

AN ASSESSMENT OF METHODS OF
TEACHING MONETARY SKILLS TO THE
MENTALLY RETARDED



RUBEN DARIO GARCIA

AN ASSESSMENT OF
METHODS OF TEACHING MONETARY SKILLS
TO THE MENTALLY RETARDED

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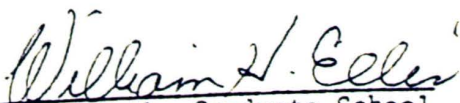
Euben Dario Garcia

To the Graduate Council:

I am submitting herewith a Research Paper written by Ruben Dario Garcia entitled "An Assessment of Methods of Teaching Monetary Skills to the Mentally Retarded." I recommend that it be accepted in partial fulfillment of the requirements for the degree of Master of Arts in Psychology.


Major Professor

Accepted for the Council:


Dean of the Graduate School

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Chapter 1

Introduction

There are very few areas in our society today where the implications of ignorance are more longlasting or severe than in the management of personal finances. An individual who is unable to handle his monetary affairs is at an extreme disadvantage in today's world. He is a target for any unprincipled person who does not have any concern over making an "easy dollar" from a less fortunate individual. Many areas of personal and social interaction depend on the ability to apply practical skills in math; more specifically, monetary skills. Smith (1974) points out, "In order for a mentally retarded person to function successfully in our society, he or she should be able to handle affairs which call for a minimum level of math skills dealing with money" (p. 245).

Recently, mentally retarded individuals have been encouraged to live in a manner as close to normal as possible. Many institutionalized persons have been placed in less restrictive environments such as community residences. If community adaptation is to be successful, retarded persons must be trained in essential community survival skills. One very important functional skill necessary for community living is the use of money. Research on teaching monetary skills to retarded individuals is limited; however, it is becoming increasingly more important that methods are found to teach the retarded to effectively handle money.

Purpose of the Study

It is important that the mentally retarded learn functional monetary skills to become socially and economically independent, thus needing less care and supervision to effectively live a normal existence in today's society; therefore, the purpose of this study is to determine effective methods of teaching monetary skills to retarded individuals.

Review of Related Literature

The recent interest in the effects of teaching monetary skills to the mentally retarded was stimulated by the works of Wunderlich in 1972 because of the essential principle of the proper usage of money for independence and a sense of self-worth. Wunderlich used a matching-to-sample procedure to teach retarded children to discriminate between the penny, nickel, dime, quarter, and half dollar, as well as combinations of coins whose amount was and was not equivalent to a single sample coin value. The technique used in his study is known as double responding--first the problem coin is touched and then the answer coin. Touching the problem coin (stimulus) before the answer coin increases the probability of discrimination of coins.

A study by Wunderlich (1972) involved eight subjects who were chosen from a private day school for the mentally retarded. The average measured intelligence (IQ) was 59; the chronological ages (CA) ranged from 9 years 5 months to 13 years 4 months with a mean age of 10 years 9 months. All students were unable to distinguish coin values and to make change. The testing procedure involved four series of slides:

Series 1 slides--Acknowledgement of the "problem" coin by depressing a center panel on the specifically prepared machine and then depressing one of five other panels which was a duplicate of the coin in the center panel.

Series 2 slides--Two coin choices were shown. One of the answer coins was the same as the problem coin; the other answer coin was different.

Series 3 slides--Equivalency coins were shown as the answer coins to a problem coin.

Series 4 slides--More complex equivalency training.

Results of the testing showed that no errors were made in the Series 1 slides. Nickels were comprehended with the most difficulty, possibly due to their size in relation to the other coins. Wunderlich (1972) states, "Examination of the data indicated that three subjects proceeded through the series without error and one other with only a single error" (p. 22).

This experiment provides evidence that coinage instruction can be programmed for retardates with success. The development of appropriate subprograms provides specific practice and training in various coinage problems which offer difficulty to retardates. Individual tutorship may also be offered to meet the needs of the retarded individual.

Even forty-five years ago, a study by Probst (1931) found that 94% of a population of kindergarten children knew the number of hands on a clock, 30% knew the time at noon, and 37% knew the number of pennies in a nickel. Templin (1958) found similar levels of knowledge in the middle 1950's. Even for more complex skills, Pollio and Gray (1973) recently found relatively high knowledge levels. When given rather difficult change-making problems, 3rd graders were not only making change but also beginning to give relatively efficient solutions. (Thurlow and Turnure, 1976, p. 3)

Normal children learn time and money through exposure at home and in the classroom. Classroom experience teaches math skills along with time and money skills (for example, how much is $5¢ + 2¢$). In a 1960 investigation, Marshall and Magruder found that this technique was not conducive to teaching the retarded. "The instruction [on time and money] must be developed specifically to teach the concepts to the retarded individual in a way that insures mastery and promotes retention and transfer" (Thurlow and Turnure, 1976, p. 5).

The University of Minnesota Research and Development Center and Thurlow and Turnure (1976) used the findings of Marshall and Magruder to teach counting money, making change, and telling time to the minute to the educable retardate. They attempted to determine whether a group of primary-aged retarded children would differ significantly with normal children of the same age in their abilities to master equivalence of coins. The money instructional portion of the study consisted of recognition and identification of the American coins. One hundred and seventeen nonretarded children, 64 educable mentally retarded (EMR) children, and 115 trainable mentally retarded (TMR) children participated in this program. The nonretarded children were enrolled in kindergarten through third grade classes.

The EMR subjects who received the Time and Money units were approximately the same age as the third grade, nonretarded children tested, and their mental age (MA) was similar to that of the kindergarten children. The TMR subjects who were given the Money test were much older than the nonretarded children (mean CA = 14.5 years). Their MA level, however, was slightly below that of the nonretarded, kindergarten children. The average IQ's of the EMR and TMR subjects were 71.1 and 42.4, respectively. (Thurlow and Turnure, 1976, p. 8)

The first level of instruction taught the recognition of a clock, the hands of a clock, and the recognition of the American coins. The time and money concepts were taught based on vocabulary and language rather than number skills.

The results from the Money Tests . . . revealed that nonretarded children in kindergarten through third grade answered 40%, 60%, 77%, and 82% of the 40 items correctly. The EMR children answered

35% of the items correctly before receiving instruction in the money unit, and the TMR individuals correctly answered 23%. These scores represent levels below both the EMR's and the TMR's MA peers. On the individual items, the retarded subjects performed at or below the level of their MA peers. This was true even on those items requiring the recognition and identification of the U.S. coins. (Thurlow and Turnure, 1976, p. 9)

The retarded children were given instruction in the money unit and then retested on the appropriate test to increase their test scores and to determine the effectiveness of the money unit. Instruction focused on the money unit for from 12 to 20 weeks. On the money test, the EMR children correctly answered 62% of the items after receiving instruction as opposed to 35% before instruction.

. . . This posttest level approached the level of the second grade children, clearly above the performance of their MA peers, although not quite reaching the level of the CA peers. Statistical tests revealed that the increases made by the children receiving the money unit were significant while those made by the children not receiving the unit were not. (Thurlow and Turnure, 1976, p. 11)

A review of related literature revealed several studies by Cuvo, one of which was completed in corroboration with Borakove. This study sought to investigate the facilitative effects of coin displacement. Borakove and Cuvo (1976) established the principle that displacing a coin or moving it aside after it has been counted is helpful in targeting attention to the next coin to be counted. They point out that "Support for the suggestion also comes from task analyses of mathematical curricula for nonretarded (Resnick, Wang, and Kaplan, 1973), as well as retarded (Spradlin, Cotter, Stevens, and Friedman, 1974) children" (Borakove and Cuvo, 1976, P. 331).

Four or five training sessions (approximately 30 minutes each) were given.

. . . Counting was trained in each stage by a three-step sequence: (a) experimenter modeling the appropriate counting response; (b) experimenter modeling the response with subject imitation; and (c) subject independently performing the response. For Step 1, the experimenter modeled twice. Subjects were required to make two consecutively correct responses for the latter two steps before progressing. Subjects were praised after correct responses; and for incorrect responses, they were told "no" and recycled to the previous training step. If participants were unable to imitate a response, they were manually guided through its components. (Borakove and Cuvo, 1976, p. 352)

The training program was as follows: Subjects were first taught to count each coin alone and then to count it with other coins. In Stage 2, the subjects were taught to identify the dime first and then use the dime in a combination with up to five nickels. The students were taught to recognize the dime's value as two nickels. Five nickels and one quarter were the coins taught in Stage 3. In Stage 4, the half dollar was introduced. The subjects were trained in the functional use of the penny last. This method of summation maximizes attention to the relevant features of the stimulus and minimizes excessive demands on memory for mentally retarded persons.

There are four other methods in addition to Borakove and Cuvo's coin displacement procedure for teaching monetary skills to the mentally retarded. The most commonly used method is the pictorial representation of coins and bills, usually with equivalent amounts (LeBlanc, Vogeli, Barnhart, Grimsley, and Scott, 1973; O'Neil, Keiter, and Benson, 1971). The second method is the modeling principle in which the subject

imitates the experimenter in the demonstration (Ross, Ross, and Evans, 1971). The third method is a matching-to-sample procedure to teach mentally retarded children to discriminate between the familiar five American coins and combinations of those coins (Wunderlich, 1972). Another method used is a sequence of rote counting skills with these skills later applied to identifying and counting coins (Bellamy and Buttars, 1975). This last method utilizes modeling as a training technique.

In an extension of the modeling training technique, a second study by Cuvo in association with Lowe (1976) dealt with teaching coin summation to the mentally retarded as an essential tool to free retardates from eventually having to return to the safe confines of the institution. The intent of the study by Lowe and Cuvo was to teach two male adolescents and two female young adults to sum coin combinations with a total of less than \$1.00. The average chronological age of the subjects was 14.8 years. They had a mean IQ of 57 and an average arithmetic grade level of 1.8.

Five nickels, five dimes, three quarters, one half dollar, and four pennies were used. The test consisted of 51 coin combinations to be summed. The test coins were arranged in a vertical column in order of ascending value. The coins were placed with respect to the side of the coin visible and the angular orientation of the figure on the coin. The coins were to be counted in any manner, and scoring was based on the subtotals of each coin. Correctness in counting was determined by properly increasing the cumulative value for each coin.

After the mastery of the sums tests, the subject practiced counting coin combinations. Ten consecutive coin sets were practiced to indicate mastery of the procedure.

As a result of the teaching and testing, coin-summing performance improved substantially. Thus, the instruction was found to be effective in teaching coin-summation skills to the mentally retarded.

Wolfensberger (1971) advocated that community placement of many institutionalized retardates supports the principle of normalization. It is his contention that retarded persons may attain to normal existences when trained in daily living skills--the most important being the use of money. Accordingly, a third study by Cuvo, teaching coin equivalence to the mentally retarded, was conducted with the assistance of Trace and Criswell (1977).

The Cuvo, Trace, and Criswell (1977) test involved seven male and seven female, adolescent, institutional residents who ranged in age from 14 to 18 years (mean = 17.1). Their Wechsler Adult Intelligence Scale (WAIS) IQ's measured between 46 and 70 (mean = 57.93). The mental ages of the subjects varied from 6 years 4 months to 10 years 10 months (mean = 8 years 7 months). The average length of institutionalization was 7 years 9 months.

The abilities of the subjects were: could state value of visually presented digits; could count by ones and fives to 100; could recall the name and value of the penny, nickel, dime, quarter, and half dollar; and could sum a sample of ten combinations of coins. They, however, could not select combinations of coins that equaled specified target values.

. . . The 14 subjects were then matched according to their coin-equivalence pretest scores, MA's, CA's, and IQ's, as well as the types of equivalencies they composed on the pretest for each target amount. Subjects were then selected randomly within the matched pairs for experimental and no-treatment control groups. (Trace, Cuvo, Criswell, 1977, p. 86)

A coin machine was constructed for the project so that a happy face appeared and M&M candy was dispensed when the correct coinage was inserted. Coins were returned when an incorrect amount was put into the machine. The most significant coin-equivalence test required the students to complete a total of 37 different combinations that equaled ten target values--without duplication of coin selection--from a "pile" of 25 nickels, 15 dimes, and 10 quarters.

There were five training sessions per week averaging 30 minutes per session. Training was as follows:

Stage 1: Use nickels to equal 10 target amounts.

Stage 2: Use one dime and sufficient number of nickels to equal 10 target amounts.

Stage 3: Use maximum number of dimes and a nickel, when necessary, to equal 7 target amounts.

Stage 4: Use one quarter and a sufficient number of nickels to equal 6 target amounts.

Stage 5: Use one quarter, several dimes, and a nickel, when necessary, to equal 4 target amounts.

Stage 6: Use 2 quarters to equal target amount.

The monetary amounts used in each stage consisted of a three-component response: naming, selecting and counting, and depositing coinage into machine. A correct answer to all three responses resulted in information, happy face, praise, and M&M candy. Incorrect responses produced corrective feedback. Absolute mastery of each stage was required before

the next stage was approached. The training proved to be effective because the retarded adolescents improved significantly in coin-equivalence performance. The results of Cuvo, Trace, and Criswell's study may be compared with the Pollio and Gray (1973) study which showed that nonretarded children were 11 or 12 years old before they mastered monetary skills at home and in the classroom. However, the retarded subjects in the Cuvo, Trace, and Criswell study were 2 or 3 years younger mentally than those in the Pollio and Gray study. This indicates that monetary skills, when taught persistently, may be learned by the retarded at an age comparable to their CA peers.

The most recent study by Cuvo, Miller, and Borakove (1977) involved teaching naming of coin values--comprehension before production versus production alone. This study involved fourteen mentally retarded subjects whose mean IQ was 43.86 and whose arithmetic grade level was kindergarten 0.1. The subjects were divided into two groups. Group one, comprehension-production group, was trained in two procedures: auditory comprehension (pointing to the correct coin in response to its verbally stated value) followed by verbal production (verbally stating the coin's value in response to a pointing prompt). Group two, production group, was trained in the latter procedure only. The results showed that teaching production alone was significantly more efficient than training both comprehension and production. The comprehension procedure did not lead to production acquisition, but the production procedure alone did lead to comprehension.

The results of the Cuvo, Miller, and Borakove study may suggest an interaction between mental level and direction of transfer of learning.

"The mentally retarded may experience facilitation from production to comprehension training; and for the nonretarded, the direction of transfer may be the converse" (Miller, Cuvo, Borakove, 1977, p. 735).

Blount (1973) reports that an early study by Straus showed that:

. . . children with a chronological age of 3 to 4 1/2 years made no real distinctions among denominations of coins. At this age, the choice of a larger denomination over a smaller one was either at chance level or because the larger denominations happened to also be a larger coin. By the chronological age of 4 years 8 months to 5 years 11 months, children were able to distinguish nickels from other coins, but were not able to make further discriminations. (p. 487)

Blount's study (1973) involved twenty naive, male retardates with no training in making change who were diagnosed as cultural-familial deprived. Their MA's of three and five were measured by the Peabody Picture Vocabulary Test which had been administered nine months earlier. All subjects were considered "naive"--they had no training in the making of change vocationally or academically.

The retardates were instructed to indicate their preference (want) and which was the greater amount (more) of possible pairs and various amounts of money. The materials included one penny, three pennies, one nickel, one dime, one quarter, one half dollar, one commissary card worth one dollar, and two one dollar bills.

Subjects were asked: "Which do you want?" (Want) or "Which is more money?" (More). Subjects were seen on two days so that each subject participated under both sets of instructions. Subjects were required to name each amount before they made their selection.

The retardates were largely influenced by the size of the coins or by their quantity. The large and small denominations caused confusion as to the correct value order. Form, size, or quantity were relevant dimensions in the retardate's use of monetary stimuli.

The purpose of the Blount study was to identify proper incentives for the monetary instruction given to retardates. The incentive identified was that the smaller denominations (coins) were comprehended more easily with regard to value/quantity, and thus more functionally useful than the larger denominations of money. Coins presented easier discrimination of value/quantity than did the paper money, thus establishing a form of instruction more readily and quickly grasped by the retardate.

In addition to the previous studies, an assessment of the effectiveness of presenting academic subject matter to TMR students was shown in a study conducted by Brown and Bellamy (1972).

. . . Four adolescents with a mean IQ of 38 were enrolled in a public school program for TMR students and taught a sequence of arithmetical skills which culminated in a consistent solution of simple addition problems. A follow-up study conducted 14 months later by Bellamy, Greiner, and Buttars (1974) found that students had retained the skills and were able to learn a new sequence of skills based on those retained. From these results, the authors concluded that TMR students can succeed in cumulative instruction which progresses from school year to school year. (Nelson, Troup, Thurlow, Krus, and Turnure, 1975, p. 5)

In a study by Huppler and Sontag (1972), five TMR students were given a set of coins (i.e., 10 dimes equaling \$1.00 or 20 nickels equaling \$1.00), the five students were taught various counting skills. This was done to determine if academic skills taught in the classrooms would transfer to practical skills. They then learned to use these

skills in counting out change which equaled \$1.00 by using only one set or denomination of coins. Huppler and Sontag felt that results of their study suggested that the application of an academic skill to a practical situation is in itself a skill which can be taught. However, an obvious limitation is that a student ultimately must be able to count out the correct amount of money from whatever change he has at the moment.

Using the results of Huppler and Sontag's (1972) study and the survey results of Baum (1972), Thurlow, Taylor, and Turnure (1973) designed an instructional program to provide young EMR's with a basic understanding of money, measurement, and time. The program was developed over a period of three years through the joint efforts of the University of Minnesota's Research Development and Demonstration Center and the Special Education Department of the St. Paul Public Schools. The program consisted of teaching basic arithmetic skills to the EMR; however, some teachers believed this same assessment of money, measurement, and time program would also be a useful tool for the TMR since the state legislature enacted mandatory public school education for TMR students beyond the self-care skills, personal safety, and social behavior previously taught.

Using Thurlow, Taylor, and Turnure's (1973) study, Nelson, Troup, Thurlow, Krus, Turnure (1975) designed a program for the TMR children based on the proven effectiveness of their previous study with EMR children. The original Money, Measurement, and Time Program (MMT) (Thurlow, Taylor, and Turnure, 1973) consisted of five units: (1) money, (2) measurement of length, (3) measurement of weight, (4) time with the clock, and (5) time with the calendar. The four

books of instruction for the money unit begin by introducing the uses of money. Then, recognition of American coins, their relative values and their exact values are covered.

The money unit research was conducted in Minnesota, Wisconsin, and Illinois and included 194 TMR students. A skills test and expressive test were given to the students to determine their level of knowledge in order to place them in the correct phase of the instruction. The money expressive test evaluated the student's ability to utilize specific vocabulary words. This test was given to one-half of the students. The money skills test, a test for functional arithmetic understanding, was given to all the students.

The money unit testing took six months. Testing was done by teachers and/or teacher aides. Pretest and posttest scores revealed that the TMR's were able to deal better with the expressive items than with the skills items. Posttest scores were recorded as generally higher in all categories. The effectiveness data not only assessed the success of various aspects of the instruction but also helped in the identification of areas that needed to be revised.

Bellamy and Buttars (1975) are responsible for the cornerstone precepts of teaching monetary skills to TMR's and EMR's. They developed a program for teaching money counting skills to five, trainable-level retarded adolescents. These students learned a sequence of rote counting skills and then learned to apply these skills in counting amounts of change. The five students ranged in age from 13 years 3 months to 20 years 6 months (mean = 16.1). Their IQ [Wechsler Adult Intelligence Scale (WAIS) or Wechsler Intelligence Scale for Children (WISC)]

ranged from 46 to 69 (mean = 54.8). They had been enrolled in special education programs from 6 to 14 years (mean = 9.0). At the time of this teaching program, all attended a public school facility for trainable retarded and severely disturbed students. The objectives of this teaching program were achieved. The five students did learn to count from the set of coins any amount of change under \$1.00.

The results of the research on this teaching program suggest that personal independence of trainable students can be enhanced significantly through classroom instruction. Based on the previously covered studies, this research is further complemented with the instructional aspects of teaching monetary skills and with the evaluative prognosis or assessment.

Comparison of Programmed Instruction Versus Conventional Method of Instruction

Green (1966), Malpass, Hardy, Gilmore, and Williams (1964), Briggs and Angell (1964) researched the fact that our knowledge about mental retardation has increased rapidly but our methods for teaching the mentally retarded children are still in the experimental stages. Their studies which compared programmed instruction (PI) with the conventional classroom instruction revealed essentially no achievement differences.

Price (1963) investigated the use of teaching machines with retarded children and found significant improvement for both the children exposed to teaching machines and conventional classroom procedures. Blackman and Capobianco (1965) evaluated the use of PI with mentally retarded children utilizing teaching machines. Performance improved significantly for both the teaching machine group and the conventional classroom group in reading ability and in arithmetic. It was found that while both groups improved significantly in arithmetic, the

improvement of the group exposed to teaching machines was significantly greater than that of the group which received the conventional approach. (Thibodeau and Vitello, 1974, P. 46)

The use of programmed instruction in developing the computational skills of mentally retarded children was also covered by Thibodeau and Vitello (1974). Their study dealt with thirteen pairs of EMR's who were divided into two groups. All the children could perform one-step addition and subtraction problems.

. . . One group of children received practice sheets for the two arithmetical processes (addition and subtraction) in which there were sequentially arranged two-choice, three-choice, and open-ended responses to one-step problems. The other group received the traditional worksheets with one-step problems in the horizontal arrangement. Each child completed 32 problems daily over a period of 24 days. Both groups received the same problem an equal number of times. (Thibodeau and Vitello, 1974, p. 46)

The results of the testing indicated that the children experienced more success with the programmed material on a daily basis than they experienced using the conventional method.

Teaching Strategy and Learning Rate of TMR's

Educational advances for the TMR have been made over the past few years. The development of a curriculum for the TMR is a complex task since educators and parents tend to differ as to worthy educational objectives and appropriate educational activities.

One advocate of the academic approach (D'Amelio, 1971) has argued that TMR children are capable of learning to read, to write, and to do their numbers. This view is given considerable support by achievement-minded parents of TMR children who often pressure teachers for a program that will guarantee the development of functional reading and number skills. Gearheart and Litton (1975) propose an instructional approach which includes development in affective, psychomotor, and cognitive areas. Positive

results have been reported in teaching the TMR children communications skills and number concepts (Brown, Bellamy, and Sontag, 1971). Regardless of the lack of agreement, academic content continues to be prominent in most educational efforts for trainable retarded individuals. (Grigsby and Harshman, 1977, p. 27)

Grasha (1972) discovered that teaching styles affect student behavior. A behavioristic task analysis teaching strategy developed by Englemann (1969) experimented with the sharing of responsibility by teacher and student for control and decision making as compared to the traditional approach where the teacher assumed full responsibility for classroom procedures. Eighteen white, TMR children participated. They were from middle-class homes and were matched on variables of age, sex, and IQ. The WISC was used to determine IQ. They participated in a curriculum consisting of self-help skills, communication skills, perceptual motor/physical education skills, personal social skills, functional academic skills, and economic usefulness skills. The children were randomly assigned to experimental and control groups. All of them were pretested on the basis of behavioral objectives (tasks) and post-tested with the same criteria. The time period was 12 weeks.

. . . Although the conclusions from this study cannot be generalized to other groups, the findings suggest the following: (a) the involvement of TMR children in limited control and decision-making roles in the classroom results in higher achievement; and (b) behavioral task analysis as a curriculum approach can be used successfully in the training of mentally retarded persons. (Grigsby and Harshman, 1977, p. 28)

Working with Money

Iceman (1974) conducted the following money skills test in an effort to teach intermediate EMR's how to handle money. Each skill was mastered before continuing to the next one.

1. Names all coins.
2. Compares values of coins. (For example, knows that a dime is worth more than a nickel.)
3. Names bill denominations.
4. Combines coins to equal another coin's value. (For example, gives the teacher two nickels for one dime.)
5. Combines coins to equal a given amount less than \$1.00.
6. Matches coins to their written symbol less than \$1.00. (For example, shows 15¢.)
7. Matches bills and coins to the written symbol. (For example, shows \$1.36.)
8. Selects an item priced less than the amount of money possessed.
9. Selects several items with a total value less than the amount of money possessed.
10. Counts change when the amount given the cashier exceeds the price. (Iceman, 1974, p. 102)

Money games may be made to teach the associated symbols: penny, one cent, 1¢, \$.01. Classroom play may consist of a "money play day." Suggestions included selling popcorn for 10¢ a cup, library passes for 15¢, games for 5¢, puzzles for 20¢. The most desired activity for a child to use should cost less, thereby being utilized more. A store may be set up with articles brought from home; shopping may be done from newspaper ads; plans for a picnic, birthday party, or dinner may be made.

Teaching Money Skills with a Number Line

Frank (1978) developed the technique of teaching money skills using a number line. The money or number line is made from poster board and cut to exact dimensions with various denominations of coins being set on predetermined lengths of poster board which fit securely into the groove on the money line. Special education students can use the money line to check the answers to written addition problems.

Brock (1979) has used a type of money system to reinforce good work or behavior and eliminate inappropriate behavior in teaching educable mentally handicapped students. Strips of green and red construction paper were used for reinforcing good work. When a student had accumulated ten green papers, an exchange was made for one red strip of paper. At the end of every week, a store was set up whereby the student could purchase items with his red strips.

A new system was then developed using rubber stamps depicting coins. Squares of construction paper were stamped. Green strips of paper symbolized one dollar bills, and red strips equaled five dollar bills. This system adopted the thought of issuing "stamp money" for each money ditto sheet of work done--the amount of money being dependent upon the correctness of the addition. This system did not prove feasible because of the teacher's time involved and the student's unfamiliarity with column addition.

A revised system was adopted by the teachers. If a student's reading and mathematics folders were done acceptably, he would be paid a certain amount. Inappropriate behavior would cost the student. Stealing, copying, late work, etc., brought stiff money penalties. The store, mentioned previously, was modified so that each item was worth a specific amount of money versus a certain amount of red papers.

It was found that this newly devised system worked extremely well with all of the students. They were more motivated with this particular system because they knew they were earning the money to purchase items they wanted. Because the concept of real money was made more functional through the use of this system, each of the students gained a better understanding of real money. Their ability to work with various money concepts had greatly improved by the end of the academic year. (Brock, 1979, p. 68)

Will There Always be an Institution?

Wolfensberger (1971) is a recognized authority in the area of mental health; particularly, his view of residential alternatives to institutions is widely accepted. He foresees the phasing out of institutions in five trends: nonresidential community services; new conceptualizations toward residential services; increased usage of individual rather than group residential placements; provision of small, specialized group residences; and a decline in retardation.

Residential alternatives to institutions can be divided into group and individual residences. Group residences are small, residential, family-size units which employ live-in houseparents. They would be located in all population centers of states and would be highly individualizing (Dunn 1969, Dybwad 1969, Governor's Citizen Committee 1968). Individual residences may have three forms: boarding, foster, and adoptive.

The term "boarding," according to Wolfensberger (1971), referred to temporary, individual housing for a child or adult who has a primary residence elsewhere. Boarding is also applied to an adult who is placed in a family setting and receives room and board for an indefinite period of time. Boarding is a pleasant alternative to the institution,

especially for the adult who is in vocational training or in sheltered or competitive work. Hostels could also be a form of boarding for five days a week so that special classes, workshops, etc., may be utilized by individuals whose primary residence is in sparsely populated areas where this type of service is not available.

Foster or adoptive residences have not been utilized for placement for the mentally retarded because of peculiar attitudes that demanded perfect substitute parents who cared little for material wealth and were motivated by idealism. Thus, foster homes were underpaid and numerous children were subsequently placed into institutions.

Finally, an almost universal agency dogma was that citizens would not accept a retarded child for foster or adoptive placement. Today, we can only wonder to what degree this agency dogma was an agency myth. What we do know is that prophecies can be self-fulfilling. Obviously, an agency worker who "knows" that retarded children cannot be placed is not going to seek such placements and support them with vigor and inspiration, if at all, and is therefore not likely to make many successful placements, if any. (Wolfensberger, 1971, p. 32)

Wolfensberger sees no reason why small specialized living units cannot accommodate all of the persons now in institutions. He, therefore, supports five-day, nine-month boarding care with individual residences/full habilitation as the target as opposed to life-long institutionalization.

Work Evaluation and the Mentally Retarded Review and Recommendations

Widespread use is being made of work samples as predictors of vocational potential in the process of vocational evaluation of mentally retarded individuals (Stodden, Casale, and Schwarz, 1977). These work samples are viewed as being superior to standardized psychological or mental assessment instruments by a number of vocational evaluators (Neff, 1970). According to Neff (1966), a work sample is defined as a "mock up, a close simulation of an

actual industrial operation not different in its essentials from the kind of work a potential employee would be required to perform on an ordinary job. (Stodden, Casale, and Schwartz, 1977, p. 25)

Work samples are valuable because they assess the same skills, aptitudes, and abilities necessary for competitive employment situations (JEVS, 1968; Overs, 1968; Usdane, 1963). The work samples relieve the client of test anxiety because a task is completed versus a test taken. Work samples are less affected than standardized tests by factors such as educational level, cultural deficiencies, and speech or hearing impairment (JEVS, 1968; Overs, 1968; Sinick, 1962). Actual work behavior is observed through work samples (Neff, 1966).

Timmerman and Doctor (1974) cautioned against a heavy reliance upon work sample assessments because many job differences cannot be duplicated, interpretation by work sample observers will vary, a lack of standardization exists for work samples, and very few have been validated with a mentally retarded population.

Jastak and King (1972) developed the Wide Range Employment Sample Test (WREST). Brolin (1976) endorsed this particular test because it allowed the client practice time before the actual work sample test; it listed both competitive and noncompetitive industrial norms; and the administration time is short with precise instructions.

However, Timmerman and Doctor (1974) found the WREST data to be sketchy and the instructions confusing and obscure. Brolin (1976) saw a need for better observation procedures when using the WREST. The WREST, though not perfected, has potential for testing the mentally retarded.

Economic Competency: Implications for
Programs for the Educable Mentally Retarded

Kingsley and Kokaska (1975) stated that economic competency goes hand in hand with self-realization, civic responsibility, and human relationship. Their competency might be defined as being able to perform the tasks associated with everyday living.

Kingsley and Kokaska (1975) quote Schwarz who emphasizes the need to use actual currency in real life situations: "The success of the educational process can only be measured by the degree to which a student is prepared to cope with the contingencies that will face him as an adult" (Schwarz, 1968, p. 34). One example is indicated by a follow-up of students who had finished their training (Kokaska, 1966). In the classroom, they had been taught the civic responsibility of voting. Kokaska (1968) discovered that all eligible individuals were not even registered to vote. The disclosure disappointed the classroom teachers because of the emphasis they had placed in this particular area of responsibility. However, this would not have embarrassed educators if they realized that at that time as many as three years had elapsed before students were allowed to implement their classroom lessons.

There is a current thrust within the education and habilitation of the retarded toward placing students within service industries since the Department of Labor (1962) has projected these occupations to expand in the coming years. It should be noted that service occupations furnish economic returns which can range near a subsistence level. For example, eating and drinking places constitute one of the largest and fastest growing industries in the United States and employed more than two million people in 1968. The various occupations of kitchen helper, waiter, cook and counterman, which are continually in demand within the industry, have received increased emphasis within work-study programs as likely job placements for the retarded. (Kingsley and Kokaska, 1975, p. 2)

Once the EMR is involved in the work-study program and is receiving a paycheck for services rendered, he is then ready to receive practical classroom instruction in the life skills of the economy (Kingsley and Kokaska, 1975).

Chapter 3

Summary, Conclusion, and Implications

A search of the related literature indicates that there exists a limited number of studies devoted to teaching monetary skills to retarded individuals.

An established certainty recognized by the experts in the field of monetary skills for the TMR and EMR is that the retardate is capable of learning skills sufficient for an active life in the community. This relieves society of the financial responsibility incurred when institutionalization is required. The retardate also experiences independence and self-motivation when he believes in his abilities to lead a self-sustaining life.

The conclusion reached from a review of the research is that the teaching of monetary skills to the mentally retarded is of paramount importance. However, the research that has been done has not been sufficiently prevalent to make a significant impact on the majority of the TMR/EMR population.

An evaluative assessment can readily be made by asking this question: Is the lifestyle of a mentally retarded person of such a consequential nature as to warrant the time and capital, investment and empathy required in making his existence pleasant to himself and highly tolerable to society?

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