

Impact of Problem Solving Ability and Self-esteem on Academic Achievement of Secondary School Students

Rose Kiran Pinto

Assistant Professor, St Ann's College of Education (Autonomous), (Affiliated to Mangalore University), Opp. Head Post Office, Pandeshwar, Mangalore, India

Corresponding author: jerkinrose@rediffmail.com

Received: 22-12-2020

Revised: 27-01-2021

Accepted: 29-02-2021

ABSTRACT

The paper examines the Impact of Problem Solving Ability and Self-esteem on Academic Achievement of Secondary School Students. Samples of 400 Secondary School Students were selected through random sampling technique. Survey method was employed to collect the data. The schools are responsible to develop scientific attitude among the students so that they may solve their problems independently for better adjustment in the future complex society. An adolescent lacking Self-esteem appropriate to normal personality, experiences insecurity because he fails to perceive in himself those qualities that are necessary to cope with the exigencies of the world or he/she will also be depreciated of his/her achievements as they surpass their self-image. In this regard, the researcher felt the need to study the Academic Achievement with its interaction on Problem Solving Ability and Self-esteem. The tools included A Four Point Rating Scale on Self-esteem with five components was prepared and validated by the Researcher. A Problem Solving Ability Test with four components was prepared and validated by the Researcher. With the objective to find the Main and Interaction effect of Problem Solving Ability and Self-esteem on Academic Achievement among the Secondary School Students, the major findings concluded, Self-esteem has a significant effect on Academic Achievement. Academic Achievement of Students with High Self-esteem is significantly greater than students with Average and Low Self-esteem. Academic Achievement of Students with Average Self-esteem is significantly greater than students with Low Self-esteem.

Keywords: Problem Solving Ability, Self-esteem, Academic Achievement, Secondary School Students

The present study titled "Impact of Problem Solving Ability and Self-esteem on Academic Achievement of Secondary School Students" is a survey study. The study is intended to understand the Main effect of Problem Solving Ability and Self-esteem and its interaction effect on Academic Achievement.

It is a common belief that the "Problem Solving" has an important place in the development of the cognitive faculty among the three domains of education that are tightly integrated to each other. Developing skills of problem solving is gradually the primary goal of education at school. Teaching students to use basic facts and concepts flexible so that they can deal with new situations predict various consequences and solve problems is likely

the most important goals for teaching. Problem solving can be viewed from two angles, a way of thinking and a way of teaching in classroom situations. Psychologists are interested in the former aspect i.e. as way of thinking, while the teachers are concerned about problem solving as way of teaching.

Self-esteem is defined as the complication of feelings that guide behaviour, influence attitudes and drive motivation. Research has portrayed that coping with

How to cite this article: Pinto, R.K. 2021. Impact of Problem Solving Ability and Self-esteem on Academic Achievement of Secondary School Students. *Educational Quest: An Int. J. Edu. Appl. Soc. Sci.*, 12(1): 37-45.

Source of Support: None; **Conflict of Interest:** None



Self-esteem creates adverse effects on all areas of a students' life from academic to merely social. As high and low Self-esteem influences different experiences to a student so is it crucial for academic functioning.

The Researcher, in this context, thus felt the need to study the impact of Problem Solving Ability and Self-esteem on Academic Achievement among the Secondary School Students and therefore has taken up this study to implant the ways of overcoming difficulties, identify factors that predict emotional well being and academic outcomes of adolescents.

Need and importance of the Study

The Adolescence is a critical period that brings about emotional and social changes. An adolescent lacking Self-esteem appropriate to normal personality, experiences insecurity because he fails to perceive in himself those qualities that are necessary to cope with the exigencies of the world or he/she will also be depreciated of his/her achievements as they surpass their self-image. In this regard, the researcher felt the need to study the Academic Achievement with its interaction on Problem Solving Ability and Self-esteem.

The relationship between Self-esteem and Academic Achievement is well established fact regarded by many educators. Students with high Self-esteem participate earnestly in the learning process. Such students are more confident, active, perform better in examinations and motivated towards learning as compared to students with low Self-esteem (Jordan and Kelly 1990). The research study of (Supple 2000) had significant findings that Positive high Self-esteem enables students to develop positive relation with peers, teachers and others. Low Self-esteem breeds in students' feelings of deficiency and inability and high level of Self-esteem facilitates students to achieve goals for future. A study by (Noronha Laveena; Monteiro Meena and Pinto Nelson 2018) have concluded that Self-esteem and Academic Performance have no significant correlation among the students whereas there is a gender difference where female respondents have higher Self-esteem than male respondents. A study by (Kumari Jyothi 2016) on Problem Solving Ability of Senior Secondary School Students showed that Students of Government and Private Schools do not differ significantly in their Problem Solving Ability

and there exists a significant difference in Problem Solving Ability among Senior Secondary Students in relation to their Stream and Problem Solving Ability of female Students is higher than the male students.

The study conducted by (Baghayi, Moghadam, Malak, Pour., Amiri & Molavi, 2012) stated that Self-esteem can be improved by training life skills like problem-solving in groups significantly. We can share our experiences to confront difficulties by gathering in groups and feeling that others have similar problems with ours,. On the other hand, individuals learn more about themselves through training in life skills, knowing their weaknesses and strengths to solve their problems, and strengthen their positive points, which lead to an increase in confidence.

(Seena. K. Ignatius 2015) made a study on Impact of Social Skills and Self-esteem on Academic Achievement of plus Two Students revealed that the scores on Academic Achievement of Plus Two School Students is normally distributed. 18% of Students fall above the average level of Self-esteem, 64% of Students to an average level of Self-esteem and 18% to below average level of Self-esteem. The study also revealed that there is no significant difference in the Self-esteem among Plus Two Students. Self-esteem of Rural School Students is significantly higher than Urban School Students.

In an article by (F Shahgholy Ghahfarokhi; N Moradi; P Alborzkouh; S Radmehr and M Zainali 2015) revealed that the training problem-solving skills significantly increased the self-esteem and the behavioural adjustment in teenage girls with irresponsible parents or no parents. (Beyazachli, Mehmet 2016) concluded that the problem solving abilities of primary school students had significant effect on their school success, as well as on their motivation for academic preparation for future exams.

The above related literature expresses that Academic ability contributes to problem-solving skill among students. The findings also reveal that increasing problem-solving abilities can lead to an increase in school success.

Theoretical framework

The theory of a research study is supported by its theoretical framework which includes concepts,

definitions and existing theories to support the particular study. Under this section, theories related to the variables i.e Problem Solving Ability, Self-esteem and Academic Achievement are discussed in brief. These theories have been adopted and interpreted by the Researcher to support the research hypotheses considered for the study.

Problem Solving Ability

Problem Solving is the highest level of learning in the hierarchy of learning proposed by Gagne which is dependent on the mastery of the next lower types of learning. It involves the application of principles and facts to explain and solve new phenomena or predict consequences from conditions. The task requires predictions, analysis of facts and principles to develop cause-effect relationship in physical phenomenon of the environment. The phrases 'Problem Solving' is used in many ways. The phrases scientific method, scientific thinking, method of science, scientific enquiry and problem solving method all refer to the same process. The major responsibility of the education process is to develop the ability of problem solving.

The Abilities of Problem Solving selected for the present study are:

Problem Identification: This step consists of diagnosing the situation in a way to focus on the problem and not on its symptoms. Focusing on the root causes of a problem include firstly, in reviewing and documenting how different processes work like gathering lot of information, tools, setting time frames, deciding the formats. Secondly, evaluating possible impacts and deciding what could be done in implementing solutions.

Structuring the Problem: This involves gaining a deeper understanding of the problem. This is established by making a relationship between the different elements of the problem.

Looking for Possible Solutions: This step is similar to Brainstorming where a large number of ideas are generated in a short period of time. It involves divergent thinking which is a process where creative problem solving techniques are been designed. Convergent thinking facilitates one to use the most appropriate form of action.

Evaluation: This involves using a series of considerations or alternatives and selecting the

best alternative that solves the problem without causing other unanticipated problems.

Problem Solving and the Educational Process

Problem Solving has long been documented as an important cognitive activity, focusing more on educational theory and practice and more importantly to the issues that confront people in daily life. Problem Solving has been found critical to education by two ways. First, the subjects especially mathematics and physical sciences are the best ways where Problem Solving has been considered as part of learning the subject matter. Exercises of Problem Solving have two functions. One is testing where problem solving is used to determine whether the student has learned or not. The other is teaching where the student understands the subject matter and also gains a better understanding.

Second, Problem Solving has been viewed as significant in a way that transcends particular subject matter. The goal in school education is considered as solving a problem. A chief feature of an 'educated person' is being able to solve problems. In this view, formal education is stimulated with providing the individual with the capability to cope with solving life's problems.

Theories on Self-esteem

To lead a fulfilling, productive life, the foundation of a solid sense of self-worth is very essential, without which we would be unable to take the risks and make the decisions necessary. It is an indicator of good mental health. Self-esteem is the set of attitudes or feelings that we have about ourselves, or our "self-perceptions". Influences of our motivations, attitudes and behaviours and our emotional adjustment is defined by us through Self-esteem. Patterns of Self-esteem start very early in life. (Nathaniel Branden, 1998)

Roots of Self-esteem

(Cooper-Smith 1967) laid the foundation for the concept of Self-esteem and concluded high Self-esteem among children was because of three factors. The first was unconditional positive self-regard, which means parents make the children feel that they are loved no matter what circumstances arise. Many parents reciprocate only if the child behaves well. For a healthy Self-Concept, the base is that

one is loved and valued regardless of what his behaviour ought to be.

The second factor identified by Cooper-Smith was the existence of strong and clear standards. The parents could build up Self-esteem by being firm, have definite criterion as to regulations and restrictions expected of a child's behaviour and live up to them. Cooper-Smith found that high Self-esteem existed in those children who knew what was expected of them and were sure of clear and consistent expectations (Cooper-Smith (1967).

(James 1983) in his 'Principles of Psychology' defines Self-esteem as being the total sum of an individual's successes comprising of what they think and achieve. Self-esteem can be increased by avoiding failures and achieving great successes. Self-esteem was therefore defined as being capability oriented but also open to new changes.

The founder of the Self-esteem Network in Britain (Alexander 2001) views Self-esteem as a syndrome, as a set of indicators for mental well-being. The core of Self-esteem is an 'unconditional appreciation of oneself' meaning having a positive reception of both an individual's positive and negative potential in its fullest sense.

As an individual passes through childhood, Self-esteem starts taking shape and can augment throughout life. Researches done show that during childhood the individual possesses high Self-esteem as many children are positive, confident and have unrealistic views about themselves. Self-esteem decreases during adolescence and rises during middle adulthood and reaches the peak during late midlife. Alexander also differentiates between 'trait' Self-esteem which reflects confidence or ability in a particular area, such as work or haven, and 'global' Self-esteem which is intrinsic worthiness regardless of what exact abilities or qualities an individual may possess.

American Psychologist Abraham Maslow included Self-esteem in the hierarchy of needs existing in two forms –the need for respect from others and the need for Self-respect or inner Self-esteem. The inner Self-esteem seems to be more stronger and Respect from others entails gratitude, acceptance, status, approval and was believed to be more fragile and could be lost easily. According to Maslow, without the fulfilment of this need, individuals

will be driven to seek it and unable to obtain self-actualisation.

Low Self-esteem

This is the most dangerous of all Self-esteem. It refers to downsizing that you implement on your thoughts about your achievement and values. A person having low Self-esteem does not take into account his positive achievement and will always complain and exaggerate on the obstacle rather than to make the best advantage of what good the person has. Having low Self-esteem is disadvantageous as it makes low self-image, negative self talk and loneliness often leading to a dangerous road of depression.

High Self-esteem

High Self-esteem is the ability to appreciate once potential and deal with everyday perspective with confidence and dignity. This person is confident of his talents, personality and capability to deal with people and make a proper representation of his image. Over confidence and Self-esteem are two different terms while over confidence means to have an unfair believe in ones potential and ability whereas high Self-esteem refers to the truthful analysis of the positive aspect of the person.

Theory on Academic Achievement

According to the Dictionary of education, Academic Achievement means knowledge attained or skills developed in the school subject usually designated by test scores or by marks assigned by teachers or both. A person with high need for achievement attains satisfaction from experiencing success in accomplishing a difficult task attaining a standard of excellence or developing a better way of doing something.

Mc Clelland (1953) said that in the individual there is a need for achievement. Strength of achievement motive is the one that differentiates one another from Human beings. It is the difference in the strength of motivation to achieve that is important in understanding the development. This need develops in early childhood. It depends on the discipline at home with parents' expectation and guidance. In every human being there is a strong urge to go beyond what one has attained and to be attained or achieve more.

Rationale of the study

Adolescent is a very crucial stage in which significant changes happen in all aspects of physical, cognitive, emotional and social. These changes create a new feeling of identity in adolescents and eland them towards socialisation with its entire emergence of developing a distinct identity. A sense of attachment to the peer group, their susceptibility to other age groups has been higher. Therefore more recent research efforts have focussed on increasing the competence and success in adolescents.

Improving the individuals' abilities depends on Training life skills and difficulty solving. As it is known, knowing and using a problem-solving experiment is a prerequisite for emotional treatment and performance regulating (Hoseinpour Sh, Rasulzadeh T, Khodapanahi M, *et al.* 2009). Training problem-solving skills is a therapeutic method through which individuals learn how to employ their cognitive experiments to cope via problematic interpersonal status (Behpazhuh A, Soleimani M, Afrouz Gh, Lavasani M. 2011). Because individuals lacking Self-esteem might be prone to different psychological problems and to adjustment (Neusk, Hogeze & Suiiden, 2003). One of the characteristics of inadaptable individuals is the lack of problem-solving ability is also a fact (Mojarrad Kahani AH, Ghanavi S. 2013). Studies conducted by (Mankar, Jyothi, 2011) revealed a significant association between high Self-esteem and good Scholastic Achievement, whereas low level of Self-esteem associated with poor Scholastic Achievement.

Labelling of children based on school performance as under achievers or high achievers tends to suggest that intelligence is not the sole basis of predicting achievement and agrees that there are other variables predicting achievement. It is found that certain social and psychological factors play a major role in determining Academic Achievement. As mentioned in the review of related studies, the researcher felt the need to ascertain the influence of Problem Solving Ability and Self-esteem on Academic Achievement of Students. Therefore this study is undertaken to give some concrete suggestions based on findings to secondary school students, guidance workers, administrators, educationists, parents who are interested in their child' development and making them better academic achievers. In this regard the researcher

has made an attempt to have a comparative study of Problem Solving Ability and Self-esteem among secondary school students and their impact on Academic Achievement.

Statement of the Problem

"A study on Impact of Problem Solving Ability and Self-esteem on Academic Achievement of Secondary School Students of Mangalore Taluk".

Operational Definitions of the Terms

Problem Solving Ability

Problem Solving is a mental process of *identifying a problem, developing possible solution paths, and taking the appropriate course of action. Problem Solving Ability* refers to the ability of the learner to think and reason out on given levels of complexity.

In the present study, Problem Solving Ability refers to the abilities that the learner needs to possess in identifying and applying the knowledge and skills resulting in attainment of the goal. It also refers to the cumulative scores obtained by students of standard nine on 'Test on Problem Solving Ability' developed by the researcher and validated by experts.

The steps of Problem Solving Ability selected for the present study are:

1. Problem Identification – diagnosing a problem and defining it;
2. Structuring the Problem – having a deeper understanding of the problem;
3. Looking for possible solutions – generating a large number of ideas within a short time;
4. Evaluation – selecting the best alternative solution.

Self-Esteem

Self-esteem is a term to reflect and evaluate a person's overall emotional evaluation of his or her own worth. An evaluative dimension of the self-comprising of feelings of value, pride and hindrance is also Self-esteem. It consists of the domains such as virtue, competence, significance and power. In the present study, Self-esteem refers to an evaluation of one's competencies in four different domains such as:

Social Self-esteem: It refers to an individual's ability to relate to peers, family members and everyone in a positive manner and maintain a healthy interrelationship in society.

Emotional Self-esteem: It refers to an individual's appropriate expression of emotions in various situations of anger, happiness, sadness, love and many more.

Academic Self-esteem: It refers to an individual's understanding about his or her own abilities and perceptions about the understanding of others as well.

Physical Self-esteem: It refers to an individual's capacity to accept one's external appearance such as complexion, height, body weight and shape.

Moral Self-esteem: It is an estimation of self-worth, right and wrong activities.

The five components of Self-esteem are measured by the scores obtained by students on a Four Point Self-esteem Rating Scale developed by the researcher and validated by experts.

Academic Achievement

Academic Achievement is the extent to which a student, teacher or an institution has achieved their short or long-term educational goals.

In the present study, Academic Achievement refers to the scores obtained by the Students of Standard Nine from the percentage of aggregate marks obtained in the final examination of Standard Eight.

Secondary School Students

In the present study, the Secondary School Students are Students of Standard Nine studying the Karnataka State Syllabus in the Private, Aided and Government Secondary Schools located in Dakshina Kannada District.

Objectives of the Study

1. To find the Main and Interaction effect of Problem Solving Ability and Self-esteem on Academic Achievement among the Secondary School Students

Hypothesis of the Study

H_0 : There is a significant difference in the effect of Problem Solving Ability and Self-esteem and their

interaction effect on Academic Achievement among Secondary School Students

Methodology

The present study is a survey study. The students of secondary schools of Dakshina Kannada District studying the state syllabus were the population of the study. A total of four hundred secondary school students were randomly selected from the above population as the sample. The selected sample was selected using stratified random sampling technique.

The tools used in the study were

- ❑ A Four Point Rating Scale on Self -Esteem with five components was prepared and validated by the Researcher;
- ❑ A Problem Solving Ability Test with four components was prepared and validated by the Researcher.

Academic Achievement was considered as the average marks obtained in the final examinations of students. The sample was administered the Rating Scale on Self-esteem which consisted of 70 items. The students were assessed based on a four point scale that included agree-4 points, agree to some extent -3 points, Disagree- 2 points and do not agree at all – 1 point.

Statistical Techniques used

Inferential Statistics such as 't' test, ANOVA, Fishers Protected 't' test were used. The significant level was set at 0.05 level.

Data Analysis

The objective was to find the Main and Interaction Effect of Problem Solving Ability and Self-esteem on Academic Achievement of Secondary School Students. The analysis and interpretation of 2×3 factorial design has been done using Two way ANOVA. To test the hypothesis, three null hypothesis were formulated.

$H_{01.1}$: There is no significant difference in the effect of Problem Solving Ability on Academic Achievement of Secondary School Students.

$H_{01.2}$: There is no significant difference in the effect of Self-esteem on Academic Achievement of Secondary School Students.

H₀1.3: There is no significant difference in the interaction effect of Problem Solving Ability and Self-esteem on Academic Achievement of Secondary School Students.

Interpretation

It is observed that the obtained 'F' value of Problem Solving Ability 1.50 is less than the theoretical value 2.63 at 0.05 level. Hence, the formulated null hypothesis is accepted. This indicates that Problem Solving Ability has no effect on Academic Achievement of Secondary School Students.

It is observed that the obtained 'F' value of Self-esteem 3.88 is greater than the theoretical value 2.63 at 0.05 level. Hence, the null hypothesis is rejected and the research hypothesis is accepted. Therefore, Self-esteem has a significant effect on Academic Achievement of Secondary School Students.

The table 2 indicates that the obtained 'F' value of interaction effect of Problem Solving Ability and Self-esteem is 0.46 which is less than the theoretical value 2.63 at 0.05 level. Hence the null hypothesis is accepted. It is concluded that there is no interaction effect of Problem Solving Ability and Self-esteem on Academic Achievement of Secondary School Students.

Conclusion

- ❑ Problem Solving Ability has no significant effect on Academic Achievement.
- ❑ Self-esteem has a significant effect on Academic Achievement.
- ❑ There is no significant interaction effect of Problem Solving Ability and Self-esteem on Academic Achievement.

As Self-esteem had a differential effect on Academic Achievement, it was suggested to go for Fisher's Protected 't' test to find out the significance of levels of Self-esteem when compared to the mean scores of Academic Achievement.

Conclusion

- ❑ Academic Achievement of Students with High Self-esteem is significantly greater than students with Average and Low Self-esteem.

- ❑ Academic Achievement of Students with Average Self-esteem is significantly greater than students with Low Self-esteem.

Major Findings of the Study

- ❑ Self-esteem has a significant effect on Academic Achievement.
- ❑ Academic Achievement of Students with High Self-esteem is significantly greater than students with Average and Low Self-esteem.
- ❑ Academic Achievement of Students with Average Self-esteem is significantly greater than students with Low Self-esteem.

Limitations

- ❑ As time factor was a major constraint, the tools could not be standardised by the Investigator.
- ❑ Academic Achievement could have been measured by preparing a test rather than considering the average marks of final examination.

Educational Implications

The results of the study have proved useful in enhancing Problem Solving Ability, Academic Achievement and Self-esteem of Secondary School Students. The implications are listed below:

- ❑ Developing Problem Solving Ability assumes greater significance at secondary school level, as students are preparing for competitive examinations, professional courses and for higher education. The present study highlights that the Problem Solving Ability had no significant effect on Academic Achievement of Secondary School Students.
- ❑ The curriculum in the school must devise strategies to enhance reasoning ability of the students.
- ❑ The learning experiences provided in science classrooms should include such activities which provide opportunities for students to bring out analogies, to classify, to draw inferences, to arrive at generalizations and so on.
- ❑ As Problem Solving Ability emphasizes more on strategies and materials that develop reasoning of the students, a change in the evaluation process focusing more on assessing

the problem solving skills of the students rather than testing the outcomes of rote learning, could aid teachers and students in planning and participating in more constructive teaching learning process.

According to the findings of the study, Self-esteem has a significant effect on Academic Achievement among Secondary School Students. The following could be done to boost the Self-esteem among students:

- ❑ Programmes on enhancing Self-esteem could be recommended by the schools so as to increase the Self-esteem among students.
- ❑ The teachers need to build a platform for promoting Self-esteem before they create opportunities for the same.
- ❑ Students could be made a part of the decision making process and problem solving, as it reinforces the notion of their opinions, thoughts and ideas and thus they feel valued.
- ❑ As academic competence increases with the development of Self-esteem, the students aim to build up according to various areas of life in terms of social, academic and cognitive.
- ❑ Establishing realistic and achievable goals with the students helps to promote positive Self-esteem.

Delimitations of the Study

Many researches can be undertaken to prove the efficiency of Problem Solving Ability with enhancing Self-esteem among the Secondary School Students. Therefore, future research should focus on the following features:

The present study had the following suggestions for further research:

- ❑ Similar studies can be conducted by increasing the sample size or trying out on two different groups of students by two different teachers
- ❑ The study may be done by taking up a large number of students in the sample
- ❑ A comparative study may be done regarding the effect of Problem Solving Ability and Self-esteem on Higher Secondary School Students by representing rural and urban areas respectively.
- ❑ The present study was confined to schools of

Mangaluru Taluk. A comparative study of other districts could also be made.

- ❑ The study could also be undertaken by comparing students of Government, Aided and Unaided schools affiliated to State syllabus.
- ❑ The present investigation may be repeated on larger sample to get results that are more reliable.
- ❑ The conclusion derived from the present investigation was based on a sample size of 400 students studying the state syllabus. A larger sample from other boards like CBSE and ICSE could have been taken.
- ❑ The present study was limited to Secondary School Students only, similarly college level students could also be considered.
- ❑ The present study can be further proved by considering other variables such as intelligence, social skills, language competence, behavior, situated management and others.

CONCLUSION

According to the current research which aimed to examine the impact of Problem Solving Ability and Self-esteem on Academic Achievement, the findings revealed that Self-esteem has a significant effect on Academic Achievement. These findings are in congruence with the results obtained from studies conducted by (Mankar, Jyothi 2011) that revealed a significant association between high Self-esteem and good Scholastic Achievement, whereas low level of Self-esteem associated with poor Scholastic Achievement.

The findings also revealed that there is no interaction effect between Problem Solving Ability and Self-esteem on Academic Achievement. This is in pace with the conclusions given by (Baghayi, Moghadam., Malak, Pour., Amiri & Molavi, 2012) which stated that training life skills like problem-solving in groups significantly helps improve self-esteem. We can share our experiences to confront difficulties by gathering in groups and feeling that others have similar problems with ours. Training life skills helps individuals learn more about themselves, know their weaknesses and strengths solve their problems, and strengthen their positive points, which leads to an increase in confidence.

Thus, the research study implied that healthy sense of Self-esteem in children proved to be strongly influential in enhancing better Problem Solving Abilities and good Scholastic Achievement. Both Parents and teachers are importantly responsible for propagating positive disciplinary strategies of enhancing Self-esteem and Problem Solving Abilities among the students.

REFERENCES

- Ignatius, S. 2015. *Impact of Social Skills and Self-esteem on Academic Achievement of Plus Two Students*. Mangalore: Unpublished Dissertation.
- Kahaani, A.H., Malak, M. Pour. and Hossein, M. 2020. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC531972>. 7 October 2012. Article. 4 November 2020.
- Kelly, K.R. and Jordan, L.K. 1990. "Effects of Academic Achievement and Gender on Academic and Social Self-Concept: A replication study." *J. Counselling and Dev.*, pp. 73-177.
- Kumari, J. 2016. *Effect of Problem Solving Ability and Academic Achievement among Secondary Schools*. Mangalore: Mangalore University.
- Mankar, J. 2011. "Impact of Self-esteem on Scholastic Achievement and Adjustment of Adolescents." *International Conference on Management, Economics and Social Sciences, Bangkok*, pp. 198-200.
- Mehmet, B. 2016. *Relationship between Problem Solving Skills and Academic Achievement*. Kyrenia: Univeristy of Kyrenia.
- Noronha, L., Monteiro, M. and Nelson, P. 2018. "A study on Self-esteem and Academic Performance among students." *Int. J. Heal. Sci. Pharmacy*, 2(1).
- Shahgholy, F., Ghafarokhi and Zainali, M. 2015. "The impact of training Problem Solving Skills on Self-esteem and behaviourall adjustment in teenage girls nad irresponsible parents." *J. Med. Life*, pp. 20-60.
- Supple, A.J., Plunkett, S.W. and Blush, K.R. 2020. <http://jcc.sagepub.com/content/44/5/74>. 3 March 2013. Journal. 12 November 2020.

