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Revisiting Problem Solving with Gifted Students: The Teacher Makes the Difference

When is a gifted child ready for the discovery of a new idea? When is this child ready for independent searching and inquiry? Sometimes in many traditional educational settings, it seems as if a student must wait until graduate school before he is allowed to carry out independent inquiry.

True! In this modern world, there are more things to learn and as educators we are required to cover the expanding curriculum in a much hurried pace. However, if education consists merely of cramming only facts and figures in a receptive cortex, then, through what miracle will the creative student and idea gatherer become the "idea producer?" Isn't producing idea producers one of our ultimate goals in education?

Worse still, in many classrooms, students can become quite comfortable in the role of "fact absorber" and are uncomfortable when asked to solve a problem on their own. Many students retreat into mastery of factual material when they are given the opportunity to do independent work that requires problem solving. Mastery of factual materials often requires mere "rote memory" where many students are more comfortable and secure. Often students are only

comfortable in these safe zones. Our classrooms are set up for rote memory and often there is too much to learn in such a short time.

Methods in getting students to problem solve and think on higher levels of thought are harder on both the teacher and the student, yet they are more exciting and produce great dividends. Piaget, a well-known child psychologist, was interested in his concept of the stages of intellectual development of children. He maintained that children's thought processes and operations go through distinct changes at various age levels. These stages had to do with maturation and thinking patterns.

For example, four different children would think and act differently to hearing the sounds of a passing train. The situation would be essentially the same for all of the children to observe, but the reactions would be different according to the developmental levels of each child.

The 3 year old may say, "The train is talking to me." This reveals the egocentric thinking of his age, where the train is centered on the child. The 7 year old may say, "When the train goes really fast, the train makes a very loud sound". Apparently at this age, the child indicates the beginnings of logical association, yet he shows no signs of being interested in further investigating the train. The 10 year old child may say, "The train goes so fast that it hits the air hard and makes a loud sound." This makes logical sense but still lacks depth and larger organization. The 15 year old child might say, "The trains rattles, bounces and vibrates down the track." This statement shows more adult thought and intelligence. This response always depends on not only intellectual

ability at this developmental stage, but also previous experiences with the situation.

It is important to understand that although children, especially some gifted children, cannot produce the formal language necessary for discussing some concepts in highly sophisticated ways; children below the chronological ages of 10 and 11 can deal and operate with complex mathematical and physical concepts. Therefore, children at this age can amaze us; it is important to not underestimate what children can think and do.

Piaget says it is important for educators to understand that children should not always be asked to present material in a logical structure, but rather, demonstrate that they can operate on complex information through problem solving, or the “problem-solving method.”

Another goal of those who support using the discovery method is to teach children the importance of searching for knowledge itself. Students need to realize that that they have to search for knowledge; it won’t always be revealed to them or “dropped in their laps.”

There are many proponents favoring the discovery method as a desirable teaching technique. Studies of both animals and young children indicate that the more active involvement required to the organism, the greater the likelihood of learning. A major advantage of the discovery strategy is that it creates arousal and, as a result, maximal attention. Because the discovery approach requires extra intellectual effort, the value of the task is increased. It is assumed that activities become valuable to the degree to which is expended in their mastery.

Perhaps we should be picky and spend the most time in those most important concepts. The inferential or discovery approach is likely to increase the child's expectancy that he is able to solve different problems autonomously. This gives the child a sense of self-reliance. The discovery approach gives the child more latitude and freedom, and removes him from the submissive posture between teacher and child. This should also give the student greater preparation for life and a future career.

The discovery method, despite its' attractiveness, is not without its cost. Perhaps the largest cost of all is that of time and increased teacher preparation. Guided discovery means careful teacher preparation in choosing the examples to be used to attain the concepts.

In addition, there is the time required for the student to follow the path to the expected discovery. Thus, a principle that could be quickly stated, along with several examples by the instructor in a formal presentation, must be evoked from the students through the discovery method, which may take four or five times as long.

Eventually, the decision has to be made as to whether the gain obtained is worth the cost involved. Those who advocate the discovery method believe that discovery generates obvious enthusiasm and excitement in preadolescent children that is not obtained through more formal presentation.

The discovery that is useful, however, is discovery within an organized and structured framework that the teacher has in mind. It is not chaos. Of course, children will invariably come up with surprising associations that even the

teacher has not considered. However, it is important that the teacher of the gifted child be able to use this pedagogical technique effectively whenever it seems appropriate and workable.

Although there are some good materials on the market which incorporate problem solving skills, there are no materials no matter how cleverly designed, effective unless they are integrated into the instructional program, and the teacher using the materials cannot, in effect, walk away and expect that the materials by themselves will create a favorable result. In other words, teacher guidance is important and quality problem-solving materials will never replace good teachers who make children “think.”

There also appears to be many misconceptions about the proper role of the teacher in providing gifted students the freedom to think broadly and to search for new ideas with a sense of freedom. The “laissez-faire approach” of stepping out of the gifted student’s path letting him solely explore on his own does not fit well into class interaction. If the gifted child could in fact learn all these important ideas on his own, there would be no need for a teacher in the first place. We are here, still encouraging learning knowing that the gifted need to interact effectively with their peers, gifted and non-gifted.

The fact is, the teacher more (not less) is required to extend the sense of intellectual excitement in the child. The teacher needs to know how to sequence topics and assignments so as to lead the child through the necessary stages of thought so he will at last discover major ideas on his own. Therefore, the teacher is responsible for motivation and proper sequencing. The teachers’ role is vital to

success. To the contrary, the gifted child isn't smart enough or mature enough to make it on his own. The teacher (due to life's experiences) is, in essence, more experienced and wiser than this child, so there is no need to feel threatened or insecure because a child is gifted. The teacher can be very influential challenging and guiding the gifted child into higher levels of thought.

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