures used in education. The usefulness of Piagetian measures in readiness testing in the school system is explained.*

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Jean Piaget, a biologist, philosopher, and most notably a developmental psychologist, had a profound impact upon many aspects of education. His work with Binet and Simon in 1919 sparked his interest in intellectual functioning. It is interesting that Piaget and his colleagues, Binet and Simon developed such different assessment procedures to measure aptitude and intelligence. The psychometric approach of Binet and Simon and Piaget's qualitative approach can be used together to produce even more accurate measures of intelligence. With the two dimensional approach of traditional psychometrics such as the Stanford Binet Intelligence Scale and the Weschler Intelligence Scales, it is possible to view only one side of an individual's cognitive abilities, which is *how much* he or she knows. Many times scores of psychometric scales do not reflect a true measure of intelligence, because a child may not have been exposed to the material or is not ready to learn certain material which has been presented by the test. These factors may not always be taken into consideration when evaluating the child's intelligence level, and are not reflected in the test scores. Piaget's measures of intelligence do present these factors and enable the school psychologist to more fully perceive the child's level of intelligent functioning. Piaget's techniques can also be utilized to determine a child's readiness level for attaining certain concepts in the classroom. Piaget's assessments view cognitive abilities in three dimensions, or how a person knows what he or she

knows, which is useful in determining one's developmental level, or readiness for learning. Using Piaget's measures, it is possible to see the reasoning behind the content, or what goes on beneath the surface in a young mind.

## **Theory for assessment**

In order to understand what is involved in Piagetian assessment, one must first understand the concepts of intelligence proposed by Piaget and how he viewed human learning. Piaget first started studying cognitive development in children when he was working with Theophile Simon and Alfred Binet on the development of the first intellectual test (Craig, 1996). While Binet and Simon were interested in how many correct answers children were obtaining on their test, Piaget was interested in why children repeatedly chose the same wrong answers. This led to his motivation for studying the cognitive development in children, and a concept he calls genetic epistemology. According to Leahey (1994), genetic epistemology was Piaget's attempt to chart the development of knowledge in children. A combination of biology and philosophy, genetic epistemology is the study of how children develop structures to adapt to the environment (DeLisi, 1979).

Regarding intelligence, Piaget's focus was on mental processes that occur, rather than on actual measures of intellect. He described four areas in which to define intelligence: the biological approach, the

succession of stages, knowledge, and intellectual competence.

Piaget believed that organisms are self-regulating in their choices of ways to adapt to the environment, and that intelligence develops through an organism's adaptation to the environment (Craig, 1996). The biological approach focuses on reflexes, assimilation, and accommodation. Biological adaptation involves both physical and mental aspects of our bodies. Reflexes occur when we encounter a stimulus in the environment. We then need to adapt to the situation that we are experiencing. We take in information through the senses, and integrate the information into an already existing schema, or view of the world, by a process called assimilation. If we cannot logically integrate the information into existing schemas, we reorganize the schema to match our new experiences, in a process called accommodation. Equilibration is the balance between our structures of thought and the environment. In order to accomplish equilibration, children need to be allowed to do their own learning. The processes of accommodation, assimilation, and equilibration are the sources of intrinsic motivation for children to learn. A child can obtain information through social transmission, for example, from his parents, teachers, or books. This new information may contradict the child's current schemes, causing disequilibrium. The child will search for an answer that enables her to achieve a state of equilibration.

According to Piaget, children develop through a succession of stages (Craig, 1996). The first stage is the Sensorimotor stage, which occurs in the ages of 0-2 years. In this stage, a child relies on seeing, touching, and sucking objects. Objects are known to the child through the senses. Children are learning the relationship between their bodies and the environment. Object permanence is an important concept learned in the sensorimotor stage. Object permanence is the awareness that objects still exist even when they cannot be seen. For example, if a child sees someone hold out a toy, and then hide the toy behind her back, the child will look for the toy. He will remember that the toy is still there. Younger infants do not have this capability of object permanence. According to Piaget, when the toy is hidden, they will completely forget that the toy exists.

In the Preoperational stage (2-7 years of age), a child's thinking is self-centered, or egocentric. A child

in this stage believes that everyone thinks as he or she does, and has difficulty viewing life through any other perspective than his own. It is in the preoperational stage that children learn to form concepts and use symbols, which enables them to acquire language skills. Children may have magical notions of cause and effect. They may believe that nature is alive, or attribute feelings to inanimate objects, a concept called animism. At this stage, children have difficulty classifying information. Their thinking is concrete and irreversible, which means that they cannot think in abstract terms and cannot reverse events in their mind.

It is in the Concrete Operational stage (ages 7-12) that logical thinking emerges. Children obtain reversibility. They can understand mathematical concepts and classify objects or events. An important intellectual function obtained in this stage is conservation, or the notion that quantity does not change when nothing has been added or taken away from an object or collection of objects despite changes in spatial arrangement or form (Pulaski, 1980).

At the Formal Operational stage (ages 12 - adult), children can think in abstract or hypothetical terms. They are able to form hypotheses, and can reason through analogy and metaphors. At this age they should be able to perform higher mathematical calculations such as algebraic operations. They should be able to read material which requires higher levels of thinking. Not all individuals ages 12 to adulthood obtain formal operational thought (Craig, 1996).

According to Craig (1996), in order for children to move from one stage to another, they must master a set of criteria. Children cannot move backwards through the stages. For example, once a concept is learned, it cannot become unlearned. Intellectual competence was described by Piaget as the highest level of functioning that occurs at a specific stage. One must measure a child's intellectual competence by determining what stage he is in, not by his chronological age. It is difficult to successfully measure a child's intelligence level based upon scores that are standardized by a child's age. Four factors that allow children to move from stage to stage are maturation (physical and psychological growth), experience, social interaction with others, and equilibration. Piaget believed that all children go through the stages of development in the same order, but the chronological age at which each set of criteria corresponding to a stage is obtained differs with the

intelligence level of the child (Craig, 1996).

Piaget did numerous experiments with children. Some of his most well known work with children involved experiments with conservation (Pulaski, 1980). Piaget realized that as children mature, they progressively master different concepts of conservation. A child must understand three basic concepts in order to be able to understand conservation: identity, compensation, and reversibility. Identity is the realization that material remains the same when nothing is added or taken away. For example, given two cups of equal shape and size of liquid, when liquid is poured from one container to another of a different shape, the amount of liquid does not change. Compensation is the realization that changes in one dimension can be offset by changes in another dimension. For example, the shape of the liquid in the container changed, which may have made it appear that the amount changed, but in fact, the amount remained the same. Reversibility is the realization that changes can be canceled out by mentally reversing the steps and returning to the origin. Reversibility involves the ability to make logical inferences. Children can remember that the amounts of liquid in both containers were the same before one was transferred into another container, and children can assume that liquids can change shapes in other similar situations such as pouring it into another differently shaped container.

Piaget's experiments were very enlightening as to how the young mind works. However, what are the implications for education in all of Piaget's findings and experiments? First, it has been proven that children do not think the same way that adults do; therefore they should not be expected to learn as adults do. The standard way of teaching—lectures and notes, may not be an effective way for children to learn (Craig, 1996). Piaget has proven that young children need to act on their environment and actively explore their environment in order to learn. The “child centered” approach to learning evolved out of Piaget's findings. According to Jerome Bruner (Ormrod, 1995), active discovery learning should be encouraged in schools rather than programmed instruction, such as lectures and video presentations. Piaget believed that activity is essential in learning. Too often teachers instruct young children by telling them instead of showing them.

According to Prohaska (1994), learning should be process oriented rather than product oriented. While

product oriented learning demonstrates *what* a child learns, process oriented learning demonstrates *how* a child learns. Traditional schools often focus on product learning. Much of what is learned is through memorization and therefore not really learned at all. Process learning helps children learn *how* to think. They can develop their own solutions to problems. Piaget called this process equilibration, and felt that it was an important way for a child to learn.

Winkeljohann (1974) identified three ways in which Piaget's theory can be applied to education: (a) determining intellectual development, aptitude, and readiness, (b) curriculum planning, and (c) using a facilitative teaching style. Only the first application of Piaget's theory will be addressed for the purposes of this discussion. Piaget's theory is important in assessing readiness for learning in school. According to Piaget, children cannot learn certain concepts until they are at a particular stage of development. Children who are at a certain stage cannot learn concepts of a higher stage. Many schools may try to teach children concepts before they are ready to attain them. For example, MacGinitie (1973) indicates that beginners' reading programs based on such abstractions as phonics do not correlate with the mental processes that a child is capable of performing in first grade and primary school, yet that is exactly how children are first introduced to reading.

In another study involving reading readiness, Hurta (1972) used a standardized Piagetian instrument, the Concept Attainment Kit (CAT), and a separate test, the Durrell Analysis of Reading Differences to determine the relationship between conservation ability and reading ability. Results showed a relationship between a child's level of functioning on specific conservation tasks and specific reading subtests of the Durrell Analysis.

Polk and Goldstein (1980) conducted a study of reading achievement in the first grade. They found that scores on Piagetian tasks were significantly correlated with reading achievement while intelligence was not. There has been evidence that conservation abilities and class inclusion are predictors of reading readiness (Bybee & Sund, 1982). Class inclusion (classification) involves classifying objects into groups. Words may represent a class of objects, such as the idea that knives and forks are included in the class of silverware. Seriation, or the Piagetian concept of greater than and less than, also needs to be

understood in order to read. Children need to understand that words go from left to right on a page. In order for a child to recognize differences between letters, such as *q* and *p*, spatial relationships are required. In addition, children should know the operation of order in constructing sentences and manipulating language.

In order to be able to read, a child must have an understanding of language. According to Piaget, a child's cognitive development precedes language development (Ross & Roe, 1990). Language occurs during the latter part of the sensorimotor stage and during the preoperational.

### **Methods of assessment**

The clinical method, in which children are presented with a variety of situations and asked questions about the situations, is a major research and assessment method of Piaget (Ormrod, 1995). Some of the topics addressed in Piagetian assessments are language, logical reasoning, moral judgments, and conceptions of time, space, and number. DeLisi (1979) described three concepts frequently assessed using Piaget's techniques: moral judgment, conservation, and spatial operations. First of all, a wide age range of subjects can be assessed, from neonatal children to adolescents. Children tend to focus on observable events and do not consider intentionality in judgments. For example, consider a child telling his mother he saw a dog as big as a cow versus a child telling his mother he received all A's at school when he did not receive any grades. Children in certain stages of development may view the first lie as the worst lie. To these children, the more a lie departs from reality, the more naughty it is.

Before a child is able to conserve numbers it is useless to teach a child mathematics, because the child will not understand what he is learning. Spatial operations (ages 5-10 years) can be demonstrated through a bottle filled about 1/3 of the way with liquid. As the bottle is placed on a tabletop and rotated, the line of liquid always remains horizontal to the table. If shown several pictures of this rotation, children may choose a set of pictures that does not illustrate this concept. For example the line of liquid may be curved. As the examples above illustrate, Piagetian tasks are not used only to assess reading and language readiness, but are used for assessing when children are ready to learn concepts in science and mathematics.

Piaget's model of cognition also provides a framework for assessing instructional materials for subjects such as science and math. In science and math, the use of concrete objects should be used for teaching 5-7 year old students (Craig, 1996), since they are still in the preoperational stage of development, and can think only in concrete terms. Abstract models of science require formal operational thought. When concrete operational students are faced with formal operational tasks, they cannot perform them unless they memorize the content (Hartford & Good, 1976). Just as there are different levels of conservation tasks, there are different levels of science and math concepts which can be categorized at particular levels of development. Hartford (1974) developed an instrument for calculating an index of the degree of formal operational thought required for high school students in understanding concepts from a chemistry textbook. He analyzed the concepts in terms of which of five Piagetian tasks could be performed by a student who understands a particular concept. The five tasks were: (a) isolation and control of variables, (b) generation of all possible combinations, (c) understanding mechanical equilibrium, (d) generation and use of quantified proportions, and (e) seeing through random variability to correspondences. Behavioral objectives were written for four concepts selected from chemistry study textbook: (a) Kinetic Theory of Gases, (b) Phase Changes, (c) Chemical Bonds and (d) Equilibrium. For each objective, formal operational tasks (out of the five listed above) were identified that a student could do if he also could perform the behavioral objective. In this way, levels of difficulty of science concepts were determined in terms of ability to perform Piagetian tasks.

Hartford and Good (1976) state that "educators seldom take into account the cognitive level of students in prescribing instruction" (p. 231). Fewer than 50% of eleventh and twelfth grade science students are formal operational thinkers (Hartford & Good, 1976). Cognitive level is an aptitude that is not assessed by most batteries of diagnostic tests. Educators often ignore the cognitive demand of instructional material, perhaps due to the lack of an easy-to-use instrument to measure cognitive demand. Tschopp and Kurdek (1981) state that high school and college science curricula have frequently been designed on the model of formal operational thought. They believe that group administered paper and pencil assessments of formal

operations tasks would be beneficial to evaluators of science curricula. However, such assessment procedures are rare and unreliable.

Albers (1991) suggested that the assessment of college students for enrollment in college mathematics courses could be improved using a Piaget-based paper and pencil test along with an assessment instrument called the ASSET. The ASSET is an assessment battery used to screen and place students enrolling in mathematics courses at Columbia College. The results have been reported to be reliable. Some students were placed in remedial classes who had “well developed reasoning skills and were just rusty on basic mathematical skills” (Albers, 1991, p. 1). ASSET focuses on basic math skills but very little on logical reasoning skills. Albers (1991) stated that of newly enrolled college students about 1/3 test at the concrete level, 1/3 at the transition level, and 1/3 at the formal operational level of cognitive ability. The instrument should assess both math skills and cognitive levels.

Regarding paper and pencil measures of concrete tasks, according to Inhelder and Piaget (1958), the change from the physical presentation of stimuli to verbal (or paper and pencil) may change the age of acquisition of concepts by several years and possibly even change the task from a concrete operational level to a formal operations level. One possible alternative approach was proposed by DeAvila and Pulos (1979). Pictorial material was used in the administration of Piagetian tasks. Groups of approximately 30 children age 7 to 11 years from low to middle socioeconomic backgrounds were administered Piagetian concepts in picture format. The tasks involved conservation (distance, number, length, horizontality, substance, and volume) and two other concepts studied by Piaget (chance and perspective). Three frames of cartoons were used, with the first presenting an equality or inequality. The second frame presented a transformation in materials. The third frame posed a question of equivalence or inequivalence. For example, the first frame was a cartoon of a boy and girl with three cups. Two cups were short, fat cups with a colored liquid in them, and the third cup was a tall empty glass. In the second frame, the girl is shown pouring one of the cups of liquid into the tall glass. In the third frame, the girl holds out her hands with a questioning look on her face. This is a measure of conservation of volume, and one of Piaget’s most well known experiments. The child must decide which glass

contains more liquid, the tall one or the short one, or if both glasses contain the same amount. The child is presented with three possible answers, with one being the correct answer. The two incorrect answers are based upon the most frequent incorrect responses given by children. Each cartoon was read aloud while the examiner pointed to the picture in a large booklet for the class to see. The class also followed along in their own booklets. Reliability and validity scores of the group presentation of this instrument were found to be comparable with those obtained by the individual presentation of the tasks.

Popular measures of intelligence such as the Weschler and the Stanford Binet have been reliable and valid measures of intelligence. Prohaska (1994) states that Piagetian tests have been consistent when a child is tested several times on the same or similar tasks, indicating reliability. Similar to traditional measures of intelligence, Piagetian measures have been used to identify characteristics in special populations of children, such as those who are gifted (Radner, 1975), and those who are intellectually disabled (Henley, 1980).

Piagetian testing has been compared to criterion referenced testing (Gray, 1978). Neither Piagetian testing nor criteria referenced testing (CRT) compare individuals with each other. They are both based upon a continuum of knowledge from mastery to total absence of mastery. CRT and Piaget’s system of measurement share a common purpose, that of diagnosing behavior within a particular area. Gray believed that Piagetian tests and CRT together could more usefully determine the cognitive level of students within an area of content and facilitate learning by enabling a teacher to tailor instruction to a child’s ability level.

Why was Piaget’s assessment not used more often in the school systems of today? One reason is that it is time consuming to use Piagetian measures. Individual assessment is usually required with Piagetian techniques, due to the informal nature of the procedures. Can tasks be replaced with group measures without losing the benefit of Piaget’s clinical approach? The pictorial method used by DeAvila and Pulos (1979) seemed to be somewhat successful. Even more effective may be the use of a video or live demonstration to the group of children while still allowing them to follow along in booklets. Multiple choice answers may not be as valid as spontaneous

answers which would better reflect their reasoning abilities. One way to allow groups of students to respond in this manner would be for them to write their answers; however, some students may not be very proficient at writing.

The research of Tschopp and Kurdek (1981) and Albers (1991) suggests that group measures of Piagetian tasks seem to be more likely to work with older children and adolescents. Further research should modify Piagetian tasks to be used in groups of younger children.

### Implications for practice

Piaget's measures may be especially useful for evaluating the readiness of preschool children for entering the school system. The Metropolitan Readiness Test, designed for preschoolers and kindergartners, uses at least one Piagetian measure (one-to-one correspondence) on the Quantitative Language subtest for assessing various mathematical concepts. It has already been noted that such capabilities of seriation, one-to-one correspondence, ordering, spatial relations, conservation, and classification, are positively correlated with reading ability (Bybee & Sund, 1982). However, some children may be able to memorize words and not really be ready to read at all. The Test of Early Reading Ability-Revised (TERA-2) was designed to evaluate reading skills in children between the ages of 3 to 9 years old. Most children do not reach the concrete operational stage, at which reading is first accomplished, until at least the age of 7. Some of the tasks for the subtests may be memorized by children, such as the Construction of Meaning subtest which measures the ability to read print in the environment (such as traffic signs). The child may not actually read the traffic sign but has memorized that an octagon red sign means stop. The child may have little or no understanding of what the word on the sign really means. The Knowledge of the Alphabet and its Functions subtest includes reading letter and numbers.

Again, these things can be memorized. Salvia and Ysseldyke (1998) reported that the test had limited predictive validity. Piaget's measures would be highly useful and more accurate in predicting true reading readiness than this particular subtest.

The Test of Early Mathematics Ability, (2nd ed.), is another test that demonstrates memorization skills rather than ability or readiness. While the test does

measure some degrees of magnitude (larger, smaller, further, closer), it evaluates children's abilities to read and write numbers, and even assesses formal addition and subtraction algorithms. It is important to note that many children can count long before they understand the meaning of numbers (Bybee & Sund, 1982). The test was designed for children from the ages of 3 to 9 year olds.

A growing trend in education today seems to focus on process learning, and that children should not be taught certain concepts until they are ready to learn them. The standard battery of individual assessment used by school psychologists includes measures of achievement, intelligence, language, reading, emotional/behavioral functioning and adaptive behavior. However, the developmental level of the child can determine how the child performs in all of the tests listed above. This may not be taken into consideration. If all of the above mentioned areas can be tested in the standard battery, then perhaps it would be wiser to use a simple battery of Piagetian tasks in order to determine where a child is on a continuum of development. This could enlighten the school personnel as to why the child may or may not perform well on certain parts of standardized tests. It could determine the selection of further tests to be used to measure the child's functioning. Children should not be taught without regard to their level of cognitive development. This is the major lesson we have learned from Piaget. ■

### References

- Albers, D. (1991). *Predicting nonsuccess in beginning college mathematics courses*. CA: (ERIC Document Reproduction Service No. ED 333 921)
- Bybee, R. W., & Sund, R. B. (1982). *Piaget for Educators*. Columbus, OH: Bell and Howell.
- Craig, Grace J. (1996). *Human Development*. Paramus, NJ: Prentice Hall.
- DeAvila, E., & Pulos, S. (1979). Group assessment of cognitive level by pictorial Piagetian tasks. *Journal of Education Measurement*, 16 (3), 167-174.
- DeLisi, R. (1979). *The educational implications of Piaget's theory and assessment techniques*. NJ: (ERIC Document Reproduction Service No. ED 182 349)
- Gray, W. M. (1978). A comparison of Piagetian theory and criterion-referenced measurement. *Review*

of *Educational Research*, 48 (2), 223-249.

Hartford, F., & Good, R. (1976). Assessment of cognitive requirements of instructional materials. *School Science and Mathematics*, 76 (3), 231-237.

Henley, M. (1980). *A developmental model for the education of children evaluated mentally retarded*. (ERIC Document Reproduction Service No. ED 206 141)

Hurta, M. J. (1972). *The relationship between conservation abilities and selected Piagetian tasks and reading ability*. (Ed. D. Dissertation), East Texas State University, (ERIC Document Reproduction Service No. 079 680)

Kuder, S. J. (1997). *Teaching students with language and communications disabilities*. Needham Heights, MA: Allyn and Bacon.

Leahey, T. H. (1994). *A history of modern psychology*, (2nd ed.). Paramus, NJ: Prentice Hall.

MacGinitie, W. H. (1973). *Assessment problems in reading*. (ERIC Document Reproduction Service No. ED 082 138)

Piaget, J., & Inhelder, B. (1958). *Growth of logical thinking*. NY: Basic Books.

Polk, C. L., & Goldstein, D. (1980). Early reading and concrete operations. *Journal of Psychology*, 106 (1), 11-16.

Prohaska, E. (1994). *A study of experiential education and its relationship to constructivism*. AR:

(ERIC Document Reproduction Service No. ED 386 299)

Pulaski, M. A. S. (1980). *Understanding Piaget*. NY: Harper and Row.

Rader, J. R. (1975). Piagetian assessment of conservation skills in the gifted first grader. *Gifted Child Quarterly*, 19 (3), 226-229.

Ross, E., & Roe, B. D. (1990). *An introduction to teaching language arts*. Hinsdale, IL: Holt, Rinehart, and Winston.

Salvia, J., & Ysseldyke, J. E. (1998). *Assessment*, (7th ed.). Wilmington, MA: Houghton Mifflin.

Tschopp, J. K., & Kurdek, L. A. (1981). An assessment between traditional and paper and pencil formal operations tasks. *Journal of Research in Science Teaching*, 18 (1), 87-91.

Winkeljohann, R. (1974). Jean's influence on Dick and Jane. *Elementary English*, 51 (6), 870-877.

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# Relationship Between Risk Factors For Suicide and Severity of Depression Among Adolescents

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*A study of the relationship between severity of depression in adolescents as measured by the Beck Depression Inventory and three known risk factors for suicide yielded positive results. The factors included suicide ideation, substance abuse and prior suicidal behavior.*

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Adolescent depression and suicide are issues of concern in today's world. The prevalence of clinical depression in teens is difficult to establish due to the lack of availability of assessment tools specific to this age group (Ehrenberg, Cox, & Koopman, 1990) and problems related to the conceptualization and measurement of this disorder (Sullivan & Engin, 1986).

In clinical populations, diagnosis is made through the use of self report tools such as the Beck Depression Inventory, clinical interview, family history and parent report (Roberts, Vargo, & Ferguson, 1989). The DSM-IV establishes diagnostic criteria for depression in the adolescent consistent with those used for adults (American Psychiatric Association, 1994). Five or more of the following symptoms must be present during the same 2-week period and represent a change from previous functioning: (a) depressed mood by report or observation (in children and adolescents, can be irritable mood), (b) diminished interest or pleasure, (c) significant weight loss when not dieting or weight gain, (d) insomnia or hypersomnia nearly every day, (e) psychomotor agitation or retardation nearly every day, (f) fatigue or loss of energy nearly every day, (g) feelings of worthlessness or excessive or inappropriate guilt nearly every day, (h) diminished ability to think or concentrate, or indecisiveness, and (i) recurrent thoughts of death, recurrent suicidal ideation without a specific plan, or a suicide attempt or a specific plan for committing suicide. These symptoms cause

significant distress and impairment in prior functioning and cannot be accounted for by use of substances or general medical conditions (APA, 1994).

Strasburger and Brown (1991) suggested that 13-28% of teens may be mildly depressed, 7% moderately, and 1.3% severely depressed. They used self-report inventories with a non-clinical population. Ehrenberg et al. (1990) focused on the Beck Depression Inventory (BDI) as a measure of adolescent depression. The findings reflect the following percentages for 332 general population high school students: Nineteen percent were assessed to be mildly depressed while 10.8% were described as "clinically depressed" using the standardized cutoff score of 16 as a measure.

Barrera and Garrison-Jones (1987) suggested that depressive symptoms may be somewhat normal for children and adolescents. Puberty may actually lead to signs of Major Depressive Disorder which, unlike those seen in adults, are normative, transient, and qualitatively specific to the adolescent's distress and upheaval.

As the debate continues concerning the nature and characteristics of teen depression, suicide rates have tripled in the last 30 years. Strasburger and Brown (1991) indicated that nine out of 100,000 teens in the USA successfully complete this act annually. The National Center for Health Statistics cited suicide as one of the leading causes of death in the age group 15-19 (Reinherz et al., 1995). Adolescent depression and rising rates of suicide appear epidemic. Described as



the fastest growing area of adolescent psychopathology in this country (Ehrenberg et al., 1990), identification of those teens at highest risk of suicide provides the rationale for this study.

Depression is clearly validated as a risk factor for suicidal ideation and attempt (Strasburger & Brown, 1991). The epidemiological relationship of self esteem and depression is evident with correlations in every facet of self esteem noted (Battle, 1987). Unlike adults, adolescents typically do not verbalize the presence of depression. Referrals for treatment are primarily due to acting out behaviors, withdrawal from family and friends, and substance abuse (Kauth & Zettle, 1990). The depressive disorder may be masked and underlies the more obvious symptoms (Ehrenberg et al., 1990). Accurate assessment of the presence and severity of depression in an adolescent is critical.

Ehrenberg et al. (1990) have described two types of depressed adolescents: the socially withdrawn/disengaged teen and the one who acts out his or her distress. Depression has been more frequently related to substance abuse in adolescents than adults. Substance abuse is an additional known risk factor for suicidal behavior in teens (Kaminer, 1994). Geller, Chestnut, Miller, Price, and Yates (1985) correlated adolescent depression and antisocial behavior. Antisocial behavior has been identified as a risk factor for self harm. Other known risk factors for suicidal behavior are prior attempts and the death of a family member by suicide (Strasburger & Brown, 1991).

Gender differences complicate diagnosis and impede understanding of apparent implications for suicide. Significantly more females than males score in the moderate to severe range on the Beck Depression Inventory (Emslie, Weinberg, Rush, Adams, & Rintelmann, 1990), a commonly used measurement of severity of depression in the psychiatrically diagnosed adolescent (Beck & Steer, 1993). Females report more emotional blunting, or sadness, hopelessness, sense of failure, decreased pleasure, suicidal ideation, than males (Kashani et al., 1989). Symptomology related to body image, appetite, mood fluctuation, and decreased overall satisfaction were also more common in females (Baron & Joly, 1988). Depression in males was correlated with conduct disorder (Kashani et al., 1989), increased irritability, work inhibition, social withdrawal and sleep disturbance (Baron & Joly, 1988).

Statistics related to adolescent suicide indicated that three to nine times as many female adolescents

attempted suicide but three to five times as many males succeeded (Strasburger & Brown, 1991). The relationship of clinical depression and suicide in adolescents is apparent. Recognition and assessment of risk is difficult. An adolescent's statement of intent has traditionally been a red flag that merits an immediate and serious response by clinicians, M.D.'s, teachers/counselors, and parents (Strasburger & Brown, 1991). What an adolescent means when he or she acknowledges or endorses such a statement may be at times a puzzle. Is such a statement sufficient justification for in-patient hospitalization or is it possible to ensure safety with a "commitment to life" contract and out-patient follow up? Insurance providers have developed active suicidal ideation as criteria for in-patient treatment. Objective measurement of those phenomena are difficult. How is the clinician to determine the appropriate action required?

Item nine of the Beck Depression Inventory, an assessment tool that is used to measure severity of depression in a clinical adolescent population, provide an opportunity to deny or endorse thoughts of self-harm. In adults severity of depression and suicidal behavior has been associated (Beck & Steer, 1993). The appropriate intervention has been the implementation of safety plans, often including hospitalization. The expectation of clinicians who administer the BDI to adolescents is that any depression present will be rated accurately according to severity (Kashani et al., 1989). A positive correlation between an endorsement of a statement of intent to self-harm and clinical depression is believed to exist. Such a correlation would lend support to the appropriateness of in-patient psychiatric hospitalization to protect the safety and welfare of teens in distress.

The present study was designed to investigate the relationship between an adolescent's severity of depression rating as measured on the revised Beck Depression Inventory and substance abuse, prior suicidal behavior and endorsement of statements of ideation of self-harm. The goal was to compare the importance of standardized measurement of depression severity with against known risk factors. While intrinsic differences were expected between males and females in observed relationships between severity of depression and suicidal ideation, it was hypothesized that positive and significant relationships between variables would remain consistent across groups. Mean

comparisons and correlation analyses were used. It was expected that increased severity of depression would be related to endorsement of item nine on the BDI expressing suicidal ideation, levels of substance abuse, and prior suicide attempt.

## Method

### Participants

Data for this study were randomly selected from medical files reflecting in-patient hospitalization of 50 male and 50 female adolescents. The mean age of female subjects was 15.34 and male subjects was 15.40 ages ranged from 13 to 18. Most of the sample were Caucasian. All had IQs greater than 70 (WISC-R or K-BIT). Mean full scale IQ scores for females were 97 and males 98. Grade placement ranged from 6th to 12th grade. Nine subjects, 6 males and 3 females had dropped out of school prior to graduation. One female had successfully completed the GED.

Patients were diagnosed according to DSM-IV criteria by a clinical psychologist within three to five days after hospitalization. Of the 100 subjects, 52% were diagnosed with Major Depressive Disorder, 44% with Dysthymic Disorder, and 4% with other non-psychotic diagnosis. Information was secured from family members, self-reported histories, semi-structured interviews, and individualized test batteries which in all cases included the revised Beck Depression Inventory.

### Materials

The revised Beck Depression Inventory is a self-report instrument that has been widely used in adolescent and adult populations. Twenty one items rated on a scale of 0-3 measure the cognitive (concentration, thought processes), behavioral (sexual interest, work performance), affective (tearfulness, hopelessness), and somatic (sleep disturbances, appetite changes) domains of depression. Unipolar clinical depression is determined through a score of 16 or above (Barrera & Garrison-Jones, 1987). The BDI has been used to measure symptom severity in adolescents reporting feelings of distress (Kashani et al., 1989). A score of 16+ has been validated as a cut off score for Major Depression in adolescents (Emslie et al., 1989). BDI scores of less than one and more than fifty were excluded from the sample.

Item nine of the revised Beck Depression Inventory addresses suicidal ideation and has been

correlated with self-harm (Beck & Steer, 1993). Responses are rated from 0-3 (0 = "I don't have any thoughts of killing myself," 1 = "I have thoughts of killing myself but I never would carry them out," 2 = "I would like to kill myself," 3 = "I would kill myself if I had the chance") (Beck & Steer, 1993). Subjects who endorsed this item with a rating of one to three were included in the study sample.

Other risk factors of suicide considered were substance abuse and prior suicide attempt (Strasburger & Brown, 1991). Informal rating scales were used with values of 0-3 to indicate the absence, presence, and severity of each issue. Ratings were established from information in the psychological evaluation and reflected self-reported statements and/or historical accounts provided by family members three to five days following hospitalization.

Substance abuse was evaluated using a four point system (0 = none noted, 1 = experimental use, 2 = moderate/progressive use, 3 = heavy use indicating preoccupation or severe impairment of life function). The scale for prior suicide attempt also was rated from 0-3 (0 = none, 1 = suicidal ideation, 2 = suicidal ideation with a plan, 3 = actual attempt).

## Results

Gender means on the BDI were 16.9 for females and 13.1 for males. Independent samples in t-test analysis did reflect significant gender variances on individual items number 8 (self image), 11 (irritability), 14 (physical appearance), and 15 (work performance). Significant differences were not in item nine (suicidal endorsement).

The mean BDI score for the entire sample was 15.04 ( $SD = 10.75$ ). However, black subjects (mean = 20.33) scored significantly higher than white subjects ( $M = 14.17$ ).

A significant positive relationship was found between total BDI score and endorsement of item nine, a suicidal statement,  $r = .54$ ,  $p < .05$ . The impact of this relationship may be questionable when considering that all Beck items reflected significance with the exception of item number 6 (relating to feelings of punishment) and number 19 (weight loss or gain). Item number 2, which measures severity of hopelessness, expressed by the patient has a higher positive relationship to overall Beck scores,  $r = .68$ ,  $p < .05$  than suicidal ideation.

A two way ANOVA of the risk factors of

substance abuse and prior suicide attempt was calculated with total Beck scores and item nine scores and item two scores specifically. A significant relationship was found between prior suicide attempt and item nine (thoughts of suicide),  $F(3,84) = 8 > 6.60$ ,  $p < .05$ . No significant effect for substance abuse was found and no significant interaction effect was found. The strongest relationship was noted between subjects in the moderate range of substance abuse who had made a prior suicide attempt. Further analysis addressed differences between item two (discouraged about the future), substance abuse, and prior suicide attempt. Highest relationships in this category were found in the experimental user who had made a prior attempt.

### Discussion

We hypothesized that there would be a significant relationship between an adolescent's overall score on the Beck Depression Inventory and endorsement of a statement reflecting suicidal ideation. We further hypothesized that two leading risk factors for suicidal behavior, substance abuse and prior suicidal attempts, would be significantly related to BDI scores.

This hypothesis was built around substantiated data that identifies depression, substance abuse and prior suicide attempts as risk factors for suicide. The revised Beck Depression Inventory has been used as an instrument that measures severity of depression in adolescents (Kutcher & Morton, 1989). Increasing incidence of risk factors, coupled with epidemic rises in successful completion of suicides, provides the impetus for clinicians to study the causes of this behavior. Implications are critical for the identification of appropriate treatment interventions.

There is a positive significant relationship between endorsement of item 9 and overall Beck scores. The meaning of this finding is unclear however when considering that the majority of Beck items (81%) also positively correlate. To strengthen the importance of this finding, a link to the statistical significance of prior attempt and severity of depression would be useful. This was not the case. A significant positive relationship was not found between known risk factors of substance abuse and prior suicide attempt and overall Beck scores reflecting severity of depression.

Questions arise as to the nuances of these findings. What is the value of administering the Beck

Depression Inventory as a measure of severity of depression in adolescents if there is no correlation with the reality of past attempts? If past suicide attempts are not reflective of depression, what is the driving force of this serious behavior? Why don't levels of suicidal behavior relate to Beck scores? Exactly what is a teen saying when he or she verbalizes suicidal desire or intent?

Suicidal ideation is described as a common phenomenon among adolescent and college students (Kaminer, 1994). Recent studies indicate that suicidal behavior in a growing number of adolescent reflects no apparent psychopathology (Kaminer, 1994). Major Depressive Disorder is the most widely known diagnosis of psychopathology in adolescents (Strasburger & Brown, 1991). If that is the case and suicidal risk factors do not correlate with commonly used measures, indications for clinicians take a strange twist.

Costello and Angold (1988) suggested that risk factors for suicide may be a more important consideration than clinical evaluation. It has been reported that about one-half of adolescents acknowledging suicidal attempts have never met criteria for Major Depressive Disorder at any time (Kaminer, 1994). Conflicting research indicates that depression is a known risk factor (Strasburger & Brown, 1991). One study found that self-reported depression is not related to the severity of clinician-documented suicidal behavior (Kaminer, 1994).

When presented with these conflicting results and inconsistent research findings on this important subject, the need for additional study is obvious. Prediction and intervention into suicidal behavior in the adolescent is the foremost concern. Research design should be sensitive to the ethical ramifications of suggestibility and de-sensitization in this potentially lethal and very serious subject (Weiss & Weisz, 1988).

Further study of adolescent depression leading to the development of adolescent specific criteria and measurement instruments is justified based on the conflicting studies reported. If adolescent depression is a true phenomenon and not a passing manifestation of generalized distress, how can clinicians learn to discriminate one from the other? Even more importantly, is it necessary to discriminate or is one equally as serious as the other? This study has raised some important questions in the areas of adolescent depression and suicidal behavior. The utility of the

Beck Depression Inventory in relation to suicidal behavior in an adolescent is in question. Item nine (suicidal ideation) may not measure true risk.

Clearly, adolescents are attempting to communicate their increasing distress level through various kinds of behavior and statements. Our responsibility is to learn to hear what they are really saying and to act on it in a way that will lead to improved mental health and more positive life functioning. ■

### References

- American Psychiatric Association. (1994). *Diagnostic and statistical manual of mental disorders* (4th ed.). Washington, DC: Author.
- Baron, P., & Joly, E. (1988). Sex differences in the expression of depression in adolescents. *Journal of Adolescent Research, 18*, 1-6.
- Barrera, M., & Garrison-Jones, C. (1987). Properties of the Beck Depression Inventory as a screening instrument for adolescent depression. *Journal of Abnormal Child Psychology, 16* (3), 263-272.
- Battle, J. (1987). Relationship between self-esteem and depression among children. *Psychological Reports, 60*, 1187-1190.
- Beck, A., & Steer, R. (1993). *Beck Depression Inventory Manual*. San Antonio, TX: Harcourt Brace.
- Costello, E., & Angold, A. (1988). Scales to assess child and adolescent depression: Checklists, screens, and nets. *American Academy of Child and Adolescent Psychiatry, 27* (6), 726-737.
- Ehrenberg, M., Cox, D., & Koopman, R. (1990). The Million Adolescent Personality Inventory profiles of depressed adolescents. *Adolescence, 25* (98), 416-424.
- Emslie, G., Weinberg, W., Rush, J., Adams, R., & Rintelmann, J. (1989). Depressive symptoms by self-report in adolescence: Phase I of the development of a questionnaire for depression by self-report. *Journal of Child Neurology, 5*, 114-121.
- Geller, B., Chestnut, E., Miller, M., Price, D., & Yates, E. (1985). Preliminary data on DSM-III associated features of major depressive disorder in children and adolescents. *American Journal of Psychiatry, 142*, 643-644.
- Kaminer, Y. (1994). *Adolescent substance abuse: A comprehensive guide to theory and practice*. New York, NY: Plenum.
- Kashani, J., Sherman, D., Parker, D., & Reid, J. (1989). Utility of the Beck Depression Inventory with clinic-referred adolescents. *Journal of the American Academy of Child and Adolescent Psychiatry, 29* (2), 291-295.
- Kauth, M., & Zettle, R. (1990). Validation of depression measures in adolescent populations. *Journal of Clinical Psychology, 46* (3), 291-295.
- Kutcher, S., & Marton, P. (1989). Utility of the Beck Depression Inventory with psychiatrically disturbed adolescent outpatients. *Canadian Journal of Psychiatry, 34*, 107-109.
- Reinherz, H., Giaconia, R., Silverman, A., Friedman, A., Pakez, B., Frost, A., & Cohen, E. (1995). Early psychosocial risk for adolescent suicidal ideation and attempts. *Journal of the Academy of Child and Adolescent Psychiatry, 34* (5), 599-611.
- Roberts, N., Vargo, B., & Ferguson, H. (1989). Measurement of anxiety and depression in children and adolescents. *Affective disorders and Anxiety in the Child and Adolescent, 12* (4), 837-861.
- Strasburger, V., & Brown, R. T. (1991). *Adolescent medicine: A practical guide*. Boston, MA: Little, Brown.
- Sullivan, W., & Engin, A. (1986). Adolescent depression: Its prevalence in high school students. *The Journal of School Psychology, 24*, 103-109.
- Weiss, B., & Weisz, J. (1988). Factor structure of self-reported depression: Clinic-referred children versus adolescents. *Journal of Abnormal Psychology, 97* (4), 492-495.

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# Improving the Prereferral Process for the Identification of Children with Disabilities

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*The purpose of this study was to improve the prereferral process to reduce inappropriate referrals for multidisciplinary team evaluation to identify disabled students. Results revealed improvements in the quality of referral information and team processes that correlated with accurate identification of disabled students.*

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In an effort to meet requirements of P.L. 94-142, the Education for All Handicapped Children Act of 1975 and its subsequent revisions (IDEA), schools have developed committees to provide prereferral assessment and intervention strategies. Child Find, which is mandated in these laws, requires schools to identify, locate, evaluate, and serve disabled children ages 3 through 21. Services must be provided at no cost to parents, and placements must be in the “least restrictive environment.” The primary source of referrals for possible special education services after children enter school is the regular classroom teacher. A secondary source of identification is parents (Anderson, Chitwood, & Hayden, 1990).

In the 1980’s emphasis began to shift from traditional testing and placement of children in special education classes to the implementation of screening and regular class interventions prior to formal comprehensive testing (Moore, Strang, Schwartz, & Braddock, 1988). Graden, Casey, and Bonstrom (1985) discussed an approach in which teachers met with a team to discuss children experiencing a wide variety of difficulties. They planned strategies to assist children in their regular education classrooms. School districts have set up policies regarding the prereferral/referral process based on federal and state regulations. Conoley and Conoley (1992) viewed this as an opportunity for consultation in the schools through team planning for improved use of intervention strategies. They emphasized that school-based

problem solving has positive outcomes for students, teachers, parents, and administrators. Problems arise when teachers approach the team only as a means to get children special education services. According to these authors, training, team meetings, administrative support, and coordination of services are necessary components in building teams to serve children effectively.

Included in this report is evidence that the prereferral/referral process at Laurel Bay Schools, South Carolina, prior to the 1995-1996 school year, was not efficient in determining while students needed assessment for possible special education services. Nearly half of the children approved by school committees for assessment did not meet eligibility standards for special education. There were increases in the numbers of students referred, evaluated, and placed over the past three years; however, the ratio of the number of students assessed compared to those found eligible for special education did not improve until the 1995-1996 school year.

It was hypothesized that through systematic changes in the prereferral/referral process, the number of children referred for psychological evaluation would be closer to the number of students determined to be eligible for special education.

## **Method**

### *Setting*

Laurel Bay Schools (LBS) is a district within

the Department of Defense Domestic Dependents' Elementary and Secondary Schools (DoDDDESS) system. LBS serves military dependent children of the Tri-Command community: Marine Corps Air Station, Beaufort; Marine Corps Recruit Depot, Parris Island; and Naval Hospital, Beaufort. In order to attend LBS, students must reside in one of the base housing facilities with a military sponsor as legal guardian or parent. Students come from a variety of geographical, ethnic, and economic backgrounds. Unlike most public schools in the eastern United States, LBS has elevated numbers of interracial families and students with English as a second language. Families are transient with most having duty station changes within two to four years.

#### *Sample*

The number of students attending LBS has remained consistent over the last six years as available housing accommodations have not changed. The only increases in total population numbers have come from the addition of three- and four-year-old children with disabilities and a regular four-year-old pre-kindergarten program. These groups were not included in the sample for this study. Increases have occurred in the special education population as LBS has been identified as a school system with a full range of services for dependent children with disabilities. Medical facilities are also available to the military community through the Medical University of South Carolina's Children's Hospital within one and one-half hours travel time. Therefore, families with medically fragile dependents are likely to have LBS as a duty station at least once and sometimes more often during their military careers.

During this study the student population remained at approximately 1300 children, grades K-6. Grades K-2 comprise the primary school (School #1) with approximately 685 students, and grades 3-6 comprise the intermediate school (School #2) with approximately 615 students. Though the types of children and trends in services changed, the total remained remarkably stable.

#### *Procedure*

Review of data collected for referral, evaluation, and placement of students from school year 1990-1991 to 1994-1995 revealed a need for improvement in the prereferral/referral process. Data revealed that about one-half of the students evaluated were not eligible for special education. Unnecessary evaluations were costly, time consuming, and unnecessarily burdensome

for parents and students. A review of the records and procedures by the prereferral/referral team revealed that the core teams of each school were generally made up of the principal or designee, the classroom or referring teacher, and the counselor. The paperwork was cumbersome, repetitive, time consuming, and visually "busy." Review of records, screening, and intervention strategies revealed extended time lines and poor documentation. Up to 84% of the students brought to the attention of the team were recommended for testing. A single team member often completed screening and made decisions about which students would be tested. Parents often were not included as part of the decision-making process and no written information, other than permission to screen, was provided in the referral packet. Special education teachers were not used as resources for intervention strategies in regular classrooms.

A needs assessment questionnaire revealed that teachers felt a need for more inservice about referral procedures and in identifying characteristics of students with disabilities. Most teachers felt that if they filled out the referral paperwork, the child referred should be tested for special education regardless of intervention strategy outcomes or screening results. The primary reason for referral was to have students evaluated for special services, not for assistance to facilitate the student's regular education program.

In planning for needed changes for the 1995-1996 school year, a Referral Process Improvement Committee (RPIC) was formed. This group included the Director of Special Education, the School Psychologist, two special education teachers, two regular education teachers, and two administrators, one from each school.

The RPIC made decisions based on legal guidelines regarding the identification of children with disabilities, review of past data and needs assessment results. Major issues identified were (a) changes in the process from prereferral to approval for evaluation, (b) effective consultation for a team-building approach among team members, teachers, and parents, and (c) keeping changes realistic, meaningful, and simple.

The core team members in each school consisted of the case manager, the referring teacher, and a special education teacher. The referred child's parents were invited to all meetings. Other personnel (i.e., school psychologist, speech-language pathologist, occupational therapist, school nurse) were included as

needed. Special education teachers attended meetings on a rotating basis, and there was some rotation of the case manager's duties.

A subgroup of the RPIC was given the task of streamlining the paperwork. This subgroup designed a short background data sheet for parents to complete, simplified case manager instructions, and edited parent letters to urge participation. Another subgroup outlined an inservice schedule and agenda so core committee members could have grade level staff development time. A short evaluation of inservice time was designed to assist in determining effectiveness of training and to provide information in planning future inservice.

Using the school psychologist as the primary consultant, team building activities were incorporated through inservice training. Major emphasis was on using a team approach for providing intervention strategies (Conoley & Conoley, 1992; Marks, 1995; McCarney, Wunderlich, & Bauer, 1993). Training was provided also for using records, determining screening methods, and interpreting screening results. Emphasis was increased on approval for psychological evaluations of students with obvious indicators of possible disabilities. Teachers were encouraged to submit referrals early in the school year.

## Results

Teachers were receptive to changes in the referral package paperwork. This acted as a "jump-start" for willingness to cooperate. Evaluations of inservice sessions were positive. Some teachers showed resistance to implementing intervention strategies. Other team members carefully assisted teachers with documentation of their strategy results. Teachers could go individually to other regular and special education teachers, the psychologist, and/or the principal or assistance.

A review of the data collected regarding students referred, approved for evaluation, and eligible for special services was compared in each school and district-wide. The major concern of this study was to show a closer relationship between the number of students evaluated and the number of students found eligible for special education services. The data revealed a district-wide improvement of 38% with one school improving 43% and the other improving 33%. These results indicated that improvements had occurred in the prereferral processes of both School #1 and School #2 committees.

## Future implications

This study demonstrated that the prereferral/referral processes established for 1995-1996 could increase efficiency in determining which students from the referral pool would be eligible for special education services. Data regarding referred students versus evaluated students suggested that more emphasis should be placed on informal prereferral processes to reduce the number of students referred. Increased training in intervention strategies and characteristics of disabilities should assist teachers in making better referral decisions. In trying to reduce the number of inappropriate referrals, administrative personnel must be cautious to avoid discouraging teachers from making appropriate referrals. It remains the responsibility of the schools to locate, identify, evaluate, and serve students entitled to receive assistance through special education as reaffirmed through the 1997 amendments to the Individuals with Disabilities Education Act (IDEA) (National Information Center, 1998). ■

## References

- Anderson, W., Chitwood, S., & Hayden, D. (1990). *Negotiating the special education maze: A guide for parents and teachers*. Rockville, MD: Woodbine House, Inc.
- Conoley, J. C., & Conoley, C. (1992). *School consultation: Practice and training* (2nd ed.). Boston: Allyn and Bacon.
- Graden, J., Casey, A., & Christenson, S. (1985). Implementing a prereferral intervention system—Part I: The model. *Exceptional Children, 51*, 377-384.
- Graden, J., Casey, A., & Bonstrom, O. (1985). Implementing a prereferral intervention system—Part II: The data. *Exceptional Children, 51*, 487-496.
- Marks, E. (1995). *Entry for school consultation*. New York, NY: The Guilford Press.
- McCarney, S., Wunderlich, K., & Bauer, A. (1993). *The pre-referral intervention manual*. Columbia, MO: Hawthorne Educational Services Inc.
- Moore, M., Strang, E., Schwartz, M., & Braddock, M. (1988). *Patterns in special education service, delivery and cost*. Washington, DC: Decision Resources Corporation.
- National Information Center for Children and Youth with Disabilities. (1998). *The IDEA Amendments of 1997* (Revised Ed). Washington, DC: Author.

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Marie Echols

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# Individualized Assessment as Part of Student Support Team Screening in Elementary Schools: How Effective Is It?

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*This study examined the use of individualized ability and achievement screenings during the Student Support Team process in elementary schools. A significant relationship was found between schools that used individualized ability and achievement screenings, the rate of referrals for full psychological assessments, and the number of students found eligible for special education placement.*

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**A** Student Support Team (SST) process has been required in the State of Georgia since September 30, 1984. Georgia Special Education Rule 160-4-7-02 (1994) states that the

Student Support Team is a building level committee consisting of two or more persons whose responsibility is to identify and plan alternative instructional strategies for students experiencing academic, social and/or behavioral difficulties prior to or in lieu of referral to special education programs.

When a student is determined to be having academic or emotional/behavioral difficulties, the teacher can refer the student to the SST. After a student is referred to the SST, the sequence of events set forth in the *Individual Education Program Resource Guide* (1995) is: screening, referral for individual evaluation, permission for evaluation, hearing and vision screening, individual assessment, and establishment of eligibility.

Of particular interest in this research is the first step, the screening procedure. According to the *Individual Education Program Resource Guide* (1995, p. 17), screening can include, but is not limited to: anecdotal records, cumulative record information, behavior observations, academic progress, group testing, work samples, and formal/informal observation.

Many school systems employ individual standardized screenings measures prior to referral for individual assessment. Yet there is little research to support that this has been effective in reducing the number of referrals for individualized assessments or that it has increased the number of students who are accurately identified for special education placement.

One would assume that if student ability and achievement were assessed through the use of standardized measures prior to referral for individual psychological assessment, then there would be a higher referral to placement ratio than in schools in which individual screening was not employed. Fewer students would be referred for individual psychological assessment. Slow learning students would not be referred for further evaluations unless they were experiencing behavioral difficulties that were thought to be emotional in nature.

Information regarding the effectiveness of standardized ability and achievement tests during the screening portion of the SST is extremely limited. However, many school systems use individualized screening prior to referral for psychological assessment.

## **Overview of Student Support Teams**

Student Support Teams are also referred to as pre-referral intervention teams, problem solving teams, intervention assistance programs, mainstream

assistance teams, and child study teams. For the purposes of this research, they will be referred to as Student Support Teams (SSTs).

Student Support Teams are intended to provide assistance to students within regular classrooms. The essential characteristic is problem solving. Ross, in his chapter in *Best Practices in School Psychology*, (1995, p. 228) noted that in 1987, twenty-three state education agencies required SSTs and eleven others recommended them for students suspected of having a disability. Though SST procedures were required or recommended by a majority of states, there has been little information on how local education agencies implemented the procedures.

Fuchs, Fuchs, Bahr, Fernstrom, and Stecker (1990b) stated that the SST should confirm the existence of a problem, identify instructional and student factors that might contribute to a solution, and then collaboratively develop an appropriate plan of action. Various delivery options were reviewed by Idol and West (1987). They found that in each option, the initial stage focused on the referral or the request for assistance process. Then, following the initial screening stage, each alternative contained some combination of observation/assessment of the perceived problem, followed by problem classification/definition and recommendations for interventions. This was usually followed with steps involving the implementation and evaluation of intervention strategies (Idol & West, 1987). More simply put, the steps usually include problem identification, problem analysis, plan implementation, and plan evaluation (Ross, 1995).

One criticism of SSTs has been the view by many teachers that the procedures are only an obstacle to special education. Many voice the opinion that the SST process only withholds or delays needed services to students.

SSTs can be effective vehicles for helping students. Ross (1995) states that SSTs can reduce the number of students referred for formal assessment and then placed in special education. However, Ross notes that there must also be appropriate administrative support, sufficient time and resources invested in the program, staff willingness to be involved, and well designed interventions that are faithfully executed.

The Student Support Team has three key purposes. First, SSTs provide immediate assistance to students and teachers by generating and implementing

intervention strategies. Next, the SST strengthens the ability of teachers to serve difficult students within the regular classroom. And third, the SST reduces inappropriate referrals to special education while increasing the legitimacy of those that are initiated (Ross, 1995; Fuchs, Fuchs, & Bahr, 1990a; Fuchs et al., 1990b). Fugate, Clarizo, and Phillips (1993) state that there is still much ambiguity surrounding the issue of a desirable referral-to-placement ratio.

Shrout, Dohrenwend, and Levav (1986) suggest that in the study of mental disorders, a two-stage design is highly recommended. The first stage involves an inexpensive screening procedure in which probable noncauses of the disorder are identified. In the second-stage a diagnostic examination is conducted.

When students are referred for academic problems with the absence of behavioral problems, cognitive ability is strongly inferred as the distinguishing characteristic between those who receive special education services and those who do not (Kastner & Gottlieb, 1991). Therefore, it appears that it would be advantageous to screen for cognitive ability during the initial stages of the SST process.

Shrout et al. (1986), in their study of mental disorders, found that a major difficulty was selecting appropriate instruments for each stage. Because the first stage is applied to most respondents, the instrument needs to be brief, easy to administer, and reliable in the general population. The instrument needs to lead to categorical outcomes so that the examiners can determine whether or not to conduct the second-stage evaluation. Though the client population in the Shrout, Dohrenwend, and Levav study had mental disorders, the recommendation they made could be extended to students experiencing learning problems.

If cognitive ability is a distinguishing characteristic for those served or not served through special education programs, as Kastner and Gottlieb (1991) inferred, then it would appear to be good practice to address cognitive functioning early in the SST process in an effort to determine whether second stage testing, an individual psychological assessment, is necessary.

Shrout et al. (1986) state that second-stage evaluations should be diagnostic in nature, have demonstrated validity, and be reliable in nonclinical populations. Psychological assessments should meet the qualifications for the second-stage, in a two-stage

design.

Ross (1995) gives very little consideration to any sort of individualized screening during the SST process. He states that SSTs rule out the possibility that assessment based on standardized testing is useful in analyzing problems at a pre-referral stage. He states that individualized assessment should be restricted to formal evaluation procedures that are associated with special education consideration. Why such assessment is restricted to formal evaluation procedures is not explained.

Another argument against individualized assessment is made by Wilson, Schendel, and Ulman (1992). They argue that more reliance should be placed upon local data measures. Wilson et al. (1992) argue that time spent duplicating or confirming problems through individually administered norm-referenced tests could be better spent developing and monitoring interventions in both regular and special education classrooms.

### **Hypotheses**

The hypotheses tested in this study are: (a) The use of ability or achievement screening during the SST process reduces the percentage of students referred for individual psychological assessment. (b) The use of ability or achievement screening increases the percentage of students referred for individual psychological assessment who qualify for special education programs.

### **Method**

#### *Sample*

The participants in this study were 19 elementary schools (any combination of kindergarten to fifth grade) located in rural and suburban east Georgia.

The school populations ranged from 217 to 900 student, with a mean of 604. The general population in the counties in which the schools are located are approximately 59% White, 40% Black, and one percent "other," according to the 1990 census. The 1994 data on the number of students receiving free and reduced lunch ranged from 15.5% to 85.1%, with a mean of 53%.

#### *Procedure*

A survey was distributed to superintendents in eleven east Georgia counties served by the Central Savannah River Area Regional Educational Service Agency (CSRA RESA). The superintendents were

asked to distribute the surveys to each elementary school in their county.

Thirty-four surveys were distributed and 20 were returned. Nineteen of the 20 were returned completed. The 19 surveys represented seven counties.

In this study, SST procedures in elementary schools were surveyed. The selection of elementary schools was not done on a random basis. Schools were selected based on location within the CSRA RESA region only. Participants were asked to complete the survey using information from the school year (1994-1995).

#### *Data Analysis*

The chi square test of independence with continuity correction for a 2 x 2 table was carried out for each hypothesis. Chi square for both hypotheses revealed significant differences beyond what would be expected by chance alone.

### **Results**

The referral rate for psychological assessment was compared between schools that used individualized screening procedures during the SST process, and those schools that did not. Schools which employed individualized screenings during SST referred 21% of the SST students for individual psychological assessment. Schools without ability and/or achievement testing referred 29% of SST students for complete psychological. This was significant ( $\chi^2 = 8.875, p < .01$ ).

Of those student referred for psychological assessment, the number of students who qualified for special education placement was compared between schools that employed individualized screening during SST and those schools that did not use screenings. Schools using individualized screenings during SST, in which students received psychological evaluations, had a 69% eligibility rate. Schools not using screenings during SST had an eligibility rate of 56% after complete psychological assessments. This too, was significant ( $\chi^2 = 4.879, p < .05$ ).

Two schools in this study only reported the use of ability screening without achievement screening. Though this sample was small, ability testing alone was found to be significantly related to the reduction in the number of referrals for individual psychological assessment ( $\chi^2 = 42.636, p < .01$ ). However, using the same schools, the relationship between referred and eligibility for placement was not found to be significant

( $\chi^2 = .8945$ ).

Schools reported the following descriptive information. Participants on the SSTs are, in descending order: teachers, counselors, assistant principals, principals, others (parents, social workers, speech and language pathologists, or other outside resources), and school psychologists. Schools that do use ability or achievement testing most frequently report using the Kaufman Brief Intelligence Test ( $N = 13$ ) and/or the Peabody Individual Achievement Test ( $N = 10$ ). Other tests were reported but the K-BIT and PIAT-R were used by the majority of schools.

## **Discussion**

### *Reduction in number of referrals*

There is a significant relationship between schools that use individualized screening procedures and the rate of referral for individual psychological assessments. Schools that use individualized screening procedures refer significantly fewer students for individual psychological assessment.

It could be argued that other variables affect the rate at which students are referred for further evaluations. The number of participants in the SST, the perception by teachers that SSTs are helpful, the willingness of teachers to work with difficulty to teach students and the availability of Chapter I courses would indeed affect the numbers of students initially referred to SST. Those variables may affect the number of students referred for further psychological. However, even with those variables at work, if ability or ability/achievement screenings are added into the equation, it appears that fewer students are referred for individual psychological assessment.

This has important implications for Student Support Teams and for providers of psychological services. Screenings could eliminate the need to further evaluate students who are slow learners, who are not having emotional problems and who would not fit into any special education category. The screenings could provide important information to the SST about how to work with the student, and could provide an impetus for the SST to continue to work with the student and the student's teacher. By reducing the referral rate, more of the school psychologist's time could be spent in intervention and consultation.

Screenings are a more cost effective way to serve students. Screening procedures usually take no more than an hour. Individual psychological assessments

generally take between 9 to 11 hours to complete (Munson, 1996).

### *More students meet eligibility requirements*

In schools that use individualized screening procedures, the relationship between the number of students referred for psychological evaluations and the number of students eligible for placement is significant. Schools which employ individualized screenings refer fewer student, but of those students referred, more of the students meet Georgia's eligibility requirements for placement in special education programs.

As well as eliminating needless referrals, ability and/or achievement screening could specify student weaknesses. This would make further evaluations more effective. The school psychologist would be better able to choose appropriate tests, depending on the student's area of weakness.

## **Limitations and recommendations of the study**

The major limitation of this study is that the sample size was small. The results may not be generalizable outside of the Central Savannah River Area of Georgia.

Student Support Teams remain a little studied phenomenon. Many questions remain relating to the qualities necessary for an efficient and useful SST. Further studies should be done relating to SST screening procedures on a statewide basis. Comparisons should be conducted between schools that use ability screening only, achievement screening only, and a combination of ability/achievement screening.

SSTs are in place in Georgia to help the students. How to assist students and their teachers more effectively is worthy of further study. As with all educational practices, the goal should be helping students become successful in their educational endeavors. The results of this study suggest that individualized ability and achievement screenings should be included in the Student Support Team process. ■

## **References**

Burns, C. (1992). Psychoeducational decision making, test scores, and descriptive data: Selected methodological issues. *Journal of School Psychology, 30*, 1-16.

Fuchs, D., Fuchs, L., & Bahr, M. (1990a). Mainstream assistance teams: A scientific basis for the art of consultation. *Exceptional Children*, 57, 128-139.

Fuchs, D., Fuchs, L., Bahr, M., Fernstrom, P., & Stecker, P. (1990b). Pre-referral intervention: A prescriptive approach. *Exceptional Children*, 56, 493-513.

Fugate, D., Clarizio, H., & Phillips, S. (1993). Referral-to-placement ratio: A finding in need of reassessment? *Journal of Learning Disabilities*, 26 (6), 413-416.

Georgia Board of Education Division for Exceptional Students. (1994). *Special Education Rules, Chapter 160-4-7*.

Georgia Department of Education Division for Exceptional Students. (1995). *Individualized education program: Resource guide*. Atlanta, GA: Georgia Department of Education.

Gerber, M., & Semmel, M. (1984). Teacher as imperfect test: Reconceptualizing the referral process. *Educational Psychologist*, 19 (3), 137-148.

Graden, J. (1989). Redefining "pre-referral" intervention as intervention assistance: Collaboration between general and special education. *Exceptional Children*, 56, 227-231.

Idol, L., & West, F. (1987). Consultation in special education (part II): Training and Practice. *Journal of Learning Disabilities*, 20, (8), 474-494.

Kastner, J., & Gottlieb, J. (1991). Classification of children in special education: Importance of pre-assessment information. *Psychology-in-the-Schools*, 28 (1), 19-27.

McGrew, K., Algozzine, B., Ysseldyke, J., Thurlow, M., & Spiegel, A. (1995). The identification of individuals with disabilities in national databases: Creating a failure to communicate. *The Journal of Special Education*, 28 (4), 472-487.

Munson, L. (1996). School psychology vs. psychology in the schools: Who will provide services to students? *Georgia Association of School Psychologists: Dialogue*, 25 (3), 5.

Ross, R. (1995). Best practices in implementing intervention assistance teams. In A. Thomas, & J. Grimes (Eds.), *Best practices in school psychology* (pp. 227-237). Washington, DC: The National Association of School Psychologists.

Shrout, P., Dohrenwend, B., & Levav, I. (1986). A discriminant rule for screening cases of diverse diagnostic types: Preliminary results. *Journal of Consulting and Clinical Psychology*, 54 (3), 314-319.

Sinclair, E., Del'Homme, M., & Gonzalez, M. (1993). Systematic screening for preschool behavioral disorders. *Behavioral Disorders*, 18 (3), 177-188.

Wilson, M., Schendel, J., & Ulman, J. (1992). Curriculum-based measures, teachers' ratings, and group achievement scores: Alternative screening measures. *Journal of School Psychology*, 30, 59-76.

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# A Five-Step Strategy for Teaching Writing Skills to Mildly Disabled Students

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*Seven students with learning disabilities and behavior disorders were taught to write paragraphs using a five-step process. Performance was measured using a set of five criteria that were taught to the students during the intervention period. Student performances improved in all five areas following intervention with conforming to the topic improving the most and the use of correct grammar remaining relatively unchanged.*

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I don't know how to write a story. Will you write it for me?" This comment was made by Joe, an eighth grade student in an interrelated resource room. This is a class for students with mild disabilities. Joe has a learning disability that affects his reading and written expression. He does not like to write and he will often make excuses for why he should not have to write or he will try to avoid writing. Joe's situation is not very different from many students with writing disabilities.

Reading and writing stories are typical activities in language arts classes beginning in the primary grades (Montague & Graves, 1983). This demand grows as students move into their middle and high school years. Unfortunately many students, particularly exceptional learners, have difficulty with writing assignments. Common writing deficits include: ability to conform to a topic (Englert & Thomas, 1987; Graham & Harris, 1989), inability to use organizing strategies (Englert, Raphael, Fear, & Anderson, 1988; Graves, Montague, & Wong, 1990), low productivity (Barenbaum, Newcomer, & Nodine, 1987), and mechanical errors (Thomas, Englert, & Gregg, 1987).

Various methods to aid students in improving their written expression abilities have been developed. Buchan, Fish, and Prater (1996) suggest the use of an error monitoring strategy. This is a technique that

teaches students to ask themselves a series of questions upon completion of a written task to check for and correct specific errors. For example, the mnemonic device *Ninja Turtles Counting Pizza Toppings* was used by Buchan, Fish, and Prater (1996) to assist students in remembering to check that they wrote their names on their papers (N), wrote the title of their compositions (T), capitalized necessary words (C), used punctuation correctly (P), and used transition words where needed (T). This was shown to improve the writing skills of fifth grade learning disabled students.

Montague and Fonseca (1993) suggest the use of computers to improve writing skills. Computer-assisted composing can provide many different types of support that make it possible for students to be productive and successful writers. These include being an aid for students with handwriting difficulties and being reinforcement learning tools since computers are non-judgmental and do not cause students to be embarrassed by their mistakes. Many word processing programs contain spelling checks, grammar checks, style analyzers, and thesauruses that can detect errors and correct them for the student. Some software allows students to illustrate their compositions as well.

This article seeks to describe one five-step method used to teach students with mild disabilities how to write understandable paragraphs independently. Understandable is defined for the purpose of this report

as using complete sentences, conforming to a topic, and using punctuation, capitalization, and grammar correctly. The five steps included writing sentences, answering questions on a given topic, combining sentences into a paragraph, using an error-monitoring strategy, and publishing the paragraph using the computer.

### Description of students using the method

Seven eighth-grade students, five males and two females, with writing disabilities were chosen to participate in this study. Five of the students were identified as learning disabled and two as emotionally/behaviorally disordered. The students ranged in age from 13.8 to 16.2. Their ethnic backgrounds included five Caucasians and one African-American. The students' IQ scores ranged from 80 to 104 on one of the following instruments: Wechsler Intelligence Scale for Children, 3rd edition (WISC-III); Stanford-Binet Intelligence Scale, 2nd edition; or the Test of Non-Verbal Intelligence (TONI). Instructional reading levels, according to the Brigance Inventory of Basic Skills, ranged from 3.1 to 4.9. All of these students were described by their special education teacher as being extremely distractible, easily discouraged, and resistant to the writing process. The students typically made frequent errors in capitalization, punctuation, and grammar in their independent writings. These students also frequently omitted their names and a title from their papers.

### Analysis of previous writings

Samples of each student's independent writing were collected at the beginning of the intervention period from their daily journals. These writings were used as baseline creative writing assignments. The following items were noted:

- Whether the student used complete sentences.
- Whether the student conformed to the topic.
- The number of errors in punctuation. These included end of sentence punctuation and commas used for items in a series and compound sentences.
- The number of errors in capitalization. These included words in the title (if there was one), first letter in a sentence, and first letter in a proper noun.
- The number of grammatical errors. These include having both a subject and verb in each sentence, verb/subject agreement, and using correct verb tense.

### Method

After the baseline data was analyzed, the students began a five-step process to improve their writing. Students were first given a calendar for the month containing a topic to be written about each day. Students were instructed to write sentences about the topic for the next day as homework each night. Elements of a correctly written sentence were discussed and model sentences were written by the teacher. Each day the students would look at the sentences the class had written the night before and check them for completeness and possible errors in capitalization, punctuation, and grammar. This was done with the teacher as the facilitator of the discussion and students offering ideas for corrections or improvements. All sentences were written on the overhead projector without the author's name attached.

Once the students were judged by the teacher to be aware of what was necessary in a correctly written sentence, the next step of the method was initiated. Students were given a series of five to seven questions to be answered on a particular topic. The teacher instructed the students to answer the questions in complete sentences because the sentences would later be used to write a paragraph. This step was done in the classroom to ensure that the sentences written were the students' original writings. Students did, however, continue to write sentences for analysis at night as homework.

When each student had answered the questions on the given topic in what they judged to be complete sentences, they were instructed to take their answers and combine the sentences into a paragraph. This step was initially modeled by the teacher. The students wrote their paragraphs on blank sheets of notebook paper.

Students were then taught an error-monitoring strategy. The mnemonic device Ten Nintendo Players Chew Gum was introduced to the students. The first letter of each of these words related to an element in the error-monitoring strategy:

Ten	-	Title
Nintendo	-	Name
Players	-	Punctuation
Chew	-	Capitalization
Gum	-	Grammar

The mnemonic device was written and illustrated on a poster at the front of the room. Separate posters for

each element of the error-monitoring strategy describing what was necessary for each element were also displayed at the front of the room. The title and name posters simply instructed students to remember to give their paragraphs titles and to put their names on their papers. The punctuation poster reminded students to check for end punctuation and commas where appropriate. The capitalization skills included first letter in a sentence, words in the title, and first letter in a proper noun. The grammar poster instructed students to check for complete sentences, run-on sentences, correct verb tense and subject-verb agreement. Students were instructed to use the posters and the mnemonic device to proofread their papers before giving them to the teacher.

Once the paragraphs were written and proofread, students were encouraged to type their stories on the computer. After the paragraphs had been entered, the students were allowed to illustrate their stories using the software *Storybook Weaver* by MECC. This step was used as a positive reinforcer for completing the written assignment. When the writing and illustrations were complete, students printed their work for publication.

## Results

Overall written expression skills were improved using this method.

*Use of complete sentences.* All students improved in writing complete sentences going from 50% of the time to 86%. None of the individual percentages were lower than 63%.

*Conforming to a topic.* The students made the greatest progress in this area. They went from a baseline of 57% of the time to an after intervention percentage of 93%.

*Use of correct punctuation.* Individual student's achievements varied on correct punctuation. During baseline, the students averaged three errors per journal entry. During intervention, the average number of punctuation errors decreased to one.

*Use of correct capitalization.* Capitalization errors varied across students as well. Students averaged two errors per journal entry during baseline and one error after intervention.

*Use of correct grammar.* Frequency of grammatical errors remained unchanged from three errors on average during baseline to three errors on average during the intervention. This was the area of

most difficulty for the students.

## Discussion

Part of the success of this method may be attributed to the motivational aspect of publishing using a computer. Students were eager to illustrate their stories using the software involved. They were willing to put forth effort to create a correctly written paragraph in order to earn this reward. The error-monitoring strategy also appeared to be helpful to the students. The students quickly learned to use the posters to check their work and make corrections. Students also indicated that they were beginning to enjoy writing during the intervention. Several students asked if the class could continue to do writing assignments during the remainder of the school year.

Use of this method did not improve use of correct grammar. Perhaps only one aspect of correct grammar, such as subject-verb agreement, should be addressed at a time. This might make the task more manageable for the students. ■

## References

- Barenbaum, E. M., Newcomer, P. L., & Nodine, B. F. (1987). Children's ability to write stories as a function of variation in task, age, and developmental level. *Learning Disability Quarterly, 10*, 175-188.
- Buchan, L., Fish, T., & Prater, M. A. (1996). Teenage mutant ninja turtles counting pizza toppings—A creative writing learning strategy. *Teaching Exceptional Children, 29* (2), 40- 43.
- Englert, C. S., Raphael, T. E., Fear, K. L., & Anderson, L. M. (1988). Students' metacognitive knowledge about how to write informational texts. *Learning Disability Quarterly, 11*, 18-46.
- Englert, C. S., & Thomas, C. C. (1987). Sensitivity to text structure in reading and writing: A comparison between learning disabled and non-learning disabled students. *Learning Disability Quarterly, 10*, 93-105.
- Graham, S., & Harris, K. R. (1989). Components analysis of cognitive strategy instruction: Effects on learning disabled students compositions and self-efficacy. *Journal of Educational Psychology, 81*, 353-361.
- Graves, A., Montague, M., & Wong, Y. (1990). The effects of procedural facilitation on the story composition of learning disabled students. *Learning Disabilities Research, 5*, 88-93.



Montague, M., & Fonseca, F. (1993). Using computers to improve story writing. *Teaching Exceptional Children*, 25 (4), 46-49.

Montague, M., & Graves, A. (1993). Improving students' story writing. *Teaching Exceptional Children*, 24 (2), 36-40.

Thomas, C. C., Englert, C. S., & Gregg, S. (1987). An analysis of errors and strategies in the

expository writing of learning disabled students. *Remedial and Special Education*, 8, 21-30.

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# Teaching Functional Community-Based Sight Words To Moderately Intellectually Disabled Students

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*Seven moderately intellectually disabled students were taught 20 functional community sight words involving obtaining and filling out job applications. Performance was measured by oral recall of words, identification of words on several different job applications, and identification and use of words in the community. All students improved in the areas of word recognition and functional use of words. One student also learned sign language to accompany the words and facilitate communication.*

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Once students who are intellectually disabled reach high school it is very important to begin concentrating on their transitioning into the world of work and life after school. It is also important to realize what goals are important and what goals are not. This is the time in a child's life when the decision has to be made about what the student will need to know and realistically be able to accomplish before high school ends.

If all methods to teach reading and spelling have been exhausted, the next logical step may be to teach functional community sight words. Schloss (1990) defines sight words as words that the student recognizes without applying phonic skills. Many words with irregular spelling are taught in this whole word fashion. "Although [intellectually disabled students] are unlikely to ever read for comprehension or recreation, they should be able to identify key words in simple recipes and to develop a protective vocabulary. . ." (Kirk & Gallagher, 1989, p. 165).

"Slanton, Schuster, Collins, and Carnine used the term functional to describe skills that (a) are immediately useful, (b) are required in a variety of school settings, (c) result in less dependence on others, and (d) allow a student to participate in less restrictive environments" (Alpher, Arnold-Reid, Aylward, Durdenhoeffer, Schloss, & Young, 1995, p. 84).

Students with disabilities need to experience lessons in their naturally occurring environment and not just on paper. Intellectually disabled students have

difficulty in transitioning information from one setting to another or from one form to another, so in order for the lesson to be meaningful it is best to be taught where it will be used.

Although learning sight words does require some drill and practice it is important and more intrinsically rewarding to also have lessons in the natural setting (Alpher et al., 1985, p. 84). "For students with moderate or severe disabilities, learning to recognize words 'on sight' is useful for gaining greater independence in activities such as grocery shopping, taking a bus, using a television guide" (Brower & Schear, 1996, p. 400), or obtaining and filling out job applications. When teaching sight words it is important to know if the student is learning the word or the symbol that may accompany it. For example, the word "Stop" may be recognized more for the shape and color of the sign than it is for the word (Black, Davern, Dempsey, Ford, Meyer, & Schnorr, 1996). Teachers should be sure to present the words in different types, colors and settings in order to facilitate transference and memory.

This article will use the methods of drill and practice, flash cards of different types and presentations, and use of sample job applications to learn job application related sight words. The culminating activity will be a trip into the community to put their functional skills to work.

## **Description of students**

Three seniors, one junior and three freshmen in

*Table 1*  
**List of Sight Words**

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Job Application	State	Check Cashing Card
Social Security Number	Library Card	Date
Employment	Telephone	ID Card
Height	Register	Weight
Manager	Education	Name
Experience	Address	References
City	Birthday	

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a moderately intellectually disabled class were chosen based upon their similarity in cognitive abilities. Three were females and four were males. The students ranged in age from 15.2 to 21.1 years. Their ethnic backgrounds included three Caucasians and four African-Americans. Their IQ's ranged from 35-65 on one of the following instruments: Wechsler Intelligence Scale for Children or Stanford-Binet Intelligence Scale. All of these students were described by their teachers as low functioning to non-readers, highest level being second grade. The higher readers had some phonetic skills but performed better with sight words. The lower students had no phonetic skills. All students had problems with transference and performed better when given materials in a variety of functional manners and settings.

**Method**

The students were given a list of twenty words dealing with obtaining and filling out job applications and other forms (see Table 1). Because this was a three week lesson the words were divided into three groups. This gave the students smaller groups of words to work with at one time. For each of the groups of words the students wrote the words three times each day to familiarize themselves with the words. The teacher read the words aloud and the students repeated them following along on the list each day. The meanings and how the words could be used were discussed and the procedures for obtaining a job application and filling one out were discussed, role-played and practiced. The students were given different sample job applications and were instructed to circle the words that they recognized as their sight words. Afterwards, they used their ID cards to fill in the appropriate information showing that they understood the meanings of the words. At the end of the three weeks the class took a trip into the community and practiced

looking for the words, requesting applications, asking relevant job related questions and bringing them back to school to be filled out. See table for the list of words.

**Results**

*Oral recall of sight words.* Overall, the average percentage was a 92.9% passing rate for the whole group of students. The lowest score was a 75 (this was also the lowest functioning student who used sign language) and the highest score was a 100, which four students accomplished.

*Identification on applications.* Overall, the average was a 95.7% passing rate for the whole group of students. The lowest score was an 80 and the highest was a 100. The most common error was not transferring items such as 'telephone' to 'phone number.' Although the words were taught in several ways this was still a point of confusion.

*Community recognition.* The group was asked to identify signs as they saw them in the community. All students responded positively and actively sought out words. They saw this opportunity as a sort of competition to see who could find the most words and this made it fun for them.

*Use of words in filling out applications.* Each student was given a filled out sample application with their personal information and an ID card at the beginning of the year. The students used these items to help them fill out the job applications. Each student did very well and this is a continuing activity for learning and remembering their personal information with and without prompts.

**Discussion**

The results of this study confirm that when presented in a number of functional manners and settings, intellectually disabled students can learn and use sight words to help them gain independence in the

community. The students enjoyed the lesson and were proud of their achievements. The students continue to find and use these words in relation to other lessons. They report to the teacher when they have obtained and filled out applications and also bring them into class for further practice. ■

### **References**

Alpher, S., Arnold-Reid, G., Aylward, M., Durdenhoeffler, S., Schloss, P. J., & Young, H. (1995). Acquisition of functional sight words in community-based recreation settings. *The Journal of Special Education, 29* (1), 84-96.

Black, J., Davern, L., Dempsey, P., Ford, A., Meyer, L., & Schnorr, R. (1996). *The Syracuse community-referenced curriculum guide for students with moderate and severe disabilities*. Baltimore, MD: Paul H. Brookes.

Brower, D. M., & Shear, S. M. (1996). Interpersonal of known items in a treatment package

to teach sight words to students with behavior disorders. *The Journal of Special Education, 29* (4), 400-412.

Kirk, S. A., & Gallagher, J. J. (1989). *Educating exceptional children* (6th ed.). Boston, MA: Houghton Mifflin.

Schloss, P. J. (1990). *Instructional methods for adolescents with learning and behavior problems*. Needham Heights, MA: Allyn and Bacon.

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## Current Trends in Vocational Service Options For Adults with Mental Retardation

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*Students with disabilities are entering the workforce in record numbers. However, this has not always been the case. This paper reviews past and future trends toward employment of students with disabilities.*

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People commute to work each morning, punch in, work through the morning, have lunch, work through the afternoon, and return home, another day passed and another dollar earned (Wolfensberger, 1972).

Wolf Wolfensberger is probably the best known proponent of *social role valorization*. He recommends that gainful employment can also be a significant part of the lives of adults with mental retardation. Social role valorization can be divided into two major parts: (a) The reduction of and prevention of stigma that devalue a person in the eyes of others, and (b) changes in the perception of society such that persons or characteristics of persons are no longer considered to be of lesser value than others (Wolfensberger, 1972). Wolfensberger in his complicated way is referring to the principle of *normalization* even though he prefers the term “social role valorization.” For the sake of simplicity, this paper will use the normalization principle. Normalization originated in Scandinavia and it can best be described as a process of creating the patterns and conditions of everyday life for the person with mental retardation, which are as close as possible to the norms of mainstream society (Nirje, 1995, p. 62).

Normalization in a work setting for persons with mental retardation means that the work setting is not set apart just for those with intellectual impairments. The disabled worker has contact with non-disabled

workers to the best degree possible and the disabled worker receives a wage on the same basis as non-disabled workers and access to company benefits.

The concept of normalization has been around since the 1960s but it has taken awhile for it to have a significant impact on the working lives of adults with mental retardation. Its greatest impetus was in 1983. The United States Commission on Civil Rights in that year, reported that between 50% and 80% of all persons with disabilities are unemployed. This alarmingly high percentage prompted more research and development which will be discussed later under supported employment. While it is true that more opportunities for adults with mental retardation to do meaningful work were needed, there were also other reasons why so many were unemployed. This will also be discussed later. At this point, it would be good to look at how mentally retarded individuals have worked in the past and then later take a look at what is being done now.

Up until recently, all employment for those with mental retardation and other developmental disabilities was sheltered. *Webster's College Dictionary* defines *sheltered* as: “of or pertaining to employment especially for handicapped persons, in a noncompetitive, supervised environment.” The first sheltered work setting for mentally retarded persons in America was established in 1848. The place was Boston and the founder was Samuel Howe (1801-1876) who is best known as the founder and first director of the Perkins

Institute for the Blind. Howe went to Switzerland to visit Johann Guggenbuhls famous residential training facility for the retarded, The Abendberg. Howe apparently was impressed because he shortly thereafter established a similar facility in a wing of the Perkins Institute and convinced the Massachusetts legislature to help support it. Like the Abendberg, Howe's facility sought to train its residents to be useful, productive, normal, citizens. The hope of making retarded persons "normal" in the usual sense was perhaps overly optimistic, but it was well-intentioned. As time went by, residential institutions became more and more custodial and eventually, training became almost nonexistent. Sheltered workshops continued to exist for some other disabilities most notably for the blind, whose first sheltered workshop was established in 1838 (also at the Perkins Institute). In 1943, a Vocational Rehabilitation Act was passed (P.L. 78-113) granting eligibility to individuals with mental retardation for rehabilitation services. This paved the way for sheltered day employment programs for the intellectually disabled. The 1965 amendments (P.L. 89-333) to the Vocational Rehabilitation Act extended the concept of *gainful* employment to include sheltered employment. The Rehabilitation Act of 1973 (P.L. 93-112) and the subsequent amendments of 1974 (P.L. 93-516) emphasized the provision of gainful sheltered employment for persons with severe handicaps. Around the mid-1980s, professionals in rehabilitation and special education began to take a serious look at sheltered employment and found that it was not very consistent with the principles of normalization in either socialization or money being earned. Another thing that was disturbing was that people were staying in sheltered employment to the point of making a career out of it which is *not* what sheltered employment was intended to do. Sheltered employment was beginning to be seen by some as counterproductive and should be done away with entirely. Fortunately, this has not happened but sheltered employment has become more and more transitional rather than a permanent arrangement.

There are basically three traditional adult vocational service options according to Beirne-Smith, Patton, and Ittenbach (1994). There are two common factors all of them share: (a) They are segregated, that is, except for staff, the clients have no contact with co-workers without disabilities, and (b) The actual pay (when wages were offered) a client receives is much

lower than what they would make in a non-sheltered setting. A very interesting feature of sheltered workshops is that employers are entitled to pay their workers at a piecework or an hourly rate *below* federal minimum wage (as long as it is not below 50% of federal minimum wage). This has been so since 1938 when P.L. 75-497 was passed. According to the *Encyclopedia of Special Education*, this law was an effort to help sheltered workshops compete with other businesses for contracts. The three main types of adult vocational service options are explained in the following paragraphs.

*Developmental Centers* (aka "activity centers") generally stress self-maintenance and arts and crafts activities rather than work. They were considered the first step in adult vocational services placement (Beirne-Smith et al., 1994).

*Work Activity Centers* were considered the next step after activity centers. Work Activity Centers (WAC's) feature much training activity that is not exclusively vocational in nature but at one time, these activities were considered prerequisites to enrollment in a standard vocational rehabilitation program (e.g., grooming, socialization, sitting quietly, academic, etc.) Some work training is provided that may or may not offer wages. Wages offered are generally quite low (about 268 dollars a year). The average caseload is 20 to 60 clients (Beirne-Smith et al., 1994; Snell, 1987).

*Sheltered Workshop* was supposed to be the last step before actual competitive employment. Unfortunately, in practice, actual placement outside of the workshop occurred seldom, if at all. Sheltered workshops provide job training to persons with disabilities through subcontract (e.g., packaging) or salvage (recycling). Workshops employ between 50 and 100 workers with disabilities and in order to be employed, an individual must consistently perform at 50% productivity level (or better) of a non-handicapped worker. Wages are very low (about 1,178 dollars a year). Snell notes that few persons with severe handicaps ever attained sheltered workshop status. Sheltered workshops are mostly made up of workers with mild or moderate intellectual disabilities (Snell, 1987).

The previous activities described are not, of themselves, detrimental to personal growth. The idea that the "three tiered" system with their peculiar "exit requirements" must be rigidly adhered to and that "graduation" from one level must precede entry into

the next often meant that clients, especially the more severely handicapped ones sometimes stayed at one level a very long time. Mary Falvey made note of this in 1986 citing a study by G. T. Bellamy in 1983:

Assumptions have been made with regard to a predetermined continuum that students/clients must follow—that is, activity center, work activity, workshop, and competitive employment. This continuum usually begins at age 21, or after graduation from public schools. According to Bellamy's (1983) research, the average length of stay is 37 years for activity centers, 10 years for work activity centers and 9 years for sheltered workshops. If a student/client started in the activity center and matriculated through the continuum, he or she would be 77 years old before being eligible for work in competitive employment. (Falvey, 1986, pp. 120-121)

Traditional adult vocational service options have come under much criticism in the 1980s and 1990s. Sheltered employment is not completely gone, however. A lot of vocational programs use them as transitional or vocational programs for clients who are not quite ready for supported employment. Realistically, there are some clients who may have to stay in a sheltered setting indefinitely. Hopefully, these will be the exception rather than the rule. Since the advent of transition planning under the Individuals with Disabilities Education Act of 1990 (IDEA), it is hoped that intellectually disabled students will exit public school exhibiting more readiness for supported employment. Special Education and Adult Services Personnel will have to work together more than in the past in order that services to student/clients will be what is needed to help them make the transition from school to work.

In the past ten years, a new model for adult vocational services has come into being and is now considered the standard model. This model is called *supported employment*. This is where a person with disabilities learns to work at a job in the community in a regular business. The disabled person works along with non-disabled workers and finally, the disabled person gets as much support as is needed for as long as is needed in order to get the job, learn the job and keep the job. The person with the prime responsibility for this is the *job coach* or as he or she is formally called, the *employment training specialist*. As the name implies, the job coach provides on-the-job training to

the client using task analysis to break each task down into components that the client can grasp. Actually, this is only part of what the job coach does. The job coach acts as a matchmaker and tries to find or even develop a job the client can do. The job coach then has to learn the job in order to teach it to the client (obviously) but also to make sure the job gets done when the employee is in the acquisition phase. If worse comes to worse, the job coach will actually remain with the client 100% of the time at the work site and do the job if that is what it takes to secure a tax break for the participating employer and to insure that the job gets done. The job coach also provides training in social skills, corresponds with parents, employers, various social agencies, school, etc. and makes certain the client learns what is needed to stay safe in the workplace. This is quite a job description! Job coaches seem to be trained by continuing education certificate programs. There is another supported employment option besides the one just described which is called the *individual placement model* (Beirne-Smith & Jarrels, 1994). These models are often referred to colloquially as “work gangs.” The most common one is the *work crew*, a small group of handicapped workers under the direction of a non-handicapped supervisor. These work crews move to different sites performing contracted work such as groundskeeping or custodial work. The enclave is similar to the work crew but the workers and supervisor remain at the same worksite for an extended period of time. Rusch, Chadsey-Rusch and Lagomarchino make this observation concerning work crews and enclaves.

Both employment options assume that the individual worker will require continuing support throughout the entire tenure of employment; thus, this option is a viable one for individuals who are severely handicapped. (cited in Snell, 1987, p. 486)

With the supported employment options becoming commonplace, individuals have a chance to earn “real world” wages and hopefully, “real world” employment benefits such as health insurance. Unfortunately, not everyone is happy with this type of situation. Many individuals with developmental disabilities receive public assistance in the form of supplemental security income (SSI) and medical assistance (Medicaid). Since the wages paid in sheltered employment are usually very low, neither the clients nor significant others in their lives (e.g., parents)

have ever had to worry that the government benefits received would be placed in jeopardy by too much earned income. With the advent of supported employment, yearly income could be sufficient to cause reduction or cancellation of public assistance. The risk of losing benefits and then having to go through the application process again if the disabled person's job is lost, has actually caused some parents to panic and pull their disabled progeny out of work programs. Their fears are not entirely unfounded, as vocational development and training programs are particularly vulnerable to budget cuts. The security of the monthly check, along with the free medical assistance, is extremely hard for some to relinquish. These people would much rather err on the side of caution when faced with this type of choice.

Conley et al. (1986) describes the situation thus:

It is not reasonable to expect these beneficiaries to give up easily what appears to be a secure cash income and assured medical benefits in exchange for jobs that are often temporary or insecure and that may pay little more (or possibly less) than their monthly benefit. (cited in Beirne-Smith et al., 1994, p. 73)

Unless there is some reform in the eligibility requirements for disability benefits, this will be a definite impediment to the success of supported employment. Another complication that can make things difficult for mentally retarded workers and those who provide services to them is what is referred to as *dual diagnosis*. Dual diagnosis refers to mental retardation and psychiatric disability co-existing in the same individual. John Jacobson of the New York Office of Mental Retardation described the situation as follows:

People with mental retardation (MR) and psychiatric disabilities (PD) represent a special and diverse population among people with developmental disabilities. This is a group for which rehabilitation practice has only begun to be well articulated in the professional literature. Despite at least 15 years of research and concern that these people, as a whole, are inconsistently identified and that their needs for rehabilitation supports and services are inadequately addressed. . . coherent public policy regarding these people and tertiary care services for them has remained elusive. (Jacobson, 1986, p. 12)

Jacobson goes on to note that supported workers "were found to evidence lower occurrence of behaviors consistent with psychosocial deficits compared to sheltered workers, but both groups had little access to adjustment services" (Jacobson, 1996, p. 16). Suffice it to say that this issue will have to be addressed for the sake of both the workers and the work programs. This paper has attempted to describe the current trends in vocational training and development for adult individuals with mental retardation and other developmental disabilities. It began with a quotation by Wolfensberger. It will end with a quotation by the late Senator Hubert Humphrey who was the primary sponsor of section 504 of the Rehabilitation Act of 1973. His words are as follows:

These people [handicapped children, youth, and adults] have the right to live, to work to the best of their ability, to know the dignity to which every human being is entitled. . . Millions of young persons and adults want to learn a trade, work like other people and establish their self-worth through a paycheck, [but are] barred from our vocational training programs and from countless jobs they could perform well. (Cited in Falvey, p. 121)

A few things have changed since 1973 but the work of normalization for developmentally disabled adults is far from over. ■

### References

- Beirne-Smith, M., Patton, J., & Ittenbach, R. (Ed.). (1994). *Mental retardation* (4th ed.). New York: Macmillan.
- Falvey, M. (1986). *Community-based curriculum: Instructional strategies for students with severe handicaps*. Baltimore, MD: Brooks.
- Jacobson, J. W. (1996). Rehabilitation services with people with mental retardation and psychiatric disabilities: Dilemmas and solutions for public policy. *Journal of Rehabilitation*, 62 (1), 11-19.
- Nirje, B. (1985). The basis and logic of the normalization principle. *Australian and New Zealand Journal of Developmental Disabilities*, 11, 65-68.
- Reynolds, C. R., & Mann, L. (Ed.). (1986). *Encyclopedia of special education: A reference for the education of the handicapped and other exceptional children and adults, Volume 3*. New York: John Wiley.
- Snell, M. E. (Ed.). (1987). *Systematic instruction of persons with severe handicaps* (3rd ed). Columbus, OH: Merrill.



Wolfensberger, W. (1972). *The principle of normalization in human services*. Toronto: National Institute on Mental Retardation.

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Denise Borck

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# Time-Of-Day Effects on Student Achievement in a Seventh Grade World Geography Classroom

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*The purpose of this study was to determine the time-of-day effects on student achievement among seventh graders in a world geography classroom through two variables: the time-of-day of instruction and the time-of-day preference. Participants from two intact classes were surveyed to determine their time-of-day preference and data from regular chapter tests were used for statistical analysis. There was no significant difference in achievement for either independent variable or their interaction. However, interesting patterns did arise when looking at the group means.*

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Many educators in our country are concerned about the continual decline in achievement of our students. As a result, school systems and researchers around the country are exploring every avenue in an attempt to find the answer to our growing problem. One area of investigation concerns the time-of-day at which instruction takes place. Typically, instruction given early in the school day is thought to be optimal, so that students are not mentally fatigued during the learning process (Gates, 1916). However, the learning styles of students regarding the time-of-day preference also plays a role. In addition, research has shown that the time-of-day certain subjects are taught yields different levels of achievement by students, depending on the amount of short-term memory (STM) and long-term memory (LTM) that is utilized (Colquhoun, 1971). Instruction in math skills involves the considerable use of short-term memory, while reading comprehension depends on the use of long-term memory (Davis, 1987a).

Research suggests that subject areas which require the use of short-term memory are learned and performed better in the morning and subjects requiring long-term memory are learned and performed better in the afternoon to early evening (Folkard, Monk, Bradbury, & Rosenthal, 1977). This research has significant implications for the scheduling of students in our schools. Simple changes in a student's schedule may have considerable positive effects on his or her

achievement in certain subjects at a minimal expense to the school system.

Since the improvement in the performance level of our youth continues to be the main objective in educational reform, more research in the area of time-of-day effects on student achievement seems to be an important avenue for further exploration. This researcher's intent was to conduct research on her own geography classes to either support or not support the evidence given in the literature.

## Review of literature

### *Individual learning styles and time-of-day preferences*

Learning style is a biologically and developmentally imposed set of personal characteristics that make the same teaching technique effective for some students and not for others (Dunn, Beaudry, & Klavas, 1989). By knowing students' learning styles, educators can organize the physical setting of the classroom better, recognize the patterns which allow learners to concentrate best, become aware of the best senses through which people remember information, and understand motivation factors of our students. Many studies have been conducted to match instruction to individual learning styles to determine if achievement has been affected.

One area of research includes time-of-day preferences, which refers to the learner functioning better during the morning or evening hours. When the

learner has a preference for either the morning or the evening for learning new concepts, research has supported their preference. For example, two junior high school principals stated that students with poor grades in math preferred learning in the afternoon but were scheduled for morning math classes. When the same students were rescheduled into afternoon classes, they reported higher motivation, better discipline, and higher achievement (Dunn, Dunn, Primavera, Sinatra, & Virostko, 1987). In addition, the director of five alternative high schools in Washington reported that time preference was a crucial factor in the reversal of initial and chronic truancy patterns among secondary students (Dunn & Griggs, 1988).

Studies of dropouts, underachievers, at-risk, and vocational education students indicated that, as a group, they are not morning people (Griggs & Dunn, 1988). For each of these groups, learning in late morning, afternoon, or evening significantly increased achievement. Dunn (1989) reported that among the more interesting discoveries of research with time preferences is that most students are not morning-alert.

Once the learning style of each individual is taken into consideration when giving instruction, the transfer of knowledge from short-term memory to long-term memory is more likely to happen. Therefore, educators are more likely to see higher achievements from their students. Consequently, the next aspect of learning to consider is how the studies have shown that the time-of-day directly affects a learner's achievement as a result of short-term and long-term memory storage.

#### *Effects of the time-of-day on STM and LTM*

The time-of-day at which instruction takes place has an effect on the memory processes themselves. Studies of short-term memory and long-term memory tasks involving immediate and delayed recall of random sequences of digits and words have been the main source of information available about the influence of time-of-day of instruction (Baddeley, Hatter, Scott, & Snashall, 1970; Hockey, Davies, & Gray, 1972; Millar, Styles, & Wastell, 1980). According to Mackenberg (1974):

It is believed that two physiological factors account for time-of-day differences in learning and performance: (1) basal arousal rises from a low level early in the morning to a peak in the evening, and the efficient use of STM and LTM are associated with it, respectively; and (2) diurnal

rhythms in plasma hormone levels influence the way people encode, store, and retrieve information and are associated with better LTM processing later in the day and better STM processing earlier in the day (p. 238).

According to the research, there are better times during the day to process information in short-term memory and better times to process information from long-term memory (Zagar & Bowers, 1983).

Many researchers have found that short term memory tasks are performed better in the morning (Baddeley, Hatter, Scott, & Snashall, 1970; Blake, 1967). In addition, studies have shown that the performance of short-term memory tasks decreases as the day progresses, due to the high arousal level of the learner (Colquhoun, 1971; Folkard, Monk, Bradbury, & Rosenthal, 1977). The arousal level of the learner refers to a state involving nonspecific physiological activation and the nondirectional component of alertness (Anderson & Revelle, 1994). Conversely, researchers have found that long-term memory tasks are found to be performed better in the afternoon to early evening (Millar, Styles, & Wastell, 1980). As a result, those subjects in school which require a considerable amount of short-term memory usage will be executed better in the morning, while subjects requiring an abundant amount of long-term memory usage will be achieved better in the afternoon (Davis, 1987b). Therefore, students' achievement will depend on the appropriate scheduling of instruction in the subject areas which use mostly short-term memory or long-term memory.

Davis (1987b) conducted two of the few studies which have examined the effects of time-of-day of instruction in the classroom on pupils' achievement. The first study reported that first-grade beginning readers achieved more when instruction was provided in the afternoon than when it was provided in the morning. Since reading involves connecting the printed information to prior knowledge and experience, extensive long-term memory usage was required. Therefore, the theory stated earlier was supported by her research. The second study was conducted to determine whether the time-of-day of instruction influences English and mathematics achievement of eighth-grade students. Since instruction in math skills involves considerable use of short-term memory, the study supported the theory that short-term usage was better in the morning as well as further supporting the

theory that long-term memory usage was better in the afternoon.

### **Statement of the problem**

One problem in generalizing the findings from the review of the literature to the school setting is that many of the findings are based on research procedures that may involve only parts of the kinds of processing involved in learning concepts in the classroom. For example, long-term memory processing during instruction involving immediate and delayed recall of random sequences of digits and words may not completely demonstrate the processes involved in a geography classroom.

The studies which have been reported have used mathematics and English concepts to test the theory that short-term memory usage is better in the morning and long-term memory storage is better in the afternoon. Since geography involves a mixture of both mathematics and reading comprehension skills, the results of this study are difficult to hypothesize since both short-term memory and long-term memory are involved in learning this subject.

The purpose of this study was to determine the optimal time-of-day of instruction for geography classes in the Bulloch County School System. Students' average scores on standard textbook chapter tests throughout a six-week period were used to establish a difference in the overall achievement of a morning class and an afternoon class. In addition, the time-of-day preference of each student in the classes was incorporated in the study.

Given the evidence in the literature, the researcher proposed two hypotheses for this study. First, there is a significant difference in achievement on the part of the students based on the time-of-day of instruction. The researcher hypothesized that the eighth period class would score higher overall on their chapter tests than the third period class. Second, there is a significant difference in achievement on the part of the students based on the time-of-day preference. The researcher hypothesized that those students who are being instructed during their preferred time would score higher overall than those students who are not being instructed at their preferred time.

### **Methods**

#### *Participants*

The participants of this study included two

geography classes at William James Middle School in Statesboro, Georgia during the 1996-1997 school year. Each class consisted of 20 seventh-grade students for a total of 40 participants. The two classes were chosen because they match the criteria needed for the study, therefore indicating that convenience sampling was used.

Since the study was implemented to determine time-of-day effects on student achievement, the classes chosen for the study were taught at different times during the day. One class was taught from 9:08 until 9:57 (third period), while the other class was taught from 2:05 until 2:50 (eighth period).

Within the third period class, there were eight females and twelve males. The group was comprised of twelve black students and eight white students. There were fifteen females and five males in the eighth period class. Twelve students were black and eight students were white.

Each of the classes was of similar academic ability, based on the first six-weeks class average. The first six-weeks class average for third period was 86.3, while the class average for eighth period was 87.4.

Each class in the study was of mixed economic status. There were students in both third and eighth period which were of low economic status, middle economic status, and high economic status. However, the majority of the two groups consisted of low and middle economic status students.

#### *Design*

A causal-comparative design was used in the study to determine if the time-of-day of instruction and the time-of-day preference were related to student achievement. Participants gave their time-of-day preference as the morning or the afternoon. Test scores over the second six-weeks grading period were gathered from each class as data to statistically analyze. This researcher used the data to determine if there was a relationship between the dependent variable, academic achievement and the independent variables, time-of-day at which they are taught and time-of-day preference.

#### *Instrumentation*

At the beginning of the implementation of the study, participants in both third period class and eighth period class were asked their time-of-day preference for learning. Each participant was given a written form printed with the choices of morning or afternoon preference. The idea of a time preference was

explained to each class and then each participant circled his/her time-of-day preference. After time-of-day preferences were established, each class was taught in the same manner.

The same content was taught in both third period and eighth period classes. Following the completion of each chapter in the *World Geography* textbook, both groups were given the same teacher-made chapter test measuring knowledge learned by each participant. The validation of tests was determined by the examination of each by other geography teachers in the school. Each test consisted of approximately 20 to 25 multiple-choice questions, 10 true or false questions, 10 to 15 matching questions, 3 to 5 short answer questions, and 10 to 15 map items. The student averages for the chapter tests during the second six-weeks were used from each group for statistical analysis.

*Procedure*

At the beginning of the study, both third and eighth period students determined their time-of-day preferences as the morning or afternoon. After this was established, each class started the chapter on Canada at the beginning of the second six-weeks grading period. After a period of ten days of instruction, both groups took Canada’s test. Following the same procedure, the next two chapters on the United States and Mexico were taught and tested in the grading period.

For each test, both third period participants as well as eighth period participants had their test scores used as the data for statistical analysis.

**Results**

Table 1 breaks down the participants in the study into separate subcells for further comparison of data. The subcells include descriptive statistics based on the two independent variables of time-of-day of the class and time-of-day preference. The information given for each group includes number of participants and the mean and the standard deviation for the test scores in each subcell.

Overall, those in third period who preferred the morning ( $M = 87.20$ ) scored higher than those who preferred the afternoon ( $M = 80.73$ ). For those in the eighth period class, students who preferred the afternoon ( $M = 84.25$ ) scored higher than those who preferred the morning ( $M = 82.33$ ).

A two way analysis of variance (ANOVA) procedure was performed on the data in the given study to determine if either independent variable time-of-day of class or time-of-day preference or their interaction had any effect on problem solving ability. The ANOVA Summary Table is presented in Table 2.

The ANOVA results indicate that the interaction of the time-of-day of class and time-of-day preference was not significant. In addition, there were no significant main effects for these two variables. These findings indicate that the researcher’s hypotheses were not supported.

**Discussion**

Although no significant differences were found, interesting patterns did arise when looking at the group

*Table 1*  
**Means, Standard Deviations, and Number of Participants for 3rd and 8th Period Classes and Time-of-Day Preference Subcells**

	Time-of-Day Preference			
	3rd Period		8th Period	
	Morning	Afternoon	Morning	Afternoon
<i>M</i>	87.20	80.73	82.33	84.25
<i>SD</i>	8.50	10.52	10.61	8.01
<i>N</i>	10	10	4	16

Table 2  
ANOVA Summary Table

Source	SS	df	MS	F	p
Time-of-Day of Class Period	6.642	1	6.642	.081	.777
Time-of-Day Preference	83.712	1	83.712	1.022	.319
Interacton	137.132	1	137.132	1.674	.204
Within (Error)	2949.444	36	81.929		
Total	3170.389	39	81.292		

means. Those students attending classes at a time which matched their time-of-day learning preference did have better academic performance. These results do provide support for further examination of the researcher's hypotheses on a larger scale.

If evidence is found that the time-of-day of instruction and time-of-day preference have an effect on student achievement, teachers and administrators should take this information into consideration when scheduling the school day for students. In order for children to reap the most benefit from their educational career, more attention needs to be given to the factors contributing to their achievement level. Additional research in time-of-day of instruction and preference as well as other areas which may affect the achievement of students seems to be a beneficial area for future researchers.

#### Limitations

There are several limitations in the study of the time-of-day effects on student achievement. One major limitation is the use of a convenience sample. The participants were assigned to each class at the beginning of the school year based on their ability level.

The ability level of subjects is another limitation. Since the groups used have students with average to below-average ability level, the study is not generalizable to those students who are of above average ability. Another limitation may be the few numbers of participants involved in the study who are of high economic status. Again, the study is not generalizable to those students who are of high economic status. In addition, the method for

determining time-of-day preference is a limitation, since it is measured by self-report. ■

#### References

- Anderson, K. J., & Revelle, W. (1994). Impulsivity and time of day: Is rate of change in arousal a function of impulsivity? *Journal of Personality and Social Psychology*, 67 (2), 334-344.
- Baddeley, A. D., Hatter, J. E., Scott, D., & Snashall, A. (1970). Memory and time of day. *Quarterly Journal of Experimental Psychology*, 22, 605-609.
- Colquhoun, W. P. (1971). Circadian variations in mental efficiency. In W. P. Colquhoun (Eds.), *Biological Rhythms and Human Performance*. New York: Academic Press.
- Davis, Z. (1987a). Effects of time-of-day of instruction on beginning reading achievement. *Journal of Educational Research*, 80 (3), 138-140.
- Davis, Z. (1987b). The effects of time-of-day of instruction on eighth-grade students' English and mathematics achievement. *The High School Journal*, 71, 78-80.
- Dunn, R., & Griggs, S. A. (1988). *Learning style: Quiet revolution in American secondary schools*. Reston VA: National Association of Secondary School Principals.
- Dunn, R., Dunn, K., Primavera, L., Sinatra, R., & Viostko, J. (1987). A timely solution: A review of research on the effects of Chronobiology on children's achievement and behavior. *The Clearing House*, 61(1), 5-8.

Dunn, R., Beaudry, J. S., & Klavas, A. (1989). Survey of research on learning styles. *Educational Leadership*, 46 (6), 50-58.

Folkard, S., Monk, T. H., Bradbury, R., & Rosenthal, J. (1977). Time of day effects in school children's immediate and delayed recall of meaningful material. *British Journal of Psychology*, 68, 45-50.

Gates, A. I. (1916). Variations in efficiency during the day, together with practise effects, sex differences, and correlations. *University of California Publications in Psychology*, 1 (2), 1-156.

Griggs, S. A., & Dunn, R. (1988). High school dropouts: Do they learn differently from those who remain in school? *The Principal*, 35 (1), 1-8.

Hockey, G. R. J., Davies, S., & Gray, M. M. (1972). Forgetting as a function of sleep at different times of day. *Quarterly Journal of Experimental Psychology*, 24, 386-393.

Mackenberg, E. J., Broverman, D. M., Vogel, W., & Kalibur, E. L. (1974). Morning to afternoon

changes in cognitive performances and in the electroencephalogram. *Journal of Educational Psychology*, 66, 238-246.

Millar, K., Styles, B. C., & Wastell, D. G. (1980). Time-of-day and retrieval from long-term memory. *British Journal of Psychology*, 71, 407-414.

Zagar, R., & Bowers, N. D. (1983). The effect of time-of-day on problem solving and classroom behavior. *Psychology in the Schools*, 20, 337-345.

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# Effects of Moon Phases on Absences and Various Deviant Behaviors in Schools

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*This study examined the effects of moon phases on various deviant school behaviors and absenteeism rates in a rural school system. Contrary to popular belief, no statistical relationship was found between lunar phase(s) and non-violent discipline referrals, violent discipline referrals or absenteeism in the school setting.*

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This study hypothesizes that there will be a significant increase in several deviant behaviors in the school setting during a “full moon” lunar phase. Specifically there will be more student referrals to the office for minor discipline problems and for physical fights, and there will be more absences.

## Setting

One elementary school, one middle school, and one high school in Toombs County, Georgia had a combined student population of 1548 during 1995-95. Together they served pre- kindergarten through twelfth grade. During the 1995-95 school year, the Toombs county school system served students from a wide range of socioeconomic levels. However, the system primarily served rural families with strong agricultural ties. This becomes particularly evident during April and May, due to the harvest of *Vidalia* onions, Toombs County’s commercial crop.

Discipline procedures varied somewhat from school to school, but included detention, out of school suspension and in school suspension in the middle and high school settings. All three schools had in school counseling available and included Student Support Team (SST) services which were available to all students.

## Review of literature

### *Moon myths*

Recent literature revealed that interesting legends/myths about the various phases of the moon continue. In New Guinea mothers still hold newborn babies up to the light of a full moon to give them strength while Mexican mothers hold their newborn babies up to the new moon and pray that it will grant each child offspring of their own. French peasants consider sleeping in the moonlight to be dangerous, while Mussolini feared the moon would “contaminate” him (Steinhart, 1989). Some people believe that during a blue moon there is more “god energy in the air” (Grice, 1993).

The people of Niger in West Africa believe that babies are delivered by the Moon Bird while the Great Mother watches from her roost. This is believed to be where the “stork story” originated. Long ago in the region now called Zimbabwe, once a year a chosen king’s betrothal and lovemaking were planned according to the appropriate moon phases so that he might get the “most mileage out of both.” This happened just before he was sacrificed for his people (Grice, 1993). In reference to betrothals, the term “honeymoon” is believed to be derived from the amber-colored full moons of June (Berman, 1992).

Some pregnant African-American and Italian women wear moon-shaped charms for protection and to lessen the pain during childbirth (Grice, 1993). In



fact many people believe the moon is responsible for human fertility. In western Asia, flags and charms commonly bear crescent-shaped moons which symbolize fertility of flock, field, and family (Steinhart, 1989). In male-god cultures the great psychic powers of menstruating women were greatly feared. As time passed, such women were considered taboo and impure. This tradition is maintained throughout many cultures by barring menstruating women from religious ceremonies and even some domestic responsibilities such as cooking. Many African and Native American tribes still call a woman's period "the moon" while the word menstrual comes from the Latin word *mesis*, meaning month or moon (Grice, 1993).

Astrologers believe that each person's "feminine side" is ruled by the moon. Feelings, attitudes, memory, tradition and women are believed to be ruled by the moon. Astrologers believe that the moon governs the stomach, bodily fluids, breasts, ovaries, and all other reproductive organs. Cancer, the fourth sign of the zodiac which is known as the astrological homebody and caretaker, or as the "moon child," is subject to the moon. Even if one is not a "moon child" she/he still possesses a moon sign which is based on the moon's position in the sky at the time of one's birth. Her/his moon sign was as significant as her/his sun sign and is believed to give clues to the innermost needs and desires of the individual (Grice, 1993).

*The Old Farmer's Almanac* still advises to "plant flowers and vegetables which bear crops above the ground during the light of the moon, that is between the day the moon is new and the day it is full" (Grice, 1993). Firm believers still religiously consult lunar tables for "can't miss" fishing days while many deer hunters believe the position of the moon influences deer movements and has an effect on how successful a hunt may be (Pearce, 1994).

Electrifying events such as the bombing of Pearl Harbor on December 7, 1941 were planned with the moon phase as a major consideration. The Japanese felt the moon phase to be integral, attacking half way between a full moon and last quarter phase (Sinnott, 1991). Other lesser known World War II events such as the air raid on Taranto, Italy, the Battle of El Alamein, the D-day landing at Normandy and many more were timed by the moon. One such event was called the Great Escape. Two separate times captured officers of allied air forces managed to crawl through underground tunnels they had dug and escape into the surrounding

forest. Both escapes were carefully timed to occur in the "dark of the moon" (Sinnott, 1994).

Even today, Easter which is Christianity's most sacred holiday is set by the first full moon of spring. Robert A. Millikan, a Nobel Prize winner and former chairman of the California Institute of Technology has been quoted to say, "If man is not affected in some way by the planets, sun and moon, he is the only thing on earth that isn't." Sea creatures are known to mate at a new or full moon, while hospital workers swear obstetric wards are busier during a full moon night (Grice, 1993). Epilepsy has been steadfastly held to be produced by the pull of the moon. Police chiefs and hospital trauma center nurses believe violence and deviant behaviors increase significantly when the moon is full. Some studies have indeed shown increases in the rates of violent crimes in major U.S. cities such as Miami, Cleveland, New York, Cincinnati, and Philadelphia during a full moon (Grice, 1993). It has been found that hockey players spend more time in the penalty box when the moon is full.

Some psychologists have speculated that the increase in violence and deviant behavior may be associated with the libidinous facts of fertility and lovemaking. Some studies have documented that the human heart does beat faster under a full moon, and that bleeding from wounds is greater at new and full moon phases (Steinhart, 1989). Experimenters have found that light falling on patients who are sleeping causes tiny electrical impulses in the muscles and increased incidence of dreaming (Steinhart, 1989).

### **Moon evidence**

Educators have debated various reasons for the relationship of the full moon phase to a rise in suicides, crime, murder, arson, and other deviant behaviors (Grice, 1993). Mathew, Lindsay, Shanmuganathan and Eapen (1991) found no relationship between any of the four lunar phases and reported suicide attempts. In a large urban hospital the Accident and Emergency Department's case register for the year January 1 through December 31, 1989 was used to collect such data. The data was broken down into male/female combined and separate, 12 years and older. Lunar cycles were defined as starting on the day of the new moon. No control was assigned for weekends or holidays, however.

Brynes and Kelly (1992) found an association between lunar cycles and crisis calls in western Canada.

Fourteen types of calls (N = 108,994) were identified which included fires, homicide, rape, assault, vandalism, obscene phone calls, sexual offenses and reported suicide among others. The source of the data came from calls which were made to police, fire, and ambulance stations. Lunar cycles were defined four different ways, new, first quarter, full, third quarter, with each phase consisting of the three days which centered around each. However, the greatest percentage of calls occurred during the new moon phase rather than the full moon phase, contrary to popular belief. Three conclusions were drawn from this study: (a) There is no evidence of any trend across studies that crisis calls occur more often at the full moon phase (as folklore would suggest) than any other phase; (b) there is no support for the claim that any lunar phase (especially the full moon phase) is associated with calls reporting more out-of-control or emotional behaviors; and (c) the majority of studies yield no relationship between lunar phase and crisis-type calls. The findings were contradictory and showed no lunar phase trend (Brynes & Kelly, 1992).

Another study was conducted to determine if there was any association between absenteeism in a large organization and lunar phases. Sands and Miller (1991) found that the full moon was associated with a significant (but very slight) decrease in absenteeism in a large insurance company. Variables controlled included days of the week, holidays, and the spread of contagious illnesses. The full moon phase was the only lunar phase defined, consisting of the day of, day before and day after the full moon.

### **Method of study**

Lunar phases to be used were first defined. Each phase consisted of the day of the new moon, first quarter moon, last quarter moon, and full moon, the day before each of these and the day after each of these. Therefore, each of the four phases consisted of three days. Since the length of a lunar month varies (Sinnott, 1993), a calendar was set up marking off each of these phases for the months of August 1994 through May 1995, which made up the 94-95 school year. All weekends, holidays, days immediately before and immediately after long school holidays such as Thanksgiving, Christmas, and Easter/Spring Break were eliminated. Data was gathered throughout the 1994-95 school year from one elementary, one middle school, and one high school in Toombs, Georgia which

had a combined population of 1548.

### **Data analysis procedures**

A Chi-Square test for Goodness of Fit was used to analyze the data. Three separate analyses were done to determine whether absences, non-violent discipline referrals, or violent discipline referrals were associated with any of the four lunar phases among the entire sample. Averages of observed frequencies of absences and both types of discipline referrals were used since the total number of days for each of the four lunar phases was not equal.

There were twenty days in the new moon and first quarter moon phases, seventeen days in the last quarter and fourteen days in the full moon phase.

### **Results**

The Chi-Square Test for Goodness of Fit for moon phases and absences did not reach the critical level needed to reject the null hypothesis ( $\chi^2 = .51$ , critical level = 7.82 with 3 *df*). The results for the relationship between lunar phase and non-violent discipline referrals similarly did not reach the critical level needed ( $\chi^2 = 4.98$ ) nor did results for the relationship between lunar phase and violent discipline referrals ( $\chi^2 = .164$ ).

### **Conclusions**

Although a pattern did indeed exist resulting in more absences occurring during a new moon phase, results were not statistically significant, failing to support a relationship between absences and lunar phase. As expected, more discipline referrals were made during a full moon phase during the 94-95 school year, however, again the results were not statistically significant and did not support a clear relationship between discipline referrals and lunar phase for the entire sample. However, a portion of the data suggested a relationship between lunar phase and minor discipline problems among middle grade students. Further study might focus upon middle grade students to determine whether a significant relationship exists between lunar phase and discipline problems in that population.

Even though no evidence was obtained to support the hypothesis it is likely that some school personnel will continue to believe there are indeed more deviant behavior(s) during a full moon phase. This may be due to enduring legends and myths surrounding the moon. Nevertheless the mystery and myths

surrounding the moon even today sustain beliefs about its effect despite the lack of empirical support.

### **References**

Berman, B. (1992). Harvest Moon. *Discover*, 10, 100.

Brynes, G., & Kelly, I. (1992). Crisis calls and lunar cycles: A twenty-year review. *Psychological Reports*, 71, 779-785.

Grice, A. (1993). Full moon madness. *Essence*, 24, 67-8+.

Mathew, V., Lindsay, J., Shanmuganathan, N., & Eapen, V. (1991). Attempted suicide and the lunar cycle. *Psychological Reports*, 68, 927-930.

Pearce, M. (1994). Moonstruck. *Outdoor Life*, 194, 62-65.

Sands, J., & Miller, L. (1991). Effects of moon phase and other temporal variables on absenteeism. *Psychological Reports*, 69, 959-962.

Sinnott, R. (1991). Astronomical computing. *Sky & Telescope*, 82, 651.

Sinnott, R. (1993). How long is a lunar month? *Sky & Telescope*, 86, 76-77.

Sinnott, R. (1994). The Great Escape and the moon. *Sky & Telescope*, 88, 86-88.

Steinhart, P. (1989). Pull of the moon. *Audubon*, 91, 32-34.

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