

REQUISITE FOR HONING THE PROBLEM SOLVING SKILL OF EARLY ADOLESCENTS IN THE DIGITAL ERA

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ABSTRACT

Problems can be the cause of stress, tension, emotional instability and physical strain. Especially, adolescents should have the skill of solving a problem in order to reach his/her desired ambitions in life. The problem solving skill requires some abstract thinking to arrive at a clear solution. Problem solving ability helps them to meet their challenges in their real life situations. This study aims at investigating the problem solving skill of early adolescents. The major objectives of the study is to find out the problem solving skill of early adolescents based on their gender and type of family and the problem solving skill of early adolescents who belong to aided, matriculation, and government schools located in the rural areas of Kanyakumari District, Tamil Nadu, India. The sample of 100 early adolescents was randomly selected for the study. Survey method was employed for the study. A questionnaire, which consisted of 26 items on problem solving skills was developed by the investigators and used as an instrument for the purpose of study. Reliability was established and the tool was validated by the experts in the field of Education. The analysis of data was computed and it revealed that (i) female students are better than the male students, nuclear family students are better than the joint family students in their problem solving skills and (ii) type of school does not influence the problem solving skill of early adolescents.

Keywords: Early Adolescents, Problem Solving Skill, Life Skill, Developmental Phases, Behavioural Problems, Digital Era.

INTRODUCTION

The life of an individual has different phases of growth and development in the transitional period of infancy, early childhood, middle childhood, early adolescence, middle adolescence, late adolescence and adulthood. Of these phases, early adolescence is an important stage in human growth and development that occurs during the age of 10 to 14, and usually associated with the onset of puberty. It is also a period in child development characterized by physical, mental, emotional, social, and personality changes. At this phase, they try to find out solutions for their routine problems without expecting the help of parents or any member in the community. And also they make decisions based on the problems which may either be a failure or success. Psychologists believe that, early adolescence has the ability to reason logically, deal with abstract ideas, connect between cause and effect, and make generalizations. They seek opportunities to master and express new skills to solve problems and

control their own behaviour; and to form good social relationships with peers, family and others. During early adolescence, they desire to retrieve information and to solve new problems and help them to cope with new situations.

Theoretical Framework

The theoretical framework is a collection of interrelated concepts; which guides the researcher to establish the research in a correct pathway. It is a structure that identifies and describes the major elements and variables.

Developmental Phases of Early Adolescents

The period of Early Adolescence usually begins in primary school and ends in secondary school. Early adolescents meet up different stages of developmental process such as physical development, cognitive development, emotional development, social development, and behavioural development. Changes that take place in

the transitional phases from childhood to early adolescents stimulate them experiment with new behaviours.

Physical Development

Early Adolescents experience rapid growth of bones and muscles. This begins around the ages of 10 - 12 in females and 11-14 in males (APA, 2002). Growth depends specifically on increased secretions of hormones by the adrenal and pituitary glands, as well as by the sex organs. These natural body secretions cause the sex organs in early adolescence to start grow to their mature size. Mostly females experience their period of growth little earlier than males. Most young girls are fully developed; young boys continue to gain height, weight, muscle mass, body hair (Pickhardt, 2013). Many early adolescents experience dissatisfaction with their changing bodies (Crockett, Raffaelli & Moilanen, 2003).

Cognitive Development

Rapid development in the brain of early adolescents paves a way to thinking ability. They become better, able to think through problems and see the consequences of different points of view or actions. For the first time, they can think about what might be, instead of what is. The development in their cognition allows the teens to learn more advanced and complicated subject matter at school. The ability of reasoning may change the way an early adolescent talks to and acts around them. These mental changes lead adolescents to consider who they are and who they may be. This is a process called identity formation (Spellings, 2002). In this stage, they are able to analyze situations logically, think from concrete to abstract and create the hypothetical situations.

Emotional Development

During this stage, emotional characteristics develop in early adolescents. Salyers & McKee (2003) says that, they relate self-esteem and self-concept to the degree of their physical development; begin to deal with and understand nuances and "shades of gray"; experience simultaneous emotional conflicts; exaggerate responses to anything with sexual implications; seek to sort fact from folklore in regards to sexual development; desire attention

- sometimes without any regard to how it is secured; shift moods rapidly; start easily to do offend; are to be sensitive to criticism and beliefs; exhibit optimism, hope for the future; display prankish sense of humour; value direct experience in participatory democracy; observe flaws in others easily, but slow to acknowledge own faults; believe personal problems and experiences.

Social Development

Centre of social world of early adolescents shift from family to friends. They develop relationships with the peer group with same-sex. They have the strong desire to recognize them by the peer group. At this developmental stage, conflict increases between early adolescents and their parents. One of the greatest social changes for adolescents is the new importance of their peers. This change allows them to gain independence from their families. By identifying with peers, adolescents start to develop moral judgment and values and to explore how they differ from their parents (APA, 2002). The early adolescents' new desire for independence leads to increasing conflicts between adolescents and their parents.

Behavioural Development

All the developmental changes give new experience and prepare early adolescents to experiment with new behaviours. This experimentation results in risk-taking, which is a normal part of adolescent development. Risk-taking behaviour helps early adolescents to shape their identities; try out their new problem solving and decision-making skills; develop realistic assessments of themselves and gain peer acceptance and respect.

Behavioural Problems of Early Adolescents

The areas of most concern for early adolescents at risk of developing problem behaviours are drug and alcohol abuse, pregnancy and sexually transmitted diseases, school failure and dropping out, crime, delinquency and violence (APA, 2002). The following are some major problems of early adolescents.

Alcohol or Drug Abuse

If a boy has the best friend or a father who drinks heavily, and has parents who is permissive toward adolescents'

alcohol, creates increased risk to attend the heaviest drinking trajectories (Vorst, et al. 2009). Early adolescence can be a confusing and stressful period for children; it is not surprising that, this is the time when many of them first experiment alcohol and tobacco and exhibit anti-social disorders which lead to substance-related problems with them (Clark, Parker & Lynch, 1999).

Eating Disorders

Archibald, Graber and Brooks-Gunn (1999) said that, eating disorders usually occur in females. A minority of these early adolescents eventually develops an eating disorder such as anorexia, nervosa or bulimia (APA, 2002).

Depressions and Suicide

Many factors like failure in achievements, non-curable diseases, peer and family rejection, sexual abuse, and failure in governing emotions increase serious depression that leads to suicidal tendency. If a parent suffers from extreme depression, their children will also be more likely to experience it. But situations such as broken or unhappy families, the loss of a parent through divorce or death, sexual abuse or drug or alcohol abuse may also contribute to depression. Signs of depression and possible suicidal tendencies include change in sleeping patterns, change in behaviour such as failure in concentrating classes, work or routine tasks falling grades; lack of interest in school activities; change in personality like looking sad, withdrawn, irritable, anxious, tired, indecisive, apathetic; and low self-esteem leads no hope for the future.

Changes in the above developmental stages create adjustment problems among early adolescents. They begin to be treated in a new way by those around them.

Life Skills

Life skills enable the early adolescents to live constructively in responsible communities; and to enable them to live in a moderate, liberal, culturally different and quickly changing society. The World Health Organization has defined life skills as, "the abilities for adaptive and positive behaviour that enable individuals to deal effectively with the demands and challenges of everyday life". The core set of Life Skills given by WHO is Problem solving, Decision making skills, Creative thinking, Critical

thinking skills, Effective communication, Interpersonal relationship skills, Self-awareness, Empathy, Coping with emotions and Coping with stress.

Problem Solving Skill

Problem solving skill is an ability which enables the early adolescents to think critically and solve authentic real world problems that are relevant to future working environments. Problem solving skill increases the importance and demands of advanced levels of proficiency in early adolescents. According to Syafii and Yasin (2013), problem solving is the highest and more complex level of learning. The thinking process in problem solving requires skills to process and organize the obtained information to utilize it in the problem solving process. Possessing a problem solving skill means that, the person is able to think critically, logically and creatively. An unsolved problem can be the cause for another problem which creates stress, tension, emotional instability and physical strain. Especially, early adolescents should have the skill of solving a problem in order to reach his/her desired ambitions in life.

From the profound deliberation of these related theories, the researchers thought to improve the problem solving skills of early adolescents to manage their day-to-day life problems. This research navigates the early adolescents and facilitates them towards coping with any problematic situation and adapting to the environment they live in.

Related Literature

Syafii and Yasin (2013) found that, Problem-Based Module (PBM) can actually increase problem-solving skill, students' achievement, and students' learning product, with the experimental group getting a higher percentage in all three aspects compared to the control group by using PBM in their Biology class. Merriënboer and Jeroen (2013) found that, problem solving should not be limited to well-structured problem solving, but should be extended to real life problem solving. Tsai et al. (2012) analyzed 'Visual attention for solving multiple choice science problems'. Findings showed that, successful problem solvers focused more on relevant factors while unsuccessful problem solvers experienced difficulties in

decoding the problem, in recognizing the relevant factors and in self regulating concentration. Kuo et al. (2012) experimented a hybrid approach to promoting students' web based problem solving competence and learning attitude. The result showed that, middle and low achieving students in the experimental group gained significant benefits from the hybrid approach in comparison with those who learned with the traditional approach. Jose and Thomas (2011) conducted a study on 'Problem Solving Ability and Scholastic Achievement of Secondary School Students'. The findings indicated that, there existed a significant difference in the problem solving ability of secondary school learners with respect to gender, locality and type of school. That is, the boys had higher problem solving ability than the girls and the problem solving ability of rural school students were greater than their counterparts in the urban school. Moreover, private school students had significantly higher problem solving ability when compared to the government school students.

Ching-Chih, June, Fang-Liu and Chun (2010) conducted a study on 'Identifying Young, Gifted Children and Cultivating Problem Solving Abilities and Multiple Intelligences'. The results of the enrichment programme showed that, most students performed well on five kinds of problem solving types. From the children's archives, participating children presented scientific thinking characteristics, such as a rich knowledge with fascinating imagination and the ability to seek many approaches to solve problems. Umadevi (2009) conducted, 'A study on the relationship between Problem Solving Ability and Academic Achievement of Secondary School Students'. The findings indicated that, there was no significant difference in problem solving ability of boys and girls. Fang (2008) conducted a research on 'The Study of increase the Critical Problem Solving Abilities by Web-based instruction'. The study found out that, students' problem solving abilities was promoted after performing web-based critical thinking instruction.

Need for the Study

Day-by-day early adolescents face many problems in their life. Usually, at the school life, the students of the later

primary to high school students were affected due to physical, cognitive, emotional, social and behavioural factors. They have confusion to accept their physical changes; to challenge their failures cognitively; to balance their environment emotionally; to interact the members of the society and to manage their behavioural patterns themselves. Every problem has different ways and choices to get them solved. So, it is essential to know and analyse the situation and generate various ideas in creating the choices to get the problems solved effectively. Problem solving skill empowers early adolescents in their personal, social and educational life. The ability to solve problems in every aspect is essential for the development of knowledge, understanding and performance; to foster creativity; to find innovative and practical solutions; and to avoid unnecessary confusion and frustration throughout their life. This article highlights a bird's eye view of early adolescents' problem solving skill and suggests remedial measures to enable them to be psychosocially competent with their surroundings. While trying to solve life problems, early adolescents should know the available possibilities. They must know every problem has a solution according to its depth. Problem solving ability gives confidence to face any strange or difficult situation appearing in the society, family and school. So, the investigators proposed to do a part of research on "Requisite for Honing the Problem Solving Skill of Early Adolescents in the Digital Era".

Operational Definitions

The following definitions were given by the investigators, according to this study.

Early Adolescents

They refer to the ages from 10 to 14 years.

Problem Solving Skill

It refers to the ability to create ideas so as to solve the problem in the challenging situations.

Life Skills

It refers to the ability for adapting positive behaviour to deal effectively with the demands and challenges of an individual in his or her life.

Developmental Phases

It refers to the different stages of developmental process such as physical, cognitive, emotional, social, and behavioural developments among adolescents.

Behavioural Problems

It refers to age inappropriate actions and attitudes that violate the expectation of family, the norms of society and the personal or property right of others.

Digital Era

It refers to the existing period, which is developed by the enlargement technology in every facet of one's life in the global society.

Objectives of the Study

Major objectives of the study are:

- To find out whether the Early Adolescents have Problem Solving Skill.
- To find out whether there is any significant difference between the mean scores of the Problem Solving Skill of Early Adolescents with regard to their a) Gender and b) Type of family.
- To find out the Problem Solving skill of the Early Adolescents belonging to Government, Aided and Matriculation School of rural locale.

Null Hypotheses

1. There is no significant difference in the Problem Solving Skill of Early Adolescents.
2. There is no significant difference in the Problem Solving Skill of Early Adolescents with regard to their a) Gender and b) Type of family.
3. There is no significant difference in the Problem Solving Skill of the Early Adolescents belonging to Government, Aided and Matriculation School of rural locale.

Methodology

This study aims to investigate the problem solving skill of early adolescents by the normative survey method.

Population

Population is known as the well defined collection of individuals. The population of present study included all

the students of IX Class from Government, Aided and Matriculation schools in rural areas of Kanyakumari district.

Sample

Representation of the population is known as a sample. The investigators selected three schools in the rural area of Kanyakumari District and selected 100 ninth class students as a sample through Random Sampling Technique.

Research Instrument

The investigators used self-made tool to collect data regarding the Problem Solving Skill for the present study. Reliability of the tool was established to test the consistency. The reliability is 0.81. The tool was validated by the experts and some items were modified by the suggestion of them. The questionnaire consisted of 26 questions and it was administered to the students to collect data. The researchers used the statistical measures Mean, Standard Deviation, Percentage Analysis, differential analysis and ANOVA to analyse data.

Analysis of Data

The percentage distribution of the sample of the total sample (100) based on the background variables according to Socio-demographic variables is shown in Table 1.

Table 1 shows the percentage of the Ninth Class students (100) in rural areas of Kanyakumari district, according to their background variables such as Gender, Type of family, and Type of school. Descriptive statistics for Problem Solving Skill is shown in Table 2.

Null Hypothesis -1

There is no significant difference in the Problem Solving Skill

Background variables	Category	N	%
Gender	Male	51	51
	Female	49	49
Type of family	Nuclear	65	65
	Joint	35	35
Type of school	Govt	31	31
	Aided	33	33
	Matriculation	36	36

Table 1. Percentage Distribution of the Sample according to Socio-demographic Variables

Variables	N = 100	
	Mean	SD
Problem Solving Skill	101.36	12.90

Table 2. Descriptive Statistics for Problem Solving Skill

Variable	Low		Medium		High	
	N	%	N	%	N	%
Problem Solving Skill	17	17	68	68	15	15

Table 3. Problem Solving Skill of Early Adolescents

Gender	Mean	SD	N	t	P	Remark
Male	98.41	12.46	51	2.385	0.019	Sig. at 0.05 level
Female	104.43	12.77	49			

(Significant at 0.05 level)

Table 4. Problem Solving Skill of Early Adolescents with regard to their Gender

Type of family	Mean	SD	N	t	P	Remark
Nuclear	103.51	12.65	65	2.323	0.022	Sig. at 0.05 level
Joint	97.37	12.58	35			

(Significant at 0.05 level)

Table 5. Problem Solving Skill of Early Adolescents with regard to their Type of Family

of Early Adolescents Problem Solving Skill of Early Adolescents.

It is inferred from Table 3 that, about 17%, 65% and 15% of the early low, medium and have high problem solving skills respectively.

Null Hypothesis - 2

There is no significant difference in the Problem Solving Skill of Early Adolescents with regard to their following facets.

a) Gender

It is inferred from the Table 4 that, the calculated 'p' value (0.019) is less than 0.05 ($P < 0.05$). Hence, it is revealed that, there is a significant difference at 0.05 levels in the problem solving skill of early adolescents with regard to

their gender.

b) Type of Family

It is inferred from Table 5 that, the calculated 'p' value (0.022) is less than 0.05 ($P < 0.05$). Hence, it is revealed that, there is a significant difference at 0.05 levels in the problem solving skill of early adolescents with regard to their type of family.

Null Hypothesis - 3

There is no significant difference in the problem solving skill of the Early Adolescents belonging to Government, Aided and Matriculation School of rural locale.

Problem Solving Skill of the Early Adolescents of Government, Aided and Matriculation schools of rural Locale is shown in Table 6.

It is inferred from Table 6 that, the calculated 'p' value (0.14) is greater than 0.05 ($P > 0.05$). Hence, it is revealed that, there is no significant difference in problem solving skill of Early Adolescents belonging to Government, Aided and Matriculation school of rural Locale. The type of school does not influence the problem solving skill of early adolescents.

Findings, Interpretation and Discussion

The result of the study shows that, fifteen percent of early adolescents have high problem solving skill, seventeen percent of early adolescents have low problem solving skill and sixty eight percent of early adolescents have medium problem solving skill.

The null hypothesis-1 is rejected. From Table 4, the calculated 'p' value (0.019) is less than 0.05 ($P < 0.05$). So the null hypothesis-2(a) is rejected. Then there is a significant difference at 0.05 level between male and female early adolescents in their problem solving skills. While comparing the mean scores of male and female students, female students (mean = 104.43) are better

Variables	Type of School	Source	Mean	SD	Sum of Squares	df	Mean Square	F	P	Remark
Problem Solving skill	Govt.	Between Group	99.81	10.5	642.74	2	321.37	1.967	0.145	NS
	Aided	Within Group	99.15	12.57	15844.30	97	163.34			
	Matriculation	Total	104.72	14.62	16487.04	99				

(NS - Not Significant)

Table 6. Problem Solving Skill of the Early Adolescents of Government, Aided and Matriculation Schools of Rural Locale

than the male students (mean = 98.41) in their problem solving skills. This may be due to the adjustment character of female students.

From Table 5, the calculated 'p' value (0.022) is less than 0.05 ($P < 0.05$). So the null hypothesis-2(b) is rejected. Then there is a significant difference at 0.05 level between early adolescents belongs to nuclear and joint families in their problem solving skill. While comparing the mean scores of nuclear and joint family students, nuclear family students (mean= 103.51) are better than the joint family students (mean=97.37) in their problem solving skill. This may be the reason that the nuclear family student practiced to face their needs individually.

From Table 6, the calculated 'p' value (0.14) is greater than 0.05 ($P > 0.05$). So the null hypothesis-3 is accepted. Then there is no significant difference among early adolescents in their problem solving skill with regard to government, aided and matriculation schools of rural locale. The result shows that, the type of school does not influence the problem solving skill of early adolescents. It may be due to the implementation of same curriculum pattern and the child-centered approach in Government, Aided and Matriculation schools. This study is in line with the finding of the Jose and Thomas (2011) with regard to the significant difference in the problem solving ability of gender; but does not agree with the result of the researcher Umadevi (2009).

Recommendations

To Parents: Parents should make good relationship with their early adolescent children and be their role- model to solve their life problems. Whenever a problem occurs in their family, they should find suitable solutions to solve it successfully. The strategy they employed to solve every problem should be taught to their wards now and then. This may help the children to solve the life problems. Parents should allow their wards to have an intimate association with at least one caring person in the family. So, they can feel safe and secure and share their inner feelings with him or her. Parents should help them to identify the problems by developing the good interpersonal relationship with them and give explanation to solve problem properly. Early adolescents need to be

treated with kindness, respect and should appreciate all their positive activities. They are at risk by the bad experiences, including drug, alcohol and tobacco use, sexual abuse and early pregnancy; and delinquency and violence. So, the parents must be very vigilant and careful enough in guarding their early adolescent children and also communicate with them daily and discuss the problems they face with the society and help them learn how to come out of those critical situations.

To Teachers: School is the miniature of society, where all the early adolescents can be educated according to the needs of the family and society. They should make a smooth bond with parents and their early adolescent children. Teachers may explain to the students how to face the problems with the life illustrations so as to improve their problem solving skill. Teachers should make harmonious affiliation with their wards and enable them to arrive at appropriate solution by providing them different problematic situations. They can monitor them through proper observation and help them to be free from cultivating undesirable habits. Teachers can also encourage their students in providing riddles, puzzles, and maze to solve them. This kind of activity will develop self-confidence among them.

To Head of School: The head of the school can arrange counseling sessions at least every month and help the problematic pupils to come out of their hidden problems, so as to lead a peaceful and pleasant life. Every school should maintain the Case Study Record (CSR) of every student and monitor their life- style periodically.

Conclusion

Oscillation to take proper solution is the major problem in early adolescents. Problem solving ability enables the early adolescents to think critically and solve their own problems. Factors that can help to prevent the problems in early adolescents are security, positive relationship with a caring adult, religious and spiritual faith, adequate support of the teachers in the moral development, positive family environment, creation of emotional intelligence by life sustaining activities and ability to cope with stress. Problem solving skill is essential to manage the life with courage. So, all the teachers and parents should

empower the early adolescents as the problem solvers of the society.

Further researches should be done on life skills among adolescents and adults who are studying in various institutions and strengthen their decision making skills, creative thinking, critical thinking skills, effective communication, interpersonal relationship skills, self-awareness, empathy, coping with emotions and stress.

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