
Pro Rege

Volume 9 | Number 2

Article 3

December 1980

How Does Johnny Learn?

Gerald Bouma

Dordt College

Follow this and additional works at: https://digitalcollections.dordt.edu/pro_rege



Part of the [Christianity Commons](#), [Educational Psychology Commons](#), and the [Higher Education Commons](#)

Recommended Citation

Bouma, Gerald (1980) "How Does Johnny Learn?," *Pro Rege*: Vol. 9: No. 2, 7 - 13.

Available at: https://digitalcollections.dordt.edu/pro_rege/vol9/iss2/3

This Feature Article is brought to you for free and open access by the University Publications at Digital Collections @ Dordt. It has been accepted for inclusion in Pro Rege by an authorized administrator of Digital Collections @ Dordt. For more information, please contact ingrid.mulder@dordt.edu.

How Does Johnny Learn? _____

Gerald Bouma
Associate Professor of Music



Gerald Bouma received his A.B. from Northwestern College in Orange City, Iowa in 1967 and his M.M. degree from Arizona State University in 1969. He has completed all course requirements and examinations for his Ed.D. in instrumental music at Arizona State this past year. He joined the Dordt faculty in 1969 and is currently Associate Professor of Music. He teaches Music Education and private instrumental lessons; he also conducts the Concert Band and Orchestra.

The question of how learning takes place is both fascinating and frustrating. While it is often possible to observe the results of learning, the process itself is much more difficult to get at for it involves the human brain, and one does not simply dissect the brain to see how it operates.

This question has intrigued learning theorists for many years and many theories of learning are in existence. Unfortunately, however, educators have too often ignored the question of how learning takes place. Too often educational practices and methods have had little relationship to learning theories. Leslie Hart wrote:

But sad to say, the relation of conventional schooling to the brain has been almost totally unexamined. It is not at all easy to find so much as a mention of the word brain in educational literature, especially that small portion commonly seen by the people who operate schools.¹

Glenn Doman, in discussing the confusion between learning and schooling, stated:

We have assumed that children hate to learn essentially because most children have disliked or

even despised school. Again we have mistaken schooling for learning. Not all children in school are learning—just as not all children who are learning are doing so in school.²

When discussing the bad memories which many persons have of their early school years, he further stated:

Why should this be, when children want so desperately to learn? Can we interpret this to mean that a child does not want to learn? Or is it more likely that this indicates we are making some very basic and important mistake?³

It is encouraging to note that some educators are making attempts to relate learning theories to educational practice and are developing their own learning theories. A recently completed two-summer study, called the Ann Arbor Symposium, offers encouragement to teachers of music. In the summer of 1978 twelve outstanding music educators were invited to address a group of twelve outstanding psychologists and other interested music educators, to state some of their problems with and concerns for music education. After a year of study, the same people were invited to return, this time to hear the psychologists present the results of their research into the earlier specified concerns. The results of the symposium are both interesting and encouraging for they demonstrate a kind of communication between music educators and psychologists which previously did not exist.⁴

The purpose of this article is to present a learning theory from an educator's viewpoint, and to discuss some of the implications of the learning theory for education.

Learning Theory

The mind appears to be composed of two levels, the subconscious and the conscious. Psychologists have sought to get at the subconscious level in various ways, but educators have worked primarily with the conscious level. Educators may be making a mistake, for evidence suggests that a person is controlled as much, if not more, by the subconscious as by the conscious mind. It is wise to examine both the subconscious and conscious levels and their relationship to each other.

Subconscious

The subconscious mind is in many ways a mystery. It is in that area of the mind that one finds the memory and that which controls automatic or reflex actions. It is also in this area of the mind that feeling and the "heart" of the personality appear to be located. Early psychologists (Freud, Jung, etc.) dug into the subconscious level in dealing with patients and in seeking to explain personality. Most of these early attempts, however, were concerned only with what one might consider abnormal persons or, worse yet, laboratory animals. Consequently, many of the observations of these early psychologists may have little or no significance for the normal population. Recently many learning theorists have based their theories on observations of what might be considered normal persons and on comparisons to computer technology.

One learning theorist who seems to have offered much to the theories of the subconscious is Maxwell Maltz. Maltz, in his theory of psycho-cybernetics, suggests that the subconscious is really a "servo" device which controls the individual. The servo is an impersonal mechanism which guides the per-

son toward whatever goals are programmed into the device. Maltz compares this servo mechanism to similar mechanisms built into computers and guidance systems with which animals are created.⁵ Man, however, has a creative servo mechanism. Maltz stated:

We often overlook the fact that man too has a success mechanism, much more marvelous and much more complex than that of any animal. Our Creator did not shortchange man. On the other hand, man was exceptionally blessed in this regard.

Animals cannot select their goals

Man, on the other hand, has something animals haven't—Creative Imagination. Thus, man of all creatures is more than a creature, he is also a creator.⁶

Maltz suggests that by reprogramming the servo man can achieve much more than ever before imagined. Hypnosis lends credibility to Maltz's theory for it demonstrates that when the servo is made to believe something is true, the body and mind act accordingly.

Evidence indicates that every stimulus sensed by a person is stored somewhere in the brain. Forgetting, then, does not necessarily mean the memory of a stimulus no longer exists; it merely means that the person is unable to bring the memory from the subconscious to the conscious level. Leslie Hart theorizes that information which a person decides is important is stored in "prosters" or program structures similar to computer chips.⁷ This theory is in many ways similar to Piaget's theory of "schema." The prosters are categorized, and connect-

ing links are formed among prosters. Hart suggests that intelligence may be dependent on the number of prosters formed, the amount of information in each proster, and the number of connecting links formed among the prosters.

It is possible that not all information which the brain processes is in the form of prosters. Information which is evaluated as unimportant to an individual may simply be randomly stored in the brain, making the information very difficult to recall at a later date. A comparison can be made to one's personal office. Printed material which enters the office and is evaluated as important is usually processed and filed for easy access at a later date. Other printed material may be evaluated as less important and simply be stored in some convenient place. The material may be in the office but very difficult to find at some future date.

Evidence indicates that every stimulus sensed by a person is stored somewhere in the brain. Forgetting, then, does not necessarily mean the memory of a stimulus no longer exists; it merely means that the person is unable to bring the memory from the subconscious to the conscious level.

One may question where the memory and the subconscious are located. The best explanation for this seems to lie in the theory of holographic memory developed by Karl Pribram. According to Pribram, memory is not located in any specific part of the brain but, rather, all of the memory is found everywhere.⁸ In fact, large portions of the brain may be damaged or destroyed

and memory remains. Parts of the brain which have specific tasks may be destroyed and other areas of the brain can take over the function. The work of Glenn Doman and his associates at the Institute for the Achievement of Human Potential in Philadelphia supports the theory that persons with large portions of the brain damaged can often still learn to live normal lives and can, in some cases, achieve as much or more as persons with whole brains.⁹

A question remains as to just how the servo mechanism controls a person. Maltz suggests that the servo stores all the information which is fed into it and

servo) and subconscious, a person can do much to reprogram the servo and gear it toward a certain type of success or personality.

Conscious

Not all stimuli to which a person is exposed reach the conscious mind. When an event does reach the conscious part of the mind an individual is faced with three basic choices:

(1) A person may decide that the event has immediate importance. In this case the event will lead to a specific behavior. The event will also be

If a person is programmed to achieve success in a certain area, the servo will see to it that the goal is accomplished. If a person is programmed to be a certain kind of personality, the servo will accomplish that goal. However, if a person is programmed to be a failure in a certain area or if a person is programmed to be a negative personality, the servo will also accomplish that goal.

makes use of that information to guide the person toward certain goals. The servo is a very effective mechanism and will invariably be successful in guiding the person to the preset goals. If a person is programmed to achieve success in a certain area, the servo will see to it that the goal is accomplished. If a person is programmed to be a certain kind of personality, the servo will accomplish that goal. However, if a person is programmed to be a failure in a certain area or if a person is programmed to be a negative personality, the servo will also accomplish that goal. Although much of the programming is automatic (every stimulus helps to program the

programmed back into the subconscious memory where it is categorized and permanently stored. The individual may also decide that the event does have immediate importance but must be changed or adapted to be useful. In this case the individual will adapt the event and program it back into the subconscious as before. This situation will also lead to immediate behavior.

(2) A person may decide that the event, although not important or useful at the moment, may be important for future use. In this case, he may either categorize and store the information or he may redesign the event, categorize, and store it for future use. Eventually

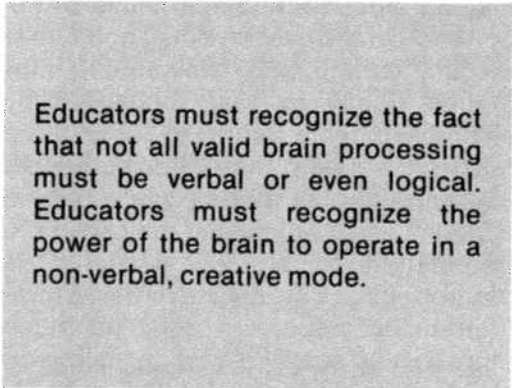
the event may lead to a specific behavior.

(3) A person may decide that the event has no apparent importance or use. In this case, he will program it back into the subconscious where it may be categorized or even randomly stored. This choice makes it very difficult to recall the event or information from the subconscious, especially if it is stored only randomly. This choice usually results in what can be termed "forgetting."

It is important to note that not all conscious thinking is done verbally. While the conscious brain performs many operations in a verbal, logical manner, it is also capable of processing information in a non-verbal mode. In fact, this non-verbal mode seems to be at least as important and perhaps more creative than the verbal mode. Several contemporary learning theorists have set forth the split-brain theory, noting that specific functions are located in specific parts of the brain. Verbal, logical thinking appears to be seated in the left brain, while non-verbal, holistic thinking appears to be seated in the right brain. Although in normal persons there is much communication between the two brain hemispheres, they also appear to be in conflict at times and to vie for attention. Over a period of time, the hemisphere which earns the most reinforcement will tend to dominate and the other hemisphere may even begin to atrophy.¹⁰ The implication is that, in today's society, most attention is given to verbal, logical operations and consequently the left brain tends to dominate the conscious level of thinking. The value of this theory lies not so much in knowing the specific area of the brain which controls certain functions as in the fact that it points to the different levels of thinking which do actually occur. Educators must recognize the fact that not all valid

brain processing must be verbal or even logical. Educators must recognize the power of the brain to operate in a non-verbal, creative mode. Hart suggests that this is the highest level of thinking.¹¹

It might appear that the subconscious is one level of brain activity, the conscious is another level, and the two are only distantly related. This is definitely not the case. In fact, it appears that the relationship between the two has much to do with both intelligence and creativity. The amount of information which is brought to the conscious level, the amount of information which is categorized into



Educators must recognize the fact that not all valid brain processing must be verbal or even logical. Educators must recognize the power of the brain to operate in a non-verbal, creative mode.

prosters, the number of prosters which are connected, and the amount of information in the prosters which is available to the conscious level for recall and use are all directly related to the degree of relationship between the subconscious and the conscious.

Implications for Education

The preceding theories regarding learning have some important implications for educators and students. While education has addressed itself very effectively to certain aspects of the learning process, it has often ignored

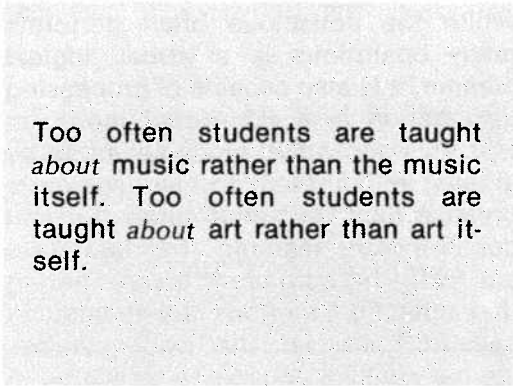
other important aspects. The result has been that, while education has been partially successful in some instances, it has been very inadequate in others.

Educators have been quite successful in organizing events to which the students must be exposed. One need only scan the curricula of schools from elementary through the university to discover the high degree of organization and specialization which exists. Educators are very specific in recommending which grade levels and which courses should include exposure to various events. For example, first graders are taught to read, third graders are taught to read music, and so on.

Unfortunately, educators have often been inadequate, however, in helping students attach a sense of importance to the events. Why should first graders learn to read? Why should third graders learn to read music? Why should students learn to sing? The result has been that often students make the choice that an event has no apparent importance, and they send the information to storage where it is "forgotten." If curricular events do have importance, educators must do much more to help students realize the importance of the events and the benefits derived from processing the events.

Educators have been quite successful in developing logical, verbal operations. In fact, almost the entire educational system is geared to this mode of thinking. Obviously courses such as language, science, and mathematics place heavy emphasis on verbal thought processes or "left-brain" activity. However, even the arts are often approached entirely in this manner. Too often students are taught *about* music rather than the music itself. Too often students are taught *about* art rather than art itself. Educators have been so successful in developing verbal thought processes that often the non-

verbal creative mode is not recognized, let alone developed. While the arts do provide a perfect opportunity to place emphasis on the creative mode, it must be stressed that this mode of thinking is valid for all disciplines. Students must learn to trust their intuitive, non-verbal thought processes as well as the verbal and logical processes. By learning to make maximum use of both levels of thinking, persons will tend to form more connecting links among posters, resulting in higher levels of intelligence.



Too often students are taught *about* music rather than the music itself. Too often students are taught *about* art rather than art itself.

Educators have also been inadequate in dealing with the subconscious and the relationship between the subconscious and the conscious. Particularly by failing to recognize the servo mechanism and its ability to be programmed, educators have fallen into the trap of arbitrarily assigning intelligence and creativity levels to individuals when, in fact, both intelligence and creativity may be more directly related to a person's inner self, which can be programmed to either success or failure. In doing so, educators have often programmed students for failure in certain areas and then have later pointed to their initial observations regarding intelligence and proclaimed that they were correct in the first place. In many years of working with

"monotone" singers I have concluded that, barring physical defects such as a severe hearing loss, the reason why a monotone cannot sing in tune is because he *thinks* he cannot sing in tune. Invariably, sometime in the past, the monotone has been told or otherwise led to believe that he cannot sing. As soon as the person is reprogrammed, the job of teaching the monotone to sing a melody is relatively easy.

Several years ago Weston Noble, from Luther College in Decorah, Iowa, conducted the Northwest Iowa Choral Festival. Throughout the entire day of rehearsals Noble asked individual students to come to the podium and sing alone on certain measures. Though nervous, all the students did as he asked. After each person finished, Noble found something positive to say regarding the performance. The result was a magnificent concert by several hundred high school students who, for one day at least, were programmed positively.

Unfortunately, the majority of educational experiences do not tend to program students toward success. From the time a child enters school his weaknesses and limitations are pointed out. The child soon learns that when papers are returned the errors, not right answers, are noted. The student musician soon learns that when the conductor stops in rehearsal it is usually to point out or correct a mistake rather than to take note of a passage just performed beautifully. The child soon learns that it is dangerous to try to be creative for usually someone nearby will criticize, and that can be very painful. Over a period of several years students are programmed to accept limitations which may or may not be real, simply because it is more comfortable to live as though they were real. The end result is finally the question asked by Doman and his associates:

How long could we look at Johnny, who had half his brain removed, and see him perform as well as Billy, who had an intact brain, without asking the question, "What is wrong with Billy?" Why did not Billy, who had twice as much brain as Johnny, perform twice as well or at least better?¹²

It is time that educators, particularly Christian educators, take note of recent developments in learning theory. More importantly, it is time for Christian educators to recognize the marvellous fact that man is created in the image of God and as such possesses incredible potential. It is time for Christian educators to stop placing emphasis on students' limitations. The limitations are there, to be sure, but they will show themselves soon enough. It is time for Christian educators to stress the potential instead and to program students to achieve that potential, because it may never be recognized or realized unless it is stressed.

Notes

¹Leslie A. Hart, *How The Brain Works* (New York: Basic Books Incorporated, 1975), p. 198.

²Glenn Doman, *How To Teach Your Baby To Read* (Garden City, New York: Doubleday and Company, 1964), p. 28.

³Doman, pp. 41-42.

⁴Judith Murphy, "Conflict, Consensus, and Communication," *Music Educators Journal*, 66, No. 7 (1980), 47-78.

⁵Maxwell Maltz, *Psycho-cybernetics* (Englewood Cliffs, New Jersey: Prentice-Hall Incorporated, 1960), pp. 15-16.

⁶Maltz, p. 17.

⁷Hart, pp. 71-80.

⁸Karl Pribram, "Holographic Memory," *Psychology Today*, 12, No. 9 (1979), 71-84.

⁹Doman, pp. xvi-xxi.

¹⁰H.S. Gazzaniga, "The Split Brain In Man," *Scientific American*, 217, No. 2 (1967), 24-29.

¹¹Hart, pp. 132-139.

¹²Doman, p. xvi.