

Mathematics and the Reluctant Learner

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The following data will examine the problem of motivation as it relates to reluctant learners, particularly those elementary school children who have developed serious emotional blocks to the learning of mathematics. The degree of success of teachers depends directly upon the degree to which they understand *why* such motivational blocks occur. The children discussed in this paper are for all intents and purposes mentally capable of learning, are of perfectly adequate intelligence, and there is no indication of learning disabilities of a "specific" nature, no sensory deprivation, neurological impairment, nor any identifiable cerebral dysfunction.

Motivational Blocks: Three Types

Mathematics blocks are more frequently described in terms of adjustment problems than in terms of learning problems (Beilin). The difficulty generally stems from the affective domain, rather than resulting from some primary cognitive deficit. Numerous descriptors have been ascribed to children experiencing this type of blocking. They have been described as anxious and defensive (Hewitt), as aggressive and contentious (Lilly), and as socialized deviants (Crow). These sets of descriptors differentiate three of the more significant causes of prevalent mathematics blocks.

The Anxious Defensive Child

This child might be classified as emotionally disturbed. The block ap-

pears to be psychopathological in nature because he has experienced repeated failure in mathematics. He has not satisfied his need to successfully perform even simple arithmetic tasks. Assignments cause him to feel fear, nervousness, and tenseness. Anxiety and defensiveness increase each time a mathematics stimulus is introduced. Mathematics, although not necessarily the exclusive cause for his neurotic abreactions, seems to have become the recipient of the child's fixated fears. His mathematics block takes on the form of a phobic reaction (Keogh, Erickson, Long).

The Aggressive Contentious Child

The second child might be identified as having a character problem. This child is one who, from early childhood, has been spoiled, pampered, and overindulged. He has not been provided with the necessary guidelines for developing responsible behavior. Somehow he lacks that "built-in" regulator of behavior most children have developed (Rosenberg, McCord). He has not successfully internalized usual moral and ethical precepts upheld in the *normal* family unit. Instead, he has come to think of himself as the centre of the universe and is impulsive, demanding, selfish, and ill-tempered. He has never been encouraged to practice need-gratification-delay. He is a completely self-centred, hedonistic little outlaw, who spends his time and energy seeking after that which is pleasurable and avoiding that which is in the least way distasteful, mathematics not being

the least of these things. His mathematics block takes on the form of conscious, deliberate avoidance (Szurek, Werry).

The Socialized Deviant Child

The third child is categorized as being socially disadvantaged. His emotional block is due primarily to social alienation. He is the child who comes from a background which deviates considerably from the norm - socially, culturally, morally, and ethically (Passow). His deviation from the norm is so marked that he is impervious to what is being taught most of the time. With repetitive regularity, he misinterprets and misunderstands. There are just too many linguistic gaps. His mathematics block results primarily from communication problems (White, Cheyney, Nazaro, Fuchigami).

Intervention Procedures

With this only too brief overview of the three identified syndromes, what of a practical nature can the mathematics teacher do to alleviate these learning blocks and facilitate effective locomotion?

The first and perhaps most important suggestion is that any therapeutic approach must be implemented with the child's *particular* learning block in mind. Thus, motivational remediation is *differential* in nature. What works beautifully for Child A will not meet the needs of Child B, and furthermore, what works so well with Child B will not succeed with Child C, and so on.

The Anxious Defensive Child

With reference to the anxious defensive child, what is called for primarily is a warm, accepting, and trusting relationship. This child needs to be supported and encouraged.

Because of the intense fear he associates with mathematics, he finds it impossible to relax to the point where he can understand the concepts being taught. The teacher's motivational responsibility is to help reduce his anxiety level by making him feel safe and secure. The notion that he is unconditionally accepted must be reinforced. He must *never* feel rejected because of his performance level.

In order to break his failure expectancy, the teacher will guarantee ongoing success by designing learning encounters that will encourage him to read and interpret problems, work through concrete experiences, and express mathematical concepts. He should be encouraged to talk about his successes in mathematics, as well as many other things which might be troubling him. When the child recognizes that the teacher cares, he will feel more free to ventilate his feelings. As negative energy is drained off, his negative feelings about mathematics can be neutralized. With each success, the child's concept of self is enhanced. With increased self-esteem and confidence, defensive reactions disappear. For this type of mathematics block, the child must enjoy an empathic relationship with the teacher. The more often the teacher can listen as the child expresses his suppressed frustrations, the less negative feeling will be left to fixate on mathematics.

For therapeutic intervention to be successful, the teacher should be sensitive to the following:

1. Allow the child to move easily into a relationship because he feels safe and wants to be there, rather than because the teacher insists upon it.
2. Offer support and encouragement without praising too much. Excessive praise can cause undue stress.

3. Encourage a bond of trust by listening effectively. Avoid registering shock or surprise.
4. Move slowly and carefully. Exercise patience to avoid pressuring.
5. Feed back positive information making it clear that progress has been made because of the child's initiative and success, rather than because of what the teacher has done.
6. Identify the nature of the child's success, and point out how he can repeat it.
7. Help the child to understand why he experienced those old blocks and how to deal with negative stimuli in the future.

The whole therapeutic process of reciprocating positive locomotion for negative will take time. As emotional overlay is alleviated through threat reduction, trust and security will emerge from the affective domain, and his mathematics blocks will have a better opportunity to be removed.

The Aggressive Contentious Child

With specific reference to our second child, an altogether different approach is needed. The character problem child refuses to participate in mathematics simply because it does not please him. He becomes resistant and reluctant when he thinks there is nothing particularly worthwhile in it for him. He is accustomed to satisfying his ego needs for recognition and power without putting forth much effort. If things don't go right for him, he simply walks away or attacks and blames. Failure is never his fault. He is quite capable of concocting elaborate rationalizations to protect his own narcissistic need to be in a preferred position (Boyer, Rosenberg, Werry). He is an impulsive, demanding, and impatient learner. Because he finds the going rough in grasping mathematical concepts, he

feels uncomfortable. He has been conditioned all through his life to expect immediate need gratification. He has never learned to struggle, to persist, nor to wait for positive returns.

Character problem children cannot tolerate any degree of discomfort. They cannot cope with difficulty. Probably one of the most accurate descriptors for this type of child is that he is excessively *hedonistic*. He continually seeks after that which is self-aggrandizing and pleasurable, while avoiding anything which will insult his sense of self and cause him pain. As a result, he has learned how to beat the system and con his way out of tight situations. He can come up with hundreds of excuses explaining why he can't cope with mathematics, all of which place the blame directly upon someone else, usually the teacher.

Therapeutic method for this child requires the following dictates on the part of the teacher:

1. Approach the child with a straightforward, businesslike attitude, firmly establishing yourself as the authority figure. Refuse to listen to his cock-and-bull stories.
2. Explain clearly and succinctly to the child exactly why he is experiencing difficulty in mathematics by reviewing the nature of his problems.
3. Appeal to his hedonistic nature by complimenting excessively for work well done. Even for the slightest effort in mathematics, provide special recognition, privileges, and rewards.
4. When he decreases his diligence and effort, remove special privileges and attention.
5. Maintain strict, hardline expectancy. The child is clever, and he needs to be challenged.

6. Assign the child to help others with math problems. The attention and power will reinforce the need to learn himself so that he can tutor those who will give him needed recognition.

Again, working with the character problem child will take time and patience. However, it can be successful providing we remember that these children are quite capable of learning. They are not suffering emotional trauma, nor are they mentally deficient. They are usually just plain lazy and will put the necessary effort into improving their mathematical skills only when they come to realize that the personal rewards they gain are truly worth the effort.

The Socialized Deviant Child

This child's problem stems from a deficiency in the communications and expectancy areas. Although studies have shown that, within the socially disadvantaged population, mathematics reasoning tops the list insofar as intellectual functioning is concerned, the child appears most of the time to be uninvolved and detached. His attitude is one of being uninterested. He seems to be peripheral to the other students. The simple fact is that he has practically nothing in common with his peers, nor with the teacher. His social distance stems from a background so entirely different from the norm that it is improbable that he will accommodate many of the concepts being presented (Jones, Deutsch). Also, he lacks the perseverance to focus on any formal learning task for a prolonged period of time (Beilin). Other problems including self-discipline, social graces, deviant behaviors, and social attitudes, although quite acceptable at home, cause him to be seriously out of step in the regular classroom.

By the time they reach pubescence, children from a disadvantaged home milieu are usually so limited in intel-

lectual skills that a reversal of their condition is very difficult. The problem with these children is not that they can't learn nor do not wish to learn, but rather is one of motivating them to feel less and less removed from the group socially, emotionally, and physically. Their specific need is to be included and to become active participants in the learning process.

Therapeutic support for the disadvantaged child might include the following:

1. Involving the child in novel, creative, and exciting learning encounters so he can avoid the negative aversions formerly experienced within formal learning environments.
2. Speaking the child's language so communication can be effective through common vocabulary meanings, thus reducing confusion.
3. Developing learning packages that do not depend upon homework. Materials should be as independently self-instructional as possible so the child can mark his own work and enjoy immediate feedback.
4. Teaching through games and problem solving activities that are fun in order to maximize the child's inherent problem solving abilities.
5. Employing concrete learning through sensory motor activities, introducing mathematical concepts deliberately through manipulation of materials, rather than expecting high level abstract, symbolic, and representational conceptualizations.
6. Providing for the most minimal cognitive stimulation to make up for lack of perceptual discrimination skills learned in the home.

The secret in working with the disadvantaged child is in knowing the

degree to which he lags behind the average child verbally and socially. Generally, if the teacher can communicate with the child and involve him to actively participate in the group, the teaching act will prove successful. As the child becomes more and more sure of his environment and more and more understanding of what is expected of him, he will adjust and learn, and his success rate will increase significantly.

Finally, relative to a practical approach for removing blocks with reluctant learners, what is called for is a differential approach. Ninety-nine percent of the problem is resolved when we are successful in diagnosing the nature of the mathematics block. When we clearly understand exactly what underlies the child's reluctance to participate, an effective therapeutic design can be implemented. With the emotionally disturbed child, love and support reduce defensiveness and permit the teacher to reach him. In the case of the character problem child, a highly structured, behavioristic reward approach works best. Concerning the disadvantaged child, what is called for is developing an effective communication system and making the child feel an integral part of the group.

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