The aim of the present study was two-fold:

- To examine the Psychological correlates of Academic Achievement (Learning Style Preferences, Sources of Stress, Coping Strategies, and Achievement Motivation) among undergraduate students pursuing science program (Pure science and Applied science).
- To explore the feasibility and effectiveness of need-based eclectic enrichment program on facilitating Academic Achievement among low academic achievement students.

The list of colleges were identified and penned out. The colleges were contacted and permission was sought for data collection. All students studying in second through fifth semester of Bachelor of Science with Physics, Chemistry and Mathematics combination and Bachelor of engineering with combination of Computer Science and Information Technology courses were considered as the study population. The colleges were situated in Bangalore city, were considered as the study population. The purposive sampling method was used.

The study covered 656 undergraduate students aged 18-23 years as sample population. Three pure science undergraduate colleges and five engineering/applied science colleges were considered for the present study. Among these participants, 317 were from pure science course and 339 were from applied science course.

With regard to academic achievement, the sample size constituted 248 high academic achievement students, 267 average academic achievement students and 141 low academic achievement students.

In terms of gender boys constituted 305 and girls 351 of the total sample.
Data was obtained from the questionnaires method in the Phase I & III (Pre and Post Test) using the following tools:

- Consent form.
- Socio-demographic data.
- Kuppaswamy’s Socio-economic Status Updated Scale (Kumar et al., 2007).
- VARK Learning Style Questionnaire (Version 7.0), (Fleming, 2001).
- Stressful Life Events Inventory (Albuquerque et al 1990).
- Achievement Motivation Scale (n-Ach) (Deo - Mohan 1985).

The present study was carried out under III Phases:

- Phase I: Quantitative Method: Assessment of Psychological Variables.
- Phase II: Qualitative Method: Focused Group Discussion (FGD):
- Phase III: Quasi Experimental Method:
  - Stage 1: Pre test.
  - Stage 2: Enrichment Program: Development of modules.
  - Stage-3: Administering the enrichment program for low academic achievement students.
  - Stage 4: Post Test.
Main Findings of the Study:

Section I: Phase I: Part A:

- **General Sample Characteristics of Undergraduate Students**
  - The sample of undergraduate students comprised more applied science students than pure science students.
  - Among students from pure and applied science courses, high academic achievement students were more from applied science students (54%) compared with pure science (21%).
  - 55% of pure science students were average academic achievement, compared with 27% from applied science.
  - Low academic achievement group of students were more in pure science (24%) compared with applied science students (19%).
  - Majority of the students in the total sample size falls in the high academic achievement category and minimum number of students in the low academic achievement category.
  - In terms of gender, the majority of samples consisted of girls in pure science course compared with applied science. And on the contrary more boys were in applied science program.
  - The total sample size across pure and applied science courses in terms of gender comprised more girls (54%) than boys (46%).
  - The sample across genders, in terms of high academic achievement comprised more girls (57%) than boys (43%).
  - 58% of girls were average academic achievers compared with 42% of boys.
  - In terms of low academic achievement students, 38% were girls and 61% were boys. Majority of boys sample falls in the low academic achievement category than girls.
• With regard to socio-economic category, among pure science students 54% of them were from the upper socio-economic status category, 34% were from the upper middle socio-economic status category, 8% of them from the lower middle socio-economic category, 3% from upper lower socio-economic class category and 1% from lower socio-economic class.
• Among applied science students 66% were from upper socio-economic status category, 26% were from upper middle socio-economic status category, 6% from lower middle socio-economic status category, 1% were from upper lower socio-economic status category and 1% from lower socio-economic class category.
• The overall sample size of undergraduate students was made up of upper socio-economic class consisted of 60%, upper middle socio-economic status category was 30%, lower middle socio-economic status category was 7%, upper lower socio-economic status category was 2% and lower socio-economic status category was 1%.
• Majority of the sample population were under the first two categories, that is upper and upper-middle socio-economic status category. There was considerably less number of samples in the other socio-economic groups- lower-middle, upper-lower and lower socio-economic categories.
Descriptive statistics of undergraduate students

Learning Style Preferences

- In general, it was found that the majority of students’ preferred auditory and kinesthetic learning style preferences. And they had less preference to reading and visual learning styles.
- Among 656 undergraduate students, 80% of them preferred only one mode of information presentation, visual mode (4%), auditory mode (54%), reading/writing mode (9%) and kinesthetic mode (33%).
- Majority of college students preferred single-mode of instruction with a preference towards auditory learning style (80%).
- 20% of the sample students preferred multiple modes [2 modes (17%), 3 modes (2%), and 4 modes (1%)].

Sources of Stress

- Study results have indicated that college students perceived more stress from educational domain and overall stress domain compared with other areas/domains.
- In the current study, appearing for examination, failing in examination, change of teacher were reported as important educational /academic stressors.
- Break up in friendship, and beginning a serious relationship was reported more under heterosexual stressors.
- Changing house, family member(s) leaving the house, mother started working were important sources of stress under family domain.
- Borrowing money, loss of important personal belonging was reported more under financial stressor.
Illness of a close family member, and minor physical illness requiring few days off from college were reported as sources of health stressor.

Death of a relative and pet was more under bereavement stressor.

Taking alcohol and smoking were reported as sources of stressors under miscellaneous domain.

Coping Strategies

Among the three identified coping strategies, students have adopted “emotion-focused strategy” more often compared with other coping strategies - “problem-focused” and “problem & emotion-focused”.

Achievement Motivation

The mean score on achievement motivation of the sample selected for the current study was less as compared with the norms provided in the manual (Deo & Mohan 1985).

Study of achievement motivation grade of students revealed that 23% of them recorded on high level of achievement motivation, 51% of them on average level of achievement motivation and 26% on low level of achievement motivation. Therefore it can be inferred that the majority of students were average level of achievement motivation grade.
Inferential Statistics: Testing Hypotheses

- Learning style Preferences and Other Independent Variables
  - Applied science students’ preferred more of visual learning style compared to pure science students.
  - Pure and applied science students differed significantly on visual learning style preference.
  - There was no significant difference in learning style preferences between high, average and low academic achievement students.
  - Girls’ preference on auditory and reading learning style was more compared to boys.
  - There was a significant difference in learning style preferences among boys and girls on auditory and reading learning style preferences.

- Sources of stress and other Independent variables
  - Applied science experienced more stress on health and overall stress domains compared to pure science students.
  - There was a significant difference in health and overall sources of stress among students pursuing pure and applied science programs.
  - Low academic achievement students experienced more stress from all the stress domains compared to high and average academic achievement students.
  - There was a significant difference with regard to sources of stress such as educational, family, miscellaneous and overall among high, average and low academic achievement group students.
  - There was a significant gender difference in educational, heterosexual, family, financial, miscellaneous and overall sources of stress.
  - Boys experienced more stress from all sources of stress compared to girls.
Coping strategies and other Independent variables.

- Applied science students adopted more of “problem-focused coping strategy” compared with pure science students.
- There was a significant difference in problem-focused coping strategy among pure science and applied science undergraduate students.
- Low academic achievement students employed more of “emotion-focused coping strategy” compared to high and average academic achievement students.
- There was a significant difference in emotion-focused coping strategy among high, average and low academic achievement students.
- There was a significant difference in emotion-focused coping strategy among boys and girls.
- Girls use more of emotion-focused coping strategy compared to boys.

Achievement motivation and other Independent variables.

- Pure science students were more achievement oriented compared than applied science students.
- There was a significant difference in the level of achievement motivation among pure science and applied science students.
- There was no significant difference in the level of achievement motivation among high and low academic achievement students.
- There was a significant gender difference in the score of boys and girls level of achievement motivation scores.
- Girls were more achievement oriented than boys.
Section II: Phase II: Focused Group Discussion (FGD).

- A group of 36 members participated in focused group discussion.
- The key issues focused in the discussion were causes for academic success and factors which affect their academic achievement, sources of stress perceived, coping strategies employed to ward off the stress, motivating factors for academic success, challenges/issues faced by students.

Focused group discussion revealed following six overarching themes:

- Study strategies employed
  Participants across the two focus groups (pure science and applied science) reported that preparing their own notes, studying during study holidays, understanding the concepts, studying from text books, preparing the time table and following it, using diagrams, mugging up the text/rote learning, solving previous question papers were their important study strategies.

- Faulty learning methods utilised
  Students stated that studying at the last minute, too less time to study/short period of study without following the set time table, studying only when in good mood, mugging up the text/rote learning were the faulty learning methods adopted by them.

- Stressors encountered
  Majority of the students felt stressful when they were unable to understand concepts, when they were under constant pressure from parents, teachers, friends to perform well in their studies, when they had to study during internal tests and end semester exams, when they had short time to study, when their results had to be announced, when they experienced lack of concentration, when students felt they had heavy syllabus/course load to cover, not being able to keep up with time table which has been set, calls and texts from friends were perceived to be stressful to the students.
○ **Adaptability and coping patterns**

The adaptability and coping patterns students reported were they indulged in different modes of entertainment such as listening to music, watching television, messaging friends/chatting with friends or engaging with social networking sites like face book, playing with pets, taking breaks, going to sleep, talking to their friends. Some students reported that they were unaware and need guidance to handle a situation, set their goals, time management, study hard and self motivate to do well.

○ **Issues and challenges linked with low Academic Achievement**

Students reported that they were easily susceptible to distractions, constant pressure from parents to do well, lack of concentration, family problems, inability to understand the concepts, laziness, lack of interest to study, health problems, unable to remember things, lack of confidence, absence of teaching in the colleges were the reasons for academic failures and issues for their low academic performance.

○ **Motivating factors which facilitate the academic success**

Under this theme students stated that progress report was very important and a motivating factor, some of them compared their results with their friends, and few reported that achieving goals and gaining knowledge were important motivating factors. Some of the students felt that good relationship with teachers, parents and friends was an important source of motivation.
Section III: Phase III: Pre & Post Test Results:

- General sample characteristics of low academic achievement students
  - A total of 36 students were considered for the study, 27 of them participated in the enrichment program and 15 students completed the enrichment program.
  - Seven students were pursuing pure science and eight students were studying applied science.
  - The sample size across pure science and applied science course comprised more applied science students compared than pure science students of low academic achievement.
  - The overall sample was 15.

- Comparison of Pre and Post test Results
  - There was a significant difference in auditory learning style preferences among low academic achievement group students in the pre and post test.
  - There was no significant difference in overall sources of stress among low academic achievement group in the pre and post test.
  - There was a significant difference in emotion-coping focused and problem and emotion-focused coping strategy employed by low academic achievement group students in pre and post test.
  - There was no significant difference in the level of achievement motivation among low academic achievement in the pre and post test.
  - There was a significant difference in academic achievement among low academic achievement group in the pre and post test.

The forthcoming chapter VII highlights the limitations of the study.