

STRATEGIES FOR LEARNING AND REASONING: AN X-RAY OF CREATIVE THINKING

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Abstract

There are few students who have not encountered the concept of creative thinking in one form or another, or failed to detect the upsurge of interest in recent years. Globally, advanced industrial societies cannot survive, develop or compete without the continued emergence of creative people in ever-increasing numbers in political, social and scientific pursuits. Divergent or creative thinking as strategies for learning and reasoning are such that will actively engage students' thought processes and students are allowed greater participation in the teaching and learning process. The use of divergent instructional strategies have been found effective for learning and reasoning among students and should be included in the curriculum. This paper therefore discussed the strategies for learning and reasoning x-raying creative thinking (divergent thinking).

Introduction

Thinking is defined by Hornby as the act of using one's mind to produce thoughts and ideas (Hornby, 1995). Thinking therefore, is a function of one's mind. To think of a thing means to consider that thing critically before making a decision. In other words thinking involves opinion, judgment, thought and reasoning. It is an invisible but an inescapable act of any human being, children and adults alike. Thinking is any mental process including everything from random association and images to spectacular acts of creativity, (De Bono, 2002).

The children's exposure to relevant and appropriate learning experiences either in a formal or informal situations helps to develop their thinking ability. In other words, a variety of reality of experiences on the part of the child stimulates his thinking and consequently his self activity. This ensures that a child learns by himself and for himself. Effective learning depends on appropriate thinking. The implication of this is that one of the major responsibilities of a classroom teacher is to plan his lesson in such a way as to stimulate correct thinking in the learners.

According to Harns (2001), thinking involves processes which are innate (private or covert) activities of children and which may be elicited by stimuli arising intrinsically (from within the body) or extrinsically (from the surrounding environment). The spectrum or range of thinking of a child reflects the relative intensity of intrinsic and extrinsic influences. When intrinsic thought processes operate strongly in a child and are relatively free of environment constraints, the child thinks expressively, that is, the imagines, fantasizes, dreams, hallucinates or has delusions. If the child is thinking or gets dominated by external stimuli he tends to become more logical, directed, and disciplined. Consequently, this thinking process is identified by terms such as judging, conceptualizing and problem solving (Harris, 2001).

Divergent thinking as an example of creative thinking is one of the different kinds or categories of thinking. Divergent thinking according to De Bono (2002) is a thought process that involves postulating multiple possibilities and ranging over many dimensions of a problem, without concern for a correct answer or a logical arrangement, e.g thought process in emotional expression. Divergent or creative thinking is considered by Bartlett (1982:42) as "an

activity that leads to new information, or previously undiscovered solutions rather than to a predetermined correct solution as in convergent thinking". Divergent thinking is necessary in case of tasks that call for flexibility, originality, fluency and inventiveness and especially for problems in which an individual must supply his own unique solution. The problem might be a personal, emotional difficulty that needs resolution or expression.

Creative or divergent thinking instructional strategies go a long way to promote learning and reasoning. The strategies for creative thinking are such that should be inculcated in the students. Above make teaching and learning move effective, interesting and rewarding as they invoke students thought processes and allows for greater participation on part of the students.

Thinking divergently is a necessary training that should be inculcated in student particularly at the secondary school level. Okpala (2003) affirmed that when divergent learning strategy is effectively used, teaching and learning become more interesting, challenging, effective and rewarding. Nonetheless the effective use of this learning strategy depends upon the competency of the teacher in the use of divergent learning strategy, knowledge of subject matter, psychology of learning, material selection, skill and above all, his willingness to employ the learning strategy in his teaching.

Further, creative thinking is a matter of using intrinsic resources to produce tangible results. This process is markedly influenced by experiences and training. For example, school situations that encourage individual expression and tolerate idiosyncratic or unorthodox thinking seem to foster the development of creativity. This paper discussed the phases or processes of creative thinking, creativity and the classroom and divergent thinking and subject bias.

Phases of Processes of Creative Thinking (Divergent Thinking)

Psychologists and teachers have been intrigued by the processes of creative thought and after many years have little more than a handful of speculations. Wallas (1998) recognized four stages in the creative cycle namely; preparation, incubation, inspiration (or illumination) and verification.

- a. **Preparation:** The forerunner of the preparatory stage is the ability to spot a problem. The existence of a problem often excites and obsesses the creative mind so much that it becomes restless and disturbed. Preparation then takes place and involves a detailed investigation of all the possibilities surrounding the problem from reading, discussing and questioning to making notes and trying out solution. Also preparation entails that the thinker assembles and explores his resources and make preliminary decisions about their value in solving the problem at hand.
- b. **Incubation:** Following a period of deliberate activity in search of evidence and solutions comes a time when no conscious effort is made. This incubation period may be short or very extensive. In incubation period, the thinker mulls over possibilities and shifts about from one to another relatively free of any rigid, rational or logical preconceptions and constraints. Incubation seems to be partly unconscious proceeding without the individual full awareness.
- c. **Inspiration or illumination:** This is the sudden flash of insight, that penny dropping sensation we all experience when a confusion of ideas suddenly takes shape. Sometimes it follows during sleep, during a walk or in the bath. Bartlett (1982:60) makes a general comment about creative inspiration: "as a rule the germ of a new work appears suddenly and unexpectedly. If the soul is fertile that is to say, if the composer is suitably disposed the seed takes root, rapidly shooting up,

stem, leaves and finally blossom". This is a classical example of the inspiration stage. In other words inspirations or illumination occurs when resources fall into place. A definite decision is reached about the result.

- d. **Verification:** The final phase or period called verification involves refinement or polishing. This is the process of making relatively minor modifications in committing ideas to final form. Here, the creator is fairly convinced of the veracity of his solution long before he puts it to the test. But there follows a stage of active revision, expansion and correction.

It is seen from this creative cycle that it is rarely, if ever an event which happens over a cup of coffee. There is usually a time-consuming, tenacious and detailed period of mental activity. The inescapable conclusion from Wallas's work is that creative output needs time and effort.

The four logical phases vary widely and proceed in different orders from one person to the next person. The characteristics of creative thinkers are the phases of preparation, incubation, illumination or inspiration and verification but these do not guarantee that a worthwhile product will ensure. According to Harns (2001), results depend on whether an individual has the necessary personality characteristics and abilities from the training of the creator. He further pointed out that the artist who produces oil paintings needs to learn the brushing techniques basic to the task and that the scientist who creates a new theory does so against a background of previous learning. Creativity intimately blend realistic (objectives) and autistic (subjective) processes and the successful creator learns how to release and express his felling and insights.

Creativity and the Classroom

Human notions about effective and efficient 'creative' classroom condition are largely intuitive. It is often said that a tight factual Syllabus delivered by authoritarian teachers are the ideal conditions for producing convergent thinkers. It seems common sense that the way in which knowledge is presented and acquired will affect the way in which it is subsequently used. Reasonable though this hypothesis might appear, there is very little hard evidence to support it.

Torrance (2000) believe that at present parents and teachers actively discourage creative behaviour in the young because it is too troublesome and time consuming. The enquiring child needs plenty of attention, his questions are frequent, difficult to answer in simple language and sometimes embarrassing, whilst his unskilled hands lead to messiness and disorder. According to Getzels and Jackson (1998), precocious children are unpopular with teacher as compared with the conformist and orderly children. The reason is that some times they are disapproving having developed particular abilities and ways of behaving at a much younger age than usual.

Many social pressures stressed at home and in the community interfere with the creative process. Our expressive emphasis on successful orientation and our exaggerated fear of making mistakes also affect it. Over emphasis or misplaced emphasis on sex roles also exacts a heavy toll on the creative thinking of both boys and girls. Our tendency to overrate the finished, the great work of art, the harmonious interpersonal relationship, the well-organized behaviour of a group should be considered. We fail to note the struggle through which these achievements come into being. Most of the times, stress is made on the importance of verbal skills, especially writing, credit is given frequently only for what an individual can write down, not recognizing that not all thinking expresses itself in verbal form. Much emphasis is placed upon what one knows rather than upon one's attitude towards what one knows or what one can do with what one knows.

Divergent Thinking and Subject Bias

A recurring theme in the study of convergent and divergent thinking is the possible connection between performances on the tests that are art or science bias. Hudson (1997) is posited as being prolific in this field. He defined a converger as one who obtains a relatively lower score on intelligent quotient (IQ) test and at the same time a relatively lower score on a divergent thinking test compared with others in the test sample. The reverse definition was used for the diverger. He was able to show that science students (particularly those studying physics) tend to be converges. Divergers, on the other hand tend to be students of English literature, history and modern languages. The emphasis has shifted from regarding the divergent thinking tests as measures of creativity to one of looking upon them as reflecting a preferred thinking style. Hence IQ and divergent tests are more likely to distinguish science from arts specialists than to distinguish the creative from not so creative. Nuttall (1993) conducted other experiments in this area and the weight of evidence so far favours the convergent test as a more consistent discriminator of the science specialist with much less support for the arts-diverger connection.

The fact that science specialists do comparatively well in convergent (IQ) test may reflect the kind of thinking strategies in which they excel. IQ items require people to take information as given and use it to arrive at a single correct answer a procedure not unlike the traditional demands made in science lessons.

Conclusion

The knowledge explosion has tended to render conventional modes of teaching and learning of limited efficiency. The teaching of science, especially in preparation for examinable subjects has frequently taken the form of "here are the facts, now use them". This is not to deny the central importance of fact assimilation and recall, but where the psychologist's interests lie is in the strategies for learning and reasoning which the situation imposes on the child and the lasting influences these might have on the way he tackles problems.

This has prompted many governments to sponsor research dedicated to the task of identifying, measuring, cultivating and exploiting creative talent. At a more homely level for student-teachers, classroom practices are found increasingly involving such highly technical and invalidated methods as creative writing 'imaginative work in art and drama' or discovery methods'

Clearly, there are numerous unresolved issues relating to the study of creative thinking. However, there remains the practical problem of how we might stimulate and encourage such thinking in school. A number of suggestions cast in the form of series of questions designed to direct the children's attention towards problem-solving were made the skill of directing children's attention to wide range of possibilities is a very potent and not a particularly common place one.

Summary

Students taught with creative strategies (divergent instructional strategies) perform better in school work. The divergent thinking strategies help students retain more in academic activities. Creative strategies encourage active participation and discovery on part of the students.

Recommendations

The following were recommended for divergent thinking to be developed and used:

1. As the use of divergent instructional strategies have been found effective in promoting learning, reasoning and achievement in schools and since the strategy is relatively new school, it should be included in the curriculum.
2. The fact that most of the serving teachers may not be familiar with the divergent instructional strategies, seminars and workshops should be organized by government.

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