INCULCATING PROBLEM SOLVING SKILLS IN PRIMARY SCHOOL CHILDREN

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Abstract

The paper focused on inculcating problem solving skills in primary school children. The aim of primary education is to produce children with the necessary skills of reading, writing and skills for problem solving in their environment. Problem solving is a process of making purposeful decision in order to achieve one's goals. Ability to solve problems is traditionally rooted in the interaction between the parents and children. The paper advocates that problem solving skills is possible through improved interaction between the parents and children. However, the upsurge in students' enrolment has made it difficult for such interaction which helps children to acquire the skills for problem solving. The paper examined the need to inculcate problem solving skills. The traditional pattern of inculcating problem solving, the present teacher-child interaction negating acquisition of problem solving, the different ways problem solving skills can be inculcated in schools. Recommendations were also made on how to inculcate problem solving skills.

Children are involved in different academic and social activities while in the school. Those activities are geared towards achieving academic or social goals, which are set for them by teachers or by themselves. In the course of carrying out those activities, challenges or problems arise. This is one common experience of all humanity. Children therefore experience problems when they have a blocked goal. Notwithstanding the blocked goal children have potential of solving their problems (Amabile 1989). However, the child's environment. (the primary school) to a great

extent, influence positively or negatively the problem solving potential of the child (Elkind 1983; Amabile, 1989; Rohner, 1991).

Primary school is the place for laying the foundation for inculcating problem-solving skills in the academic ladder and consequently future life. Some of the skills are problem finding, divergent thinking, brainstorming, idea combination, evaluating alternatives, and defining terms (Khandwalla 1997 & Lubart 2000). Since life is basically a problem-solving affair effort should be made to catch the children " young"

In 1999, three years after the creation of Ebonyi State, the state government, declared, free primary education. There was an upsurge in school enrolment because parents believe education equips children with the skills of solving problems affecting their families (Ocho 2007). Primary education does this by equipping children with skills of problem solving, and divergent thinking through reading, writing, manipulative activities and other skills for educational advancement (FRN, 2004). However the accommodation for learning, equipment and number of teachers among others appeared to greatly negate the chances of children acquiring such skills. Teachers and children, in their bid to meet the external requirements of examination, rushed through the curriculum. The result was that many children lack the skills which will help them solve daily problems in the society. It is often said by some folks in the society that "passing six is not passing sense". Against this backdrop, this paper examines how problem solving skills can be inculcated in primary school pupils. The paper is premised on the fact that

❖ Problem solving is essentially a social construct resulting from interaction between the teachers and the children (Csikszentmihalyi, 1999). It means that every child has the potential for problem solving.

❖ The present teacher-child interaction does not sufficiently stimulate problem-solving skills in children.

❖ The teachers-child interaction serves as a socio-emotional support and enrichment for solving problems (Simonton, 2000; Sternberg 2001) hence inculcating problem-solving skills in children is consequent on improved positive interaction between teachers and children.

The paper therefore examines the concept of problem solving, need for inculcating problem solving skills in children; the traditional pattern of inculcating problem solving skills in children; the present teacher - child interaction which inhibits development of problem - solving skills; and ways of inculcating problem - solving skills in Primary school children.

Concept of Problem Solving

Everybody born into the world has needs and motives that should be satisfied. In order to satisfy the needs, definite goals are set. In an attempt to realize the goals some obstacles are experienced. These obstacles are problems. Deliberate efforts are therefore made to overcome the problems. These efforts involve the evaluation of the

circumstances and the strategies to adopt in order to reach the expected goal. It is the application of the strategies and the evaluation of the circumstances under which the strategies would be applied that one should refer to as problem solving. Problem solving is therefore a process (Mangal, 2013), a deliberate and purposeful decision to achieve ones goal; it is a conscious effort made to help an individual remove or adjust to interferences blocking the satisfaction of ones goal or motives.

Two major factors were identified by Mangal (2013) as affecting problem solving. These are

(1) Factors inherent in the nature of the problem - the complexity of the problem, undefined problem, similarity with past experiences, unfavorable circumstances.

(2) Factors inherent in the learner - ones degree of training, interest and level of motivation, ability to understand and analyze the problem, one's frame of mind and mental set including time spent on the problem.

The process of problem solving involves many steps. (Chauhan, 2013). However there are no single accepted steps for solving problems. Notwithstanding the different steps the seven step processes outlined by Gordon (2004) can be adapted. The steps involve 1. Amassing knowledge of discipline through reading 2. Determining whether critical expertise has to be applied 3. Looking for bias and mistakenly held assumptions 4. Analyzing jargons to uncover differing definitions of likely terms. 5. Checking for classic mistakes 6. Following the errors as they ripple through underlying assumptions. 7. Suggesting new avenue for research that emerge from step one through six. Whatever process the individual adopts the basic foundation for problem solving is to ask oneself six important questions: what is the problem? Why does the problem occur? When does the problem occur, where does the problem happen? How does the problem happen? and who are the people involved in the problem? The above questions can help to inculcate problem solving skills in children.

Need For Inculcating Problem - Solving Skills in Children

School children have varied goals ranging from how to read, write, relating with friends and improving their fitness. As they work towards the above goals, they encounter some obstacles. While facing those obstacles, they are involved in problem solving processes which help them to achieve their goals. Since some goals must be set and attained it is imperative that children should learn skills to overcome the obstacles towards achieving their goals. Some children invent solutions and thereby mismanage problems while trying to overcome their obstacles. Some of those invented solutions are ways used by children to neglect humanity which do not benefit mankind. They include, among others, examination malpractice, and cultism in schools, .which involves terrorist behaviour. Such problem-solving skills do not take care of others and

oneself. They fail to maintain societal harmony and individual's well being (Elkind, 1983).

Furthermore the present society has placed so much pressure on teachers who are surrogate parents of the children. The pressures arise due to frustration faced by parents consequent on threat of violence, professional insecurity, inflation, separation and divorce, routine work and poor school ethos. The stress witnessed by parents make them to be self absorbed - no concern for needs and interests of the children (Elkind, 1983). Teachers as members of the society also witness the above frustration. Teaching has therefore become teacher - centered instead of child - centered. Teachers merely adopt accepted pattern of doing things. The children are now left alone to solve their problems, hence they lack appropriate models and their problem solving skills are stifled. The dynamic nature of the society and life in general connotes that mere adoption of some accepted pattern of doing things using lock up-step-matching does not enable the individual to live happily and contribute meaningfully in every sphere of ones involvement (Anim, 1992). The above pattern was not employed in the traditional society. Let's examine the traditional pattern of stimulating problem solving skills.

Traditional Pattern of inculcating Problem Solving Skills.

The traditional society inculcated problem solving skills through the processes of parent-child interaction. The interaction which is perceived by children as acceptance (warmth) or rejection (aggression and hostility) affect the cognitive ability of the child to solve problems (Rohner, 1991). Parents stimulated problem solving skills in children by allowing children to stay with them, giving them freedom to explore the environment, discussing with them, and listening to them (Anim, 1992). Anim further noted that through the use of proverbs, similes, folklores, music, and riddles centering on some legendary animals (elephant, tortoise, hare) and their interpretations, cognitive skills of problem solving (Brainstorming, identifying problems, critical thinking, drawing mental maps, comparing alternative) are inculcated. The pattern of inculcating problem solving skills through the above means focused on thought processes, feelings about actions and attitudes towards others (Lubart 2000). The cognitive skills enable children to perceive and think of what to do in the face of any problem.

The traditional society provided enough challenge for learners using More Knowledgeable Others, (MKO) (James, Gerard, & Vagt-Traore 2005), who give assistance at the right time to facilitate learners' development. The MKO acted as bridges which enable children to reason backward in order to explain what is not common. The society adopted a constructivist problem - based learning approach which allows children to go through trial and error processes while finding solutions to problems. The above approach gives children autonomy over the skills they will adopt to reach their goals (Amabile, 1999). Children were not presented with rigidly designed problems; hence they have freedom to define their own problem. The solutions to such problems were not pre-determined but emanate from the ability of the children to draw

different mental maps which are brought together to form an atlas - indicating a total understanding of problem at hand. The adoption of the above pattern of teaching appears to be the challenge faced by teachers in primary schools because they run counter to the present teacher-child interaction.

Present teacher-child interaction pattern and problem-solving

The teacher - pupil interaction pattern does not provide children with the enough encouragement or positive support that inculcate problem solving. The stress witnessed by teachers in their effort to produce "qualified" children within specified period force teachers to teach to the tests (James, Gerard, & Vagt-Traore 2005). This is because children are expected to produce only one correct answer to most questions presented to them within a specified time. This explains in part why extra classes tagged lessons' are organized by some teachers for pupils. Moreover, most often questions and assignments are solved individually without co-operation and discussion with other pupils. The situation stifles group focused discussion and brainstorming (Khandwalla 1997). The individualism in classroom work is in part responsible for teachers not using the project method which leads to long term planning, idea combination, problem finding, formulation and redefinition of problems (Lubart, 2000). The instructional techniques employed by teachers create a gap between acquisition of skills and ability to use the skills. Skills are learnt in isolation (no maps), no laboratories and farms to practice what is learnt. Virtually practical work is absent in some schools. Learning has become synonymous with collection of information without wisdom to use the knowledge acquired (Hedge, 2001).

The classroom environment is not verbally active (Jones & Gerig, 1994) because of number of children in a class. In order to overcome the challenge teachers adopt favour gaining marginal improvement in time and use of resources in order to ensure easier class work (Lubart, 2000). This is revealed when teachers assign scores arbitrarily under the cloak of continuous assessment. The teacher - pupil ratio encourages this practice. In some schools one teacher handles more than seventy pupils. There is usually only one teachers' time, and interactions are in great demand. The interaction here refers to face -to face action-verbal and no - verbal (touching, proximity, facial expression). Evidences abound that pupils, particularly in upper primary, are active perceivers and mediators of classroom events (Wittrock 1986; Adeniyi 2002,). It is not surprising that many children now adopt a violent approach to problem solving (cultism) since they lacked the interaction that would inculcate positive problem solving skills. The question then is, how does one inculcate problem solving skills in primary school children?

Ways of Inculcating Problem Solving Skills in Children.

The bases of knowing how to inculcate problem solving skills in children is for teachers to understand that primary school curriculum and method of teaching are rooted in the society from where children come to school. Moreover, the children will go back to live and solve problems in the society (FRN, 2004). Against the above backdrop teachers should adapt the traditional patterns of inculcating problem solving skills. Those patterns are adapted in line with the developmental challenges in the society. Inculcating problem solving skills in children is enhanced through the following ways:

❖ Adopting the attitude of working with instead of preaching to children opens up the spirit of 'problem solving in children. Working with children involves discussing with them, finding out from children why they engage in a task including their attitude towards the task. This is because intrinsic motivations (inner passion) produce more creative results than extrinsic motivation (example, money) (Amabile 1989).

❖ Inculcating intellectual processes which focus on use of analogies, metaphor, folklores, similes, riddles, analysis and synthesis allow for interaction between the individual and the society (culture) (Anim 1992; Csikszenthtmihalyi, 1999). Teachers should employ the above processes while teaching thereby inculcating problem solving skills in children.

❖ Constructivist approach (project method) to problem solving allows for co-operation, idea combination, exploration of environment and problem finding (James, Gerard & Vagt-Traore, 2005). The teacher as a More Knowledgeable Other (MKO) guides the pupils towards more constructive directions. The trial and error process involved in the approach enables children to discuss their errors and look for solutions while receiving encouragement from their teachers.

❖ Allowing children freedom to define problems to be solved instead of presenting them always with rigidly designed problems enables them to exhibit self evaluation and management skills in the face of problems (Csikezentmihalyi, 1996).

❖ Availability of resources (time, equipment, Interpersonal relationship) helps teachers to inculcate problem solving skills (Amabile, 1999). The insufficient supply of the above resources as witnessed in some schools force pupils and teachers to 'jump in' and start producing their products. Teachers also feel the pressure to get through the years curriculum in order to meet the external requirements. No wonder examination malpractice, cultism and other vices thrive in the schools because children are not given sufficient resources to help them to be equipped with problem solving skills.

❖ Amabile (1999) and Simonton (2000) found out that working group feature inculcates problem-solving skills. The feature allows bright and low intelligent pupils to work together instead of grouping those of equal ability and like minds together. Amabile however noted that the latter group can reach their goals quickly but will fail to explore and debate other ideas because there is no curiosity in their problem solving approach

❖   Supervisory encouragements by teachers provide support for inculcating problem solving skills (James, Gererd & Vagt-Traore, 2005). It encourages curiosity (desire to explore things taken for granted) exploration, confidence leading to perseverance and risk-taking in children. Supervision does not negate freedom to explore the environment because inculcating problem solving is not necessarily achieved by total lack of restraint (Khandwalla, 1997). The teachers' strategies include brainstorming and questioning hence children engage in discussions which in turn encourage some risk-taking ideas.

❖   Organizational support. This strategy requires the community to support the efforts of the pupils (James, Gerard and Vagt- Traore, 2005). The support can be in form of creating new work environment (accommodation), providing seats, contributing fund to enable the school provide the needed resources for positioning children to acquire problem solving skills.

Conclusion

The primary school child needs to acquire problem solving skills. The primary school is the foundation for change, innovation and solution to many problems in life. The paper has offered suggestions on how to inculcate problem - solving skills in primary schools. Inculcating problem solving skills is rooted in teacher - child interaction. However owing to upsurge in pupils enrolment in the primary schools problem solving skills are stifled in children. Enough resources, time, space, equipment are needed for teachers to enable them inculcate problem solving skills in children.

Recommendations

The examination of the present teacher - child interaction pattern and ways of inculcating problem solving skills in children reveals that problem solving skills are rarely inculcated in primary school children. Based on the above limitation the following recommendations are provided.

Teachers should adopt constructivist approach in teaching and learning process. This approach is very useful in primary schools of Nigeria with her rural dominated status where material resources for teaching are easily accessible. Constructivist approach would open doors for cooperation and idea combination, entrepreneurship education which would position the children to face challenges facing the present society.

The school authorities should elicit the organizational support of the community towards solving problems of accommodation, lack of seats, laboratories and other instructional materials in the school. The Parent-Teachers' Association is a force to be reckoned with in this direction. The provision would solve in part the problem of limited freedom for practical experiences and teacher - child interaction in the classroom.

Since time is a major resource towards inculcating problem solving skills the teacher - pupil ratio should be reduced to 1:35. The present upsurge in pupils enrolment consequent upon the introduction of free education in some States in Nigeria does not give teachers and pupils enough time to teach and learn problem solving skills respectively. If teacher - pupil ratio is reduced examination malpractice would be minimized because children would have the necessary interaction and time to learn how to solve their problems. Teachers should encourage children to define problems to be solved within the framework of what the children learn. This is because ability to solve problems is rooted in ones ability to define problems.

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