CHAPTER I

INTRODUCTION

The first chapter is presented in eight sections, each attempting to highlight the key aspects pertaining to the importance of turning around slow learners and the process of achieving it considering the available theoretical and conceptual framework.

Section I presents the introduction of highlighting the meaning of slow learners and profiling their general description

Section II discusses the ways of classification of slow learners and their general characteristics

Section III deals with necessity of focusing on slow learners' academic performance

Section IV highlights theoretical backdrop of learning processes and academic Achievement which emphasis the ways of accelerating learning process in different perspectives.

Section V covers key supporting factors facilitating learning process of students such as parental involvement, teachers support, inclusive education system etc.

Section VI deals with nature of intervention facilitating learning process relating to slow learners

Section VII covers key psychological factors influencing the learning process of Slow learners

Section VIII outlines the conceptual frame work and the need for the present study Highlighting the key objectives.

Section I: INTRODUCTION

By and large, children differ from one another physically, intellectually, scholastically, emotionally and culturally. Slow learners are those children who are low in achieving academic skills and often ignored by others as dull, lazy or inept as a part of the school setting. Slow learners not only lag behind other students in academics but in areas of social, emotional and psychological well-being. It has been estimated that 5 to 15 per cent of school going children suffer from scholastic backwardness (Nair et al, 2003). The early identification of students who are at risk for educational failure is an important process that deserves much attention and research. Some students are identified as having special needs when they are at infancy stage but the majority of children are not identified until they enter the school system.

It is a known fact that children who fail early in school tend to develop many secondary problems such as alienation from school, early drop out and sometimes social maladjustment (Sprague & Walker, 2000). Proper identification is therefore crucial for the implementation of appropriate and timely intervention. The processes of identification and redressal of students who have special needs can vary in schools from very informal processes and systems to very formal ones (Campbell, 2003).

Slow learners are those students who are very poor in meeting minimum academic requirements in comparison with normal students. Children with intelligence level in the low average or borderline IQ range can be grouped together as slow learners. These children do not get sufficient attention in the mainstream education. They usually fail repeatedly in examinations and finally become school drop outs. Establishing special

schools for children of this category is not practical and not advisable. It is ideal to evolve strategies to provide education to these children in normal school itself.

Further, slow learners are not eligible for special education as given for mentally retarded children because their intelligence levels are too high. If we leave these slow learners without proper care, they are likely to lose interest in their studies and become dropouts. Further, as they do not get any special attention or support, they are likely to get dejected totally in their studies and end up in anti-social activities such as illicit drug users, violent offenders, alcohol abusers, unemployed and underemployed (Beebe and Frankberger et. al 2004). Among the various factors, the following are some of the prime inhibiting factors attributed widely to the poor performance of slow learners; such as low self-esteem, lack of goal setting and problem solving skills, poor memorizing abilities, lack of achievement motivation, emotional disturbances, poor peer relationship, lack of parental support etc.

Although they have no intellectual disability, no identifiable neurological impairments and no learning disorders, slow learners perform poorly in school and exhibit discrepancy between expected achievement based on their intellectual ability assessment scores and actual achievement. As children advance in school, there is a corresponding increase in difficulty of school subjects and assignments. Thus, children's performance depends progressively more on their motivation to sustain an active commitment to and efforts towards self-regulated learning (Bouffard, Boisvert and Vezeau, 2003)

Proportionately these problems affect slows learners more often than children labeled mentally retarded. A general education teacher's decision on not providing any

extra help to a slow learner has lifelong consequences. This group constitutes approximately 14.1% of the population based on estimates from normal distribution (Neisser, 1998). This warrants intervention training that can help slow learners to reach as close to normal development as possible. ***Keeping in mind all the above facts, an individualized Integrated Intervention based experimental study is proposed to assess the ways in which a significant gain in academic performance of slow learners can be realized.***

Slow learners have numerous problems. Their low academic functioning has consequences to themselves, the school and the society as a whole. There are a number of risk factors associated with their below average intellectual functioning. Slow learners have inadequate coping skills when faced with personal crises, hence require additional support to be successful (Shaw et al., 2005). Low intelligence has been associated with crime, smoking, drug abuse, homelessness, alcohol abuse, unemployment, poor parenting readiness, bullying, fighting, school dropout, school failure and poor health care (Shaw 2008). According to Shaw (1999) slow learners are more likely to have behavioral issues and social skill deficits. They require additional support to be successful. Depriving slow learners of extra help in the classroom has lifelong consequences (Shaw et al., 2005).

Slow learners tend to obtain poor academic grades, have difficulty in transferring or generalizing learning experiences or concepts, they tend to have difficulties with multi-step directions and multi-tasking, take longer time to master academic skills, have a shorter attention span, have similar needs as other learners, score low in achievement exams and overall are at risk of dropping out of school (Shaw et al., 2005).

Section II: Classification of Slow Learners

The Diagnostic and Statistical Manual of Mental Disorders, (APA, 2000) considers persons with intelligence test scores between 71 and 85 to be an Axis II, V-code (Borderline Intellectual Functioning). V- Codes are for problems that may be a focus of clinical attention, but are not considered as mental disorders.

The terminology 'Slow Learners' is unintentional; it is respectful to speak of such children as having diverse minds (Levine, 2003). Slow learners are students whose achievement scores are significantly below average. They are not classified as Learning Disabled because of a lack of discrepancy in their IQ - achievement scores and their below average IQ scores. Although their IQ scores fall in the below average range they are not classified as mentally retarded because their IQ scores are above the cut off for being considered mentally retarded and their difficulties are primarily academic in nature (MacMillan et al, 1998).

(a) Characteristics of Slow Learners

Slow Learners have several characteristics that make classroom instruction difficult. If the material being taught does not have direct relevance or tied to previously acquired information, then instruction becomes inefficient (Singh, 2004). Concepts are learned more efficiently when they are presented in a concrete manner (Shaw et al., 2005). Slow learners are unable to transfer or generalize skills, knowledge, and strategies as well as their peers (Shaw, 1999). They benefit from engaging in academic activities for increased periods of time and are more likely to have behavioral issues and social skill deficits. (Shaw et al., 2005).

They need to learn facts discretely than their average ability peers in order to fully understand a concept. They are inefficient in their ability to learn and apply academic information. By increasing instructional efficiency, teachers can bridge the academic skills gap between children with borderline intelligence and students of average ability. Students with borderline intellectual functioning require more practice opportunities when compared with students of average ability (Shaw, 2000).

A slow learner does not demonstrate unexpected low achievement, rather an achievement level consonant with their IQ level (Gresham, MacMillan, & Bocian, 1996). Low achievement is problematic when there is a desire that all students are expected to perform at their grade level. Low achievement of slow learners reflects a true state of affairs (Kavale et al., 2005). Such students are ignored because of their low achievement and their low ability. They are usually ignored because of their poor performance and are assumed that they are performing according to their limited capacity.

Slow learning students are able to function effectively with education suited to their individual needs. They tend to be a misfit in the present educational system; they do not function at the optimum level in normal schools and are not admissible to the school for mentally retarded (Nair et al, 2006). Borderline intellectual functioning contributes negatively in the slow learners life as they lack concentration, have poor memory, imagination, and foresight; an inability to express ideas clearly through the medium of language (Bhatt, 2009). Better instructional strategies, improved curricula and new methods of teaching can help low achievers perform well in science (Bindu, 2006).

Regardless of their limitations, slow learners do learn. They can make progress in the classroom if the teaching and materials used are at their appropriate level of learning.

Slow learners and their difficulties are not new to teachers; teachers require more techniques and ideas to truly meet slow learner needs. Apart from great classroom instruction, students who are slow learners have educational needs that require alternative educational interventions and curriculum designs. These programs need not be markedly different than programs offered to other learners with reading disabilities or delays (Cooter and Cooter, 2004). Research studies indicate that focusing on their needs can place slow learners along with average learners instructionally (Lyon et al., 1993).

A child's achievement and ability are not always dependent on each other, so they should be regarded as separate aspects (Meyer, 2000). In large classes where the teacher-student ratio is high, it can be a daunting task for teachers to group slow learners with other students. While offering remedial interventions to work with slow learners, they must aim at the very core of the problem, arising from careful testing and diagnosis (Gibelli & Ott, 1991).

Section III: Necessity of focusing on Slow Learners Academic Performance

Developmental researchers have observed that as students enter middle school, they often suffer decreases in self-esteem, task values, and intrinsic interest in academic tasks (Wigfield et al, 1991; Fredericks &Eccles, 2002). Unfortunately, students who struggle in school not only have a poor repertoire of effective strategies but also do not understand how to identify and adjust faulty strategies when the strategies are not working effectively (Dembo & Eaton, 2000; Weinstein et al., 2000; Zimmerman, 2002). When students start to believe that they no longer possess the ability to learn an academic activity their efficacy beliefs go down, which can lead to lack of attention in the class, failure to prepare for examinations and further their rate of absenteeism increases

alarmingly (Zimmerman, 2002). Students must have a repertoire of learning strategies that they can access and utilize.

Facilitating motivation and success in adolescents for those who have special needs is a widespread goal of psychologists, educators, and policy makers (Grolnick et al., 2007). Academic achievement is not only a goal in itself, but interest and involvement in school is associated with a variety of psychosocial outcomes such as self-esteem, adjustment, responsibility and competence (Steinberg, 1996). During middle school, often students' attitudes towards school become more negative and subsequently their self-esteem and perceived competence decline drastically (Anderman & Maehr, 1994).

The present schooling system has a lot of limitations in addressing the above mentioned needs of the students; due to the general administrative setup, government policy implementation, lack of teachers, limited talent, lack of funding, and the pressures of teacher-pupil ratios. It is pointed out by the National Focus Group on curriculum, syllabus and textbooks of the NCERT (2006 a) that marked features of most of our educational practices in schools are dull, routine, bored teachers and students, and rote learning. A perusal of the present practices in schools does not provide a very encouraging picture in terms of either eliminating this gloom in the classroom or pursuing the higher goals of education in a more meaningful manner (NCERT, 2006 a).

There are many reasons for children to underperform at school; such as medical problems, borderline intelligence, specific learning disability, emotional problems, poor socio-cultural and home environments and psychiatric disorders. The information provided by the parents, classroom teachers and school counselors about the child's academic difficulty guides the pediatrician to form an initial diagnosis. It is important to

find the reasons for a child's poor school performance and come up with a treatment plan early, so that the child can perform up to their best potential (Karande & Kulkarni, 2005).

For students to be effective learners, they need to have relevant background knowledge, a repertoire of learning strategies, and the ability to accurately assess learning demands and match their strategies to the task at hand. They also need to evaluate and adapt the strategies that they use and know how they learn best.

Instructional strategies, therefore has to focus on the problem at hand and enable students to overcome barriers to learning. It has to facilitate comprehension rather than focus on mere recall leading to better performance and to gain grades or in effect the strategy has to be problem focused. The strategy has to facilitate the student to feel efficacious and enable him/her to meet the learning demands placed upon him/her.

The active problem focused strategy not only should facilitate student academic performance but also should in effect make the student feel enabled thereby influencing key psychological indices. Though there are studies focusing on the poor academic performance, there is a lack of research studies investigating the psychological characteristics of children who are low achievers. (Shaw 1999).

The primary focus of many interventions that aim at mitigating underachieving student problems are academic performance oriented. A comprehensive Integrated Intervention however must also be taken into consideration encompassing multiple perspectives in handling under achieving student problems. Since previous evidence emphasized that some key socio-emotional, temperamental, behavioral, and academic issues had associated significantly with student adjustment, the focus of an integrated

intervention apart from instructional modification should intend to encompass those contextual factors such as parental involvement, teacher expectations, teacher support etc.

Section IV: Theoretical Backdrop of Learning Processes and Academic Performance among School Students

An attempt has been made to highlight the theoretical background of the study and to summarize and evaluate the key research findings relevant to the learning process of children in general and the key problems of slow learners in particular relevant to the topic under investigation. Most of the available literature reviewed comprised of research studies pertaining to western countries and a small proportion from India. Different models have been put forward by theorists to represent the complex relationships that exist among the predictors of accelerated learning process. Noticeable among them are the following

(a) Piaget's Genetic Epistemology (1929)

Piaget's theory of cognitive development proposed four primary cognitive structures or developmental stages such as sensorimotor, preoperational, concrete operational and formal operational. In the sensorimotor stage, intelligence takes the form of motor actions. Intelligence in the preoperational stage is intuitive in nature. The cognitive structure during the concrete operational stage is logical and depends upon concrete concepts. In the final formal operational stage, thinking involves abstractions. Cognitive structures change through the processes of assimilation and accommodation. Assimilation involves the interpretation of events in terms of existing cognitive structure whereas accommodation refers to changing the cognitive structure to make sense of the environment. Cognitive development consists of a constant effort to adapt to the environment in terms of assimilation and accommodation.

The fundamental principles of this theory posit that children will provide different explanations of reality at different stages of cognitive development. Cognitive development is facilitated by providing activities or situations that engage learners. Learning materials and activities should involve the appropriate level of motor or mental operations for a child of given age or it is difficult for students to perform tasks that are beyond their current cognitive capabilities.

(b) Vygotsky's Social Development Theory (1962)

The major theme of Social Constructivism or Lev Vygotsky's theoretical framework is that social interaction plays a fundamental role in the development of a child's cognition. Every function in the child's cultural development appears twice: first, on the social level and later on an individual level. This applies equally to voluntary attention, logical memory and to the formation of concepts.

A central part of the theory of Vygotsky is that of the Zone of Proximal Development or the level of development attained when children engage in social behavior. Vygotsky posits three concentric circles. The innermost circle represents what an individual already knows. This is called the Zone of Actual Development. The outermost circle represents what a person cannot yet do or understand. Working in that area is too frustrating. The middle circle is the Zone of Proximal Development (ZPD). It is the area in which a student can succeed, with help (Jensen 1998).

The gap between the actual developmental level as determined by independent problem solving and the potential developmental level determined by problem solving under adult guidance or in collaboration with more able peers is the zone of proximal development (ZPD) (Fernández et al., 2001).

The job of a teacher is to provide experiences and support for students in that zone. If too much time is spent in the innermost circle, students will not be challenged and may become bored. If the student is thrust into the outermost circle, anxiety will be too great. The key is to provide opportunities for experiences that keep students in the ZPD. As students become more accomplished, new skills, behaviors and ways of thinking are added to what they can already do. The area of the ZPD shifts, and so does what the student can attempt next (Systra 2004).

"Scaffolding" is a Vygotskyian term that describes the gradual release of responsibility. The teacher models and provides small, safe, incremental steps for students to take. The shifting of the responsibility from the teacher to the student allows students to internalize the process and become more adept with difficult materials. This approach has been used to a great extent in dealing with students who are labeled as struggling readers and is expanding into other domains with success (Systra 2004).

(c) Gagne's theory of Conditions of learning (1962)

Gagne's theory on Conditions of Learning focuses on intellectual skills. The theory outlines nine instructional events and corresponding cognitive processes: (1) gaining attention - reception (2) informing learners of the objective - expectancy (3) stimulating recall of prior learning - retrieval (4) presenting the stimulus - selective perception (5) providing learning guidance - semantic encoding (6) eliciting performance – responding (7) providing feedback - reinforcement (8) assessing performance - evaluation (9) enhancing retention and transfer - generalization. These events provide necessary conditions for learning and serve as the basis for designing instruction. Gagne (1962) suggested that learning tasks for intellectual skills can be organized in a hierarchy

according to complexity: stimulus recognition, response generation, procedure following, use of terminology, discriminations, concept formation, rule application and problem solving. The significance of the hierarchy is to identify prerequisites that should be completed to facilitate learning at each level.

(d) Ausubel's Subsumption Theory (1963)

In Ausubel's Subsumption Theory, a fundamental distinction is made between rote and meaningful learning. In meaningful learning new knowledge is incorporated into existing cognitive structure in a substantive fashion rather than verbatim. This existing cognitive structure which is related to the new knowledge is called a subsumer and meaningful learning is a process of subsumption. During meaningful learning both new and existing knowledge undergoes a change in meaning that is qualitative (conceptual) as well as quantitative. The general principles of this theory are that the most general ideas of a subject should be presented first and then progressively differentiated in terms of detail and specificity. Instructional materials should attempt to integrate new material with previously presented information through comparisons and cross referencing of new and old ideas. A major instructional mechanism proposed by Ausubel is the use of Advance Organizers. Advance organizers are introduced in advance of learning itself, and are also presented at a higher level of abstraction, generality and inclusiveness (Ausubel, 1963).

(e) Bruner's Constructivism (1966)

According to Bruner's (1966) constructivism, learning is an active process in which learners construct new ideas or concepts based upon their previously acquired knowledge. Cognitive structures or schema provide meaning and organization to

experiences and allow the individual assimilate new information to already existing schemas. The knowledge is created by the individual and no individual can have exactly the same experiences as another. Learning results in changes in the whole person including values and perspectives and not just in behavior and cognitive processes. The theory encourages critical thinking and self-directed learning. Bruner (1966) stated that a theory of instruction should address four major aspects predisposition towards learning, the ways in which a body of knowledge can be structured so that it can be most readily grasped by the learner, the most effective sequences to present the material, and the nature and pacing of rewards and punishments. Good methods for structuring knowledge should result in simplifying, generating new propositions, and increasing the manipulation of information. The theory focuses on deep rather than surface learning and active rather than passive learning. As far as instruction is concerned, the instructor should try and encourage students to discover principles by themselves. The task of the instructor is to translate information to be learned into a format appropriate to the learner's current state of understanding. Curriculum should be organized in such a manner that students continually build upon what they have already learned.

(f) Edward De Bono's Lateral Thinking (1967)

According to Edward De Bono's (1967) Lateral Thinking theory, problems require a different perspective to solve successfully or the generation of novel solutions to problems. De Bono (1971) identifies four critical factors associated with lateral thinking; recognizing dominant ideas that polarize perception of a problem, searching for different ways of looking at things, relaxation of rigid control of thinking and the use of chance to encourage other ideas. This last factor has to do with the fact that lateral

thinking involves low probability ideas which are unlikely to occur in the normal course of events. The theory focuses on gaining different perspective on a problem by breaking the elements and recombining them in a different way.

(g) Bandura's Social Learning Theory (1969)

Bandura's (1969) Social Learning theory explains human behavior in terms of continuous reciprocal interaction between cognitive, behavioral and environmental influences. The component processes underlying observational learning are attention, retention, motor reproduction and motivation. Because it encompasses attention, memory and motivation, social learning theory spans both cognitive and behavioral frameworks. This theory forms the basis for behavior modeling used widely in training programs.

(h) Allan Paivio's Dual Coding Theory (1971)

Cognition, according to Dual Coding Theory of Allan Paivio (1986), involves the activity of two distinct subsystems: (i) a verbal system specialized for dealing directly with language and (ii) a nonverbal system consisting of imagery specialized for dealing with non-linguistic objects and events. The systems are assumed to be composed of internal representational units, called logogens and imagens, that are activated when an individual recognizes, manipulates or just thinks about words or things. The representations are modality specific, such that individuals have different logogens and imagens corresponding to the visual, auditory, and haptic, and motor properties of language and objects.

According to Dual Coding theory nonverbal and verbal codes, being functionally independent can have additive effects on recall. They can also set up a dual verbal-nonverbal memory trace by imaging to concrete words. Both kinds of representational units are concrete (Paivio, 2006).

(i) Andersen's Schema Theory (1977)

After introduction of the term 'schema' by Piaget (1926) and extensive work by Bartlett (1932), it was expanded into schema theory by educational psychologist R. C. Andersen (1977). According to schema theory, a schema is a generalized description or a conceptual system for understanding knowledge, its representation, and its level of usages. According to this theory, schemata represent knowledge about concepts: objects and the relationships they have with other objects, situations and events. In the field of education, information that fits into a student's existing schema is more easily understood, learned and retained than information that does not fit. The teacher's task is to ensure that the student has prior knowledge related to the concept and to provide help to students to make connections between prior knowledge and new concepts.

(j) Gardner's Multiple Intelligence Theory (1983)

The theory of Multiple Intelligence (Gardner, 1983), suggests that there are a number of distinct forms of intelligence that each individual possesses in varying degrees. Learning should focus on the particular intelligence of each person. Gardner (1983) proposes seven forms of intelligence namely linguistic, musical, logical-mathematical, spatial, body kinesthetic, intrapersonal and interpersonal. Gardner also emphasizes the cultural context of multiple intelligence where each culture tends to

emphasize particular intelligence. According to Gardner (1983), the implication of the theory is that learning and teaching should focus on the particular intelligence of each person. For example, if an individual has strong spatial or musical intelligence, he/she should be encouraged to develop these abilities. Gardner points out that the different intelligence represent not only different content domains but also different learning modalities.

(k) Cognitive Load Theory of John Sweller (1988)

Cognitive Load Theory (CLT) proposed by John Sweller (1988) focuses on the limitations of working memory which should be considered in instructional design. It is based on the assumption that as the learner has a limited information processing capacity, the proper allocation of mental resources is very much necessary. Otherwise, when devoting mental resources to activities that are not directly related to schema construction, it may inhibit an individual's learning process. Dual presentation decreases the cognitive load on working memory where learners can process both formats at the same time.

Since both systems can be simultaneously used, limited working memory capacity might be increased if information is presented in a manner that permits it to be divided between the two systems rather than processed in one system alone.

(l) Goal Orientation – Elliot and Dweck (1988)

Elliott and Dweck (1988) working in the field of educational psychology found that children who have two different goal orientations toward developing and demonstrating their abilities, namely, a performance and a mastery goal orientation tend to have different learning processes. Students who have a performance goal orientation focus on the end result, have apprehensions of failure and focus on the consequences of

their poor performance, especially the disapproval of others. They choose tasks that enable them to demonstrate their competence at the expense of their learning. Those students who have a mastery goal orientation seek challenging tasks that provide them the opportunity to develop their competencies.

Section V: Key Supporting Factors facilitating Learning Process

(a) Parental involvement

Parents can exert a powerful influence on their children's behavior by modeling reading, writing and other learning behaviors on a regular basis (Cooter & Cooter, 2004). A common complaint when working with slow learners is that their parents are not involved in their child's education. Parents of slow learners themselves could have had difficulties in school. Many parents of slow learners report to have an aversive experience being in a school environment and working with school personnel (Shaw, 1999).

In addition, many parents of slow learners tend to have low income jobs, irregular job assignments and casual jobs to meet family expenses. Frequent interaction with parents, soliciting parents' support and respect for parents' responsibilities can foster parent involvement in caring slow learners (Shaw 2000). Mothers of children with borderline intelligence exhibited less positive and less sensitive parenting behaviors and are less likely to display a style of positive engagement than did mothers of normally performing children (Fenning et al., 2007).

Parental involvement not only helps the parents to understand their child's problems and how to help and support their child, it also helps the slow learner by means of more parental understanding, emotional support and the student's belief that they are

cared for by significant others. Fenning and others (2007) pointed out that there is a need to extend intervention to families of slow learning children.

Children's developmental status not only amplifies the importance of parenting, but might also alter the actual parenting that the child receives (Floyd & Phillippe, 1993). Parenting factors such as warmth and responsiveness have been identified as key elements of adaptive parenting that provides a foundation for children's social, emotionaland moral development (Campbell et al., 2004). Parenting can play a role in fostering adaptive skills and socio emotional development of slow learning children (Guralnick, 1997).

Slow learners' families are rather often marked by low maternal involvement than by hostility or overt conflict. Parental negativity has been linked to children's aggressive behavior and other externalizing problems (Dodge et al., 1994). Evidence suggested that low positive involvement may be more predictive of child behavior problems than negative parent-child exchanges (Pettit & Bates, 1989). The lack of maternal positive engagement places slow learning children at heightened risk for emotional, behavioral and social problems.

Lack of parental responsiveness particularly such as over control and harsh discipline has been associated with children's behavioral difficulties. Dodge and others (1994) suggested that parenting is altered under conditions of risk implying the importance that parent child interaction may be critical for slow learners. Family functioning and parent-child interaction of children with borderline intellectual functioning may be detrimental to the child and vulnerable to maladaptive outcomes (Valliant & Davis, 2000).

Slow learners are rarely identified prior to school entry, deficits become more apparent over time as they enter school where comparisons with peers are common. Slow learners demonstrate pervasive academic difficulties; however, frequently fail to meet formal disability criterion which hinders early identification and intervention efforts (MacMillan et al. 1998). The lack of a specific disability diagnosis for slow learning children may affect parents' interpretation of child problems (Fenning et al., 2007). Therefore, parents of slow learners may lack an explanatory model for their child's difficulties, when compared with parents whose children have a disability diagnosis or may rather misattribute child deficits to lack of motivation and effort than to limited cognitive capacity. Difficulty in understanding their child's behavior with unmet expectations may increase risk of slow learners for poor quality parent child interaction (Fenning et al., 2007).

(b) Role of Teachers in Improving Learning Process for Slow Learners

Opportunities for learning from multiple perspectives, a rich sensory environment and environment that build on student strengths can help students at considerable level to overcome risk (Systra 2004). A rich sensory environment with illustrations on the walls and around the classroom is likely to help students even when they are not directly attending to what is happening in the class. Further, there is a greater likelihood that they will glance at or focus on material that supports the learning process (Systra 2004).

In order to improve attention levels of slow learners, teachers need to keep attention demands to shorter spans no longer than the age of their learners (Systra 2004). Providing opportunities for physical movement and activity may

help counteract their mental fatigue. Activities of shorter duration may also be helpful. Effective classroom management enables active student engagement in learning.

Higher levels of teacher expectations of students have been identified as a key component of student growth, improvement in class and success. Some studies have suggested that subtle communication of lower expectations limits student achievement. In both cases, there seems to be a Pygmalion effect or self-fulfilling prophecies, which affect the academic levels of the pupil (Stronge, 2002) as cited in Systra (2004).

Teacher training facilitates teacher's capacity to address problems and foster social, emotional, intellectual, behavioral and academic development. Teachers who care for their students are aware of student requirements even outside the school and attempts to maintain practice gender and racial fairness and focus on their overall development.

Effective teachers work with students as opposed to doing things to or for them. Students point out that effective teachers are those who care to spend more time interacting and working directly with them than ineffective teachers (Stronge, 2002). Teachers' enthusiasm for the subject matter has been shown to be an important factor in student motivation, closely linked to student achievement and is seen as more significant with older students. Extra hours spent preparing for instruction, emphasizing key points and preparing materials for students has a positive relation to increased student achievement.

(c)Inclusive Education System

The principle of inclusive education focuses on non-segregation of students on the basis of ability/disability, and ensuring that the available resources are extended to all its members without discrimination.

In India, the data on disability are generally under-reported due to lack of adequate skills to identify children with invisible disabilities. Further the lack of precise definitions for identifying children with mild and moderate disabilities hinders to offer remedial coaching. Disability identification in the population in India, was included in the 2001 census; however, the data are yet to be published (EIEI, 2003)

The UNESCO (2008), as cited in EADSNE (2010), definition states that inclusive education is an ongoing process aiming at offering quality education for all while respecting diversity and the different needs and abilities, characteristics and learning expectations of the students and communities, eliminating all forms of discrimination. Inclusive schools have to develop ways of teaching that respond to individual differences that benefit all children and should be able to change attitudes towards diversity and form the basis for a just, non-discriminatory society (EADSNE, 2010).

The National Curriculum Framework for School Education, brought out by the NCERT (2000), recommended inclusive school system for all students without specific reference to pupils with special education needs as a way of providing quality education to all learners (NCERT, 2006b). According to NCFSE, segregation or isolation is neither good for learners with disabilities or for general learners without disabilities. Societal requirement is that learners with special needs should be educated along with other learners in inclusive schools, which are cost effective and have sound pedagogical practices (NCERT, 2000).

There might be positive and negative effects with inclusive education; children with special educational needs might achieve better results as they can learn from more able students through direct interactions. They could become more motivated to achieve,

as much focus on academic achievement and academic progress is given in regular education (Myklebust, 2007). On the other hand, children with special educational needs might become less motivated and less confident when they compare themselves to their peers, because they are likely to achieve less than their peers who do not have special educational needs. This might adversely affect their motivation and self-confidence. Further, teachers might be less knowledgeable about teaching children with special educational needs in regular schools, which might have a negative effect on the quality of education and achievement (Myklebust, 2007).

The success of inclusive education programs to the disabled children to a large extent depends on the teachers' awareness, attitude and competencies to deal with children who are differently abled in the regular classroom. The organizational, teaching and learning and guidance and counseling activities should be tuned to meet the individual need of the learners. It is natural that awareness leads to formation of better attitudes and, in turn, they transform into better competencies (Reddy & Sujathamalini, 2005).

Even though instructing slow learners have several characteristics that make inclusive classrooms difficult, it is ideal to evolve appropriate strategies to provide education to cater to slow learners in normal schools itself (Krishnakumar et al, 2006). Classroom instruction has to cater to the needs of diverse learners in the inclusive classroom facilitating to develop higher order thinking skills.

Section VI: Nature of Intervention facilitating Learning Process Pertaining to Slow Learners

(a) Types of Instruction Methods for Slow learners

There are a number of features that make instructing slow learners difficult like slow pace of learning, low attention span, difficulty in understanding abstract concepts, generalizing learned concepts, organization of newly learned concepts etc. The inclusion of slow learners in the general classroom either after identification or without identification, calls for evolving appropriate teaching methodologies that are suitable for all types of learners in the classroom. The new methodologies should include techniques that not only improve mere recall of learned information but also should create and improve higher order thinking skills. It should cater to the needs of students with diverse abilities within the classroom.

Thinking is generally absent or difficult among slow learners as there is a lack of skills of organizing of information into an integrated system. Sexton and Poling (1973) contrasts between the thinking of low performing and high performing students. The low performing student sees most of the material presented to him as a series of random, unrelated pieces. Students of exceptional ability see things as classes, systems, relationships and analogies. Their mental world is organized. Higher order thinking organizes information into an integrated system.

Based on the knowledge that all students are not alike and the presence of student with diverse abilities within the classroom, differentiated instruction method has to be followed to teach slow learners that gives them different options for receiving relevant information and making sense of ideas. Differentiated instruction is based on the premise

that instructional approaches should vary and be adapted in relation to individual and diverse students in classrooms (Tomlinson, 2001). Differentiated instruction rather requires teachers to be flexible in their approach to teaching and adjust the curriculum and presentation of information to learners than expecting students to modify themselves for the curriculum.

Deciding which instructional tools to use is a daunting responsibility. The task becomes more complex when students have special educational needs that make it difficult for them to understand, organize and recall important concepts or content (Fountas & Pinnell, 2001).

(b) Nature of Interventions Targeted at Improving Cognitive Aspects

Cognitive intervention includes all procedures that can help people with cognitive impairments to successfully engage in activities that are rendered difficult by impaired cognitive functions. In this broad sense, cognitive intervention includes all interventions which aim at improving attention, memory and memory problems, retrieval, organization, problem solving, concrete versus abstract thinking, instructional routines, executive functions, self-regulatory routines, transfer of training, cognitive and learning strategies and others (Ylvisaker, 2006 a).

Transfer of training or generalization from the training setting to the application setting is one of the most critical aspect of intervention, if it is implemented outside of the context of everyday academic routine (Ylvisaker, 2006 a). A joint committee of The American Psychological Association and the American Speech, Language and Hearing Association as cited by Ylvisaker (2006 a) distinguish between two different paradigms,

or ways of understanding cognitive rehabilitation, “Traditional Cognitive Retraining” and “Context-Sensitive Cognitive Intervention and Support”.

In Traditional Cognitive Retraining the focus of intervention is on the underlying neuropsychological impairment, aiming at restoring cognitive functions. Cognitive remediation is often done outside of the functional contexts or environment of the individual like in a hospital or clinical setting. In Context-Sensitive Cognitive Intervention and Support, the primary goal is to help individuals achieve their real-world objectives and participate in their chosen real world activities that may be limited by cognitive impairments. In contrast to traditional cognitive remediation, this type of intervention is typically embedded within the person's natural environment like in the home or classroom setting.

Practicing recall of random information or categorizing varied types of information has been used by therapists and special educators with the hope of producing generalized improvements in cognitive processes. Unfortunately, research in rehabilitation and special education has shown that cognitive exercises of this sort have limited impact on cognitive functioning in academic or other real world contexts because these exercises are decontextualized cognitive exercises (Ylvisaker, 2006 b).

Students need to pay attention effectively, organize information for comprehension, remember information and retrieve it for tests, reason effectively and apply strategic thinking to academic problems that arise in school. Thus effective strategies that facilitate to enhance cognitive functioning within academic settings are critical for all students in general and more so among slow learners.

(c) Role of Graphic Organizers – Pictorial Instruction Method

One way to help make a curriculum more supportive to students and teachers is to incorporate Graphic Organizers (DiCecco& Gleason, 2002). Graphic organizers come in many varieties and have been widely researched for their effectiveness in improving learning outcomes for students of different abilities (Baxendell, 2003; Guastello et al., 2000; Horton et al, 1990; Bos& Anders, 1992; Jitendra et al, 1999; Griffin et al., 1995; Griffin & Tulbert, 1995; Fisher & Schumaker, 1995).

A Graphic organizer is a visual representation that depicts the relationship among facts, terms and ideas within linear text. A Graphic organizer converts linear text into non – linear visual format. Graphic organizers are also sometimes referred to as knowledge maps, concept maps, story maps, cognitive organizers, advance organizers, or concept diagrams.

Graphic organizers are context-sensitive procedures which are designed to help students to become progressively more organized as they engage in organizationally complex tasks at school. The goal of Graphic Organizer Intervention is to improve the student's independent functioning. Inclusive classrooms are one of the best settings for using graphic organizers due to their benefits for learners of varying abilities (Baxendell, 2003). Visually displaying key content ideas can benefit learners who have difficulty in organizing information (Fisher &Schumaker, 1995).

Graphic organizers are useful for multiple reasons. First, they are effective in classrooms which currently cater to the learning needs of all students spanning a wide range of abilities. Second, to educate all students in an environment that is least restrictive implying that both special education students and general education students

will be educated in the regular classroom. Inclusion of students with varying abilities in the general class room results in the expectation that all students will learn the same curricular content at the same pace.

Graphic organizers has its roots in Ausubel's (1963) theory of Advance Organizers. Paivio's (1986) proposed Dual Coding theory which posits two separate but interrelated systems for processing information such as Schema theory (Dye, 2000) and Cognitive load theory (Adcock, 2000).

If the quality of education is not appropriate to the developmental needs of the individual, education can have direct injurious effects (Feinstein et al., 2006). Students when making the transition to middle school often suffer decreases in self-esteem, task values and intrinsic interest in academic tasks (Fredericks &Eccles, 2002). When students are given less choices about curriculum activities and are given less opportunities to assume personal responsibility, they may develop self-defeating cycles of self-motivational beliefs (Eccles et al., 1993). There are a number of factors that influence slow learner functioning in the school environment such as ability, self-concept, cognitions, motivation, learning strategies, teaching strategies, peer interaction, parental involvement, teacher attention, school policy, social contexts etc.

(d) Mindfulness Training for Improving Attention

Mindfulness is defined as a receptive attention to and awareness of present events and experience (Brown & Ryan, 2003). First and foremost, mindfulness concerns a clear awareness of one's inner and outer worlds, including thoughts, emotions, sensations, actions or surroundings as they exist at any given moment (Mishra, 2004). For this reason,

mindfulness has been termed "bare" attention (Engler, 1986; Gunaratana, 2002; Rahula, 1974) and "pure" or "lucid" awareness (Das, 1997; Gunaratana, 2002; Sogyal, 1992).

Another key feature of mindfulness is its flexibility. Like a zoom lens, it can move back from particular states of mind to gain a larger perspective on what is taking place (clear awareness) and also can zero in on situational details (focused attention) according to inclination or circumstance (Cullen, 2006; Welwood, 1996).

Mindfulness is a technique derived from the Buddhist school of thought. The Buddhist scholarly literature presents a detailed picture of the nature of mindfulness. However, that literature's characterization of mindfulness has not been clearly translated into contemporary research psychology. The psychological literature reveals considerable variance in descriptions of the nature of mindfulness on both theoretical and operational levels (Dimidjian & Linehan, 2003; Hayes & Wilson, 2003); for example, mindfulness has been defined as a self-regulatory capacity (Brown & Ryan, 2003), an acceptance skill (Linehan, 1994), and a meta-cognitive skill (Bishop, Lau, Shapiro, Carlson, Anderson, Carmody et al., 2004).

The commonly used definition of mindfulness as intentional and nonjudgmental awareness was introduced by Kabat-Zinn (1990). Leary (2004) notes that, "virtually every theory of mental health assumes that having an accurate view of reality is a hallmark of psychological adjustment". Mindfulness may facilitate well-being directly, by adding clarity and vividness to current experience and encouraging closer, moment-to-moment sensory contact with life, which is, without a dense filtering of experience through discriminatory thought. It may also operate indirectly, through the enhancement

of self-regulated functioning that comes with ongoing attentional sensitivity to psychological, somatic, and environmental cues (Kabat-Zinn, 2005).

(e) Mnemonics - Memory Improvement Program

One of the main problems faced by the learner is not what is going to be learnt but how it is going to be learnt. Children and adults may acquire the necessary skills based on their experiences to learn information, but there is little emphasis on teaching them general learning strategies, which once learned might be transferred to the gamut of subjects. It is the intention of mnemonics and other memory techniques to assist the learner in remembering.

Most memory strategies are commonly known as 'mnemonics'. One way that can enhance storage is by encouraging students to use memory techniques that will aid them in committing words to memory. Although there is a great deal of resistance in many countries towards introducing mnemonic techniques in the classroom, most students seem to use these techniques and find them very helpful.

Thompson's (1987, p. 43) comments on the use of mnemonics as follows:

> *"Mnemonics work by utilizing some well-known principles of psychology; a retrieval plan is developed during encoding, and mental imagery, both visual and verbal, is used. They help individuals learn faster and recall better because they aid the integration of new material into existing cognitive units and because they provide retrieval cues."*

Mnemonics are used as a means of improving recall of unrelated items by adding meaningful connections between them at the time of encoding and these connections will enhance retrieval at a later point of time. The other conceptual bases underlying research in

mnemonics other than encoding are elaboration and mediation. Mnemonic techniques usually structure incoming material by associating them with a set of words, letters, or images (mental pictures) previously learned. They are mental devices to improve one's memory, mainly long-term memory and also known to speed up learning. The following are some of the popular mnemonic techniques that are commonly used (Willingham, 2008).

Letter Method (ACRONYMS): One of the most well-known mnemonic is the letter method in which an acronym is used to stand for factual information. For example VIBGYOR, is used to designate the colors in a light spectrum.

Peg Word: Useful for memorizing lists of unrelated items in order. The user has to create a visual image of each item in the list with a "peg word." The committed pegs to memory provide clues to remembered material.

Method of loci: Useful for memorizing lists of items in order. First, the individual has to commit a mental walk to memory along a familiar route with separate, identifiable locations and then create a visual image that associates each item on the list with a location on the mental walk.

Rhyming: The to-be-remembered material is set to a familiar tune, set to a rhythm, or made into a rhyme for example "I before e, except after c, or sounded as a, as in neighbor and weigh" or "thirty days hath September… April, June and November…"

Pictures: Individual scan learn new words by using pictures instead of definitions. The words can also be related to a personal experience of the significant concept, for example, learners mentally connect the word 'snow' to the memory of playing in the snow when they were children.

Key words: There are two stages in the keyword mnemonic: (i) an acoustic link stage and (ii) an imagery link stage. During the first stage, the learner is given a keyword that is acoustically similar to and that can be visualized as interacting with the concept/ item/ term to be remembered.

Section VII: Key Psychological Factors influencing the Learning Process of Slow Learners

(a) Academic Achievement

It is of primary importance that any type of intervention addressed to students and specifically slow learners should essentially aim at improving their academic performance. Fletcher and colleagues (2004) pointed out that there is no evidence where IQ sets an upper limit on a student's ability to learn. It is a long held view that ability predicts achievement; the following statement by Sir Cyril Burt, as cited in (Fletcher et al., 2004), reiterates this point. "Capacity must obviously limit content. It is impossible for a pint jug to hold more than a pint of milk and it is equally impossible for a student's educational attainment to rise higher than his educable capacity".

It is a commonly held belief that slow learners are destined to fail in school. Slow learners have a higher rate of failure in the general education setting (Shaw, 2000). Slow learning children do not get sufficient attention in the mainstream education. They usually fail repeatedly in examinations and finally become school dropouts (Krishnakumar et al., 2006). Poor educational attainment is a risk factor for unemployment, low income, social exclusion and poorer health in later life (Feinstein & Hammond, 2006).

Slow learner academic skills have shown some marginal improvement with as little as two additional hours of specialized instruction per week. However a major problem with specialized instruction was that even though slow learners had shown improvement during the tutoring sessions, they failed to generalize their new found skills to classroom and test performance (Shaw, 2006).

Academic achievement is not only a goal by itself, but interest and involvement in school is associated with a number of psychosocial outcomes such as self-esteem, adjustment, responsibility and competence (Steinberg, 1996). A cognitive instruction method has to essentially focus on the slow learning students' internal psychological indices that promote his/her success in school over and above academic achievement. Hence, the present research study intends to focus on how an active problem focused cognitive intervention using graphic organizers, mindfulness training, mnemonics training, parenting styles and methods of conveying teachers positive expectations to students facilitate to enhance slow learners' academic achievement, and the extent to which it influences slow learners' academic self-efficacy, self-perception, socio-emotional adjustment, temperament and intrinsic motivation.

(b) Academic Self-Efficacy

According to Bandura (1977, p. 193), "efficacy expectation is the conviction that one can successfully execute the behavior required to produce the outcomes." Self-efficacy forms a part of the social cognitive theory, which postulates that human achievement depends on interactions between one's behaviors, personal factors like thoughts, beliefs and environmental conditions (Bandura, 1997).

Self-efficacy beliefs tend to decline as students advance through school (Pintrich & Schunk, 1996). Lack of teachers' attention to individual student may adversely affect the self-efficacy beliefs. Further, personal stress associated with school transitions also contribute to lower self-efficacy. This can be more debilitating factor for those students who are less academically prepared to cope with increasingly challenging academic tasks. Classrooms that allow for much social comparison tend to lower the self-efficacy of students who find their performances inferior to those of their peers.

Students' involvement and participation in school depend in part on how much the school environment contributes to their perceptions of autonomy and relatedness, which in turn influences self-efficacy and academic achievement. When environment is rich in interesting activities that arouse children's curiosity and offer challenges that can be met, children are motivated to work on the activities and thereby learn new information and skills (Meece, 1997).

Self-efficacy beliefs are not a single disposition but differ on the basis of the domain of functioning. The levelof self-efficacy refers to its dependence on the difficulty of a particular task (Zimmerman, 2000). Therefore self-efficacy beliefs in an academic domain pertain to academic self-efficacy. Research studies showed that self-efficacy influences academic motivation, learning, and achievement (Pajares, 1996; Schunk, 1995). Student's beliefs about their efficacy to manage their academic tasks can influence them emotionally by decreasing their stress and anxiety (Bandura, 1997).

(c) Self Perception

Self-perception is an individual's awareness of his or her own identity. Self-perception has traditionally been divided into four smaller categories. These include

academic, social, emotional and behavioral perceptions (Harter, 1982). Self-perception at school is affected by the image that other significant persons like teachers, parents and peers have of the students (Harter, 1986). Children perceive themselves across multiple domains like cognitive competence, social acceptance, physical competence and global self-worth. Self-perception has been suggested to play a mediating role between motivation and academic performance (Harter et al., 1998).

Enhancing the self-perception of students with special needs that are included in regular public secondary schools has a positive impact on their academic achievement as well as on their personal and social development. Factors that appear to influence the self-perception of students with special needs include the following; degree of disability, age of onset of disability, acceptance of the disability by parents, type of schooling in regular school or special school and labeling (Westling, 2000).

Factors pertinent to children's self-perception may include: the weight that the child places on academic success (Harter et al., 1998), the extent to which he feels worthy of himself, which may involve comparing himself with his peers (Harter, 2006) and the extent to which he experiences stigmatization or social acceptance (Wiener & Schneider, 2002). Each of the above factors contributes to how students develop their perception of self.

Converting children's negative self-perception into positive self-perception is likely to increase their motivation and academic success, thereby enabling them to achieve their full academic potential. Enhancing the self-perception of students with special needs who are included in regular schools has a positive impact on their academic achievement as well as on their personal and social development. Recognizing variables

relating to children's self-perception will enable better identification of their self-perception, thereby enabling children to achieve their academic potential.

(d) Socio-emotional Adjustment

Students' social emotional development encompass a broad range outcomes, ranging from the ability to identify and understand one's own and others' feelings, establish and maintain relationships with both peers and adults to regulating one's behavior, emotions and thoughts (NSCDC, 2005). Having behavior problems in early childhood is associated with low peer acceptance, maladaptive teacher-child relationships, anti-social disorders and delinquency in adolescence (Brody et al., 2003; Ladd & Burgess, 1999). Early childhood behavior that is more internalizing in nature, such as fearfulness or behavioral inhibition, is associated with the development of serious anxiety problems in middle childhood and later (Tincas et al., 2006).

Socio-emotional and self-regulation competencies that support effective learning engagement are important for school success (Blair, 2002). These include the capacity to participate cooperatively in classroom activities, to control attention and sustain task involvement (Ladd et al., 2000). Children who can organize their behavior in a manner consistent with classroom expectations and engage with persistence on learning tasks exhibit higher levels of achievement in school (McClelland et al., 2006). Socialization and educational experiences also appear to play an important role in students' school adjustment (Blair, 2006). As a result, interventions that foster socio-emotional learning and improve behavioral self-regulation can strengthen cognitive development (Riggs et al., 2006).

(e) Temperament

Thomas and Chess (1977), conceptualized temperament as the stylistic component of behavior; the how of behavior as differentiated from the why of behavior and what of behavior. The clinical model of temperament describes it as a behavioral style that is concerned with how a child responds to a situation. This is not concerned with why or what, as why refers to the motivation of an action and what refers to the ability to perform a task or behavior. Most of the definitions of temperament has the following concepts in common; temperament (a) has a biological root, (b) appears early in life and can be identified in infancy (c) is characterized as behavioral tendencies rather than discrete behavioral acts (Goldsmith et al., 1987).

The nine dimensions of temperament as identified by Thomas & Chess (1977) in their classic New York Longitudinal Study, are as follows: i) Activity Level, ii) Rhythmicity or Regularity, iii) Approach or Withdrawal, iv)Adaptability, v) Threshold of Responsiveness, vi)Intensity of Reaction, vii) Quality of Mood, viii) Distractibility and ix) Attention Span and Persistence.

Three typologies were additionally developed to describe the temperament of a child; such as the difficult child, the easy child, and the slow to warm up child. Even though, this classification widely criticized for using value laden terminology (Rothbart, 1982), it has been used widely to classify children on the basis of temperament characteristics.

Temperament traits such as high activity level, negative emotionality, and impulsivity create stressful situations for the child as well as for the teacher; hence the child struggles and may not be able to meet the academic and social behavior demands of the classroom. Temperament characteristics, such as high levels of task persistence, and

low levels of inhibition are significantly related to academic achievement and predictive of later academic achievement (Bramlett et al., 2000). Early interventions that teach school adjustment skills are associated with a high level of academic achievement and school completion. Studies point out that children at risk are likely to enter school lacking the needed abilities and skills to meet the school's demands and expectations for their academic and social behavior (Blair, 2002; Nelson et al., 2004). Students are at greater risk of getting into the possibility of school maladjustment unless these deficits are identified and suitably addressed.

(f) Intrinsic Motivation

Intrinsic motivation is defined as the "doing of an activity for its inherent satisfactions rather than for some separable consequence" (Ryan & Deci, 2000, p 3). In contrast extrinsic motivation refers to doing something because it leads to a separable outcome. According to Self Determination Theory (SDT) those environments that facilitate experiences of autonomy, competence and relatedness will help enhance intrinsic motivation. Through internalization, the process of a student adopting increasing choice and value for learning, and ownership of the learning process, students increase their motivation towards learning of tasks and content (Reeve et al., 2004).

Students vary not only by how much they are motivated but also in the orientation of that motivation. Orientation of motivation concerns the underlying attitudes and goals that give rise to action. A student can be motivated to do academic work out of curiosity and interest or because he wants to procure the approval of a teacher or parent (Ryan & Deci, 2000). Ryan and Deci (2001) opined that focusing on task properties and

their potential intrinsic interest leads toward improved task design or task selection to enhance motivation.

Intrinsic motivation apart from enjoying the activity must reflect aspects of personal responsibility such as expending one's own effort, aspects of competence, reduction in fear of failure, and a growing sense of personal control to influence events, a sense of choice of activity where the individual is not forced into the activity, and valuing the activity.

Section VIII: Conceptual Framework

Apart from these various factors, the careful investigation of those driving forces which facilitate to have a sizable impact on the learning process of slow learners in reaching optimal academic performance and those restraining forces which inhibit the progressive growth of slow learners will help isolate the significant contributing factors to nurture, nourish and navigate furthering the turnaround rate of slow learners. But, it is really not that they learn so slowly but as such they lag behind in developmental readiness to grasp the concepts that are within easy reach of the majority of their age mates. They lack concentration, retention and abstract thinking, study skills, achievement motivation and goal setting etc.

Hence, designing and adapting an effective Individualized Integrated Intervention program aiming at improving academic performance of slow learners will facilitate to turn them around as smart learners in due course of time. Further, these strategies will help formulate broad guidelines for the formation, functioning and furthering the overall growth rate of slow learners.

In order to make the learning process itself alive for slow learners, a favorable facilitating intervention will be given at the individual and interpersonal (teacher-student, parent-child interactions) levels so that they know how to deal with difficult subjects/concepts/problems etc as they arise and go on learning.

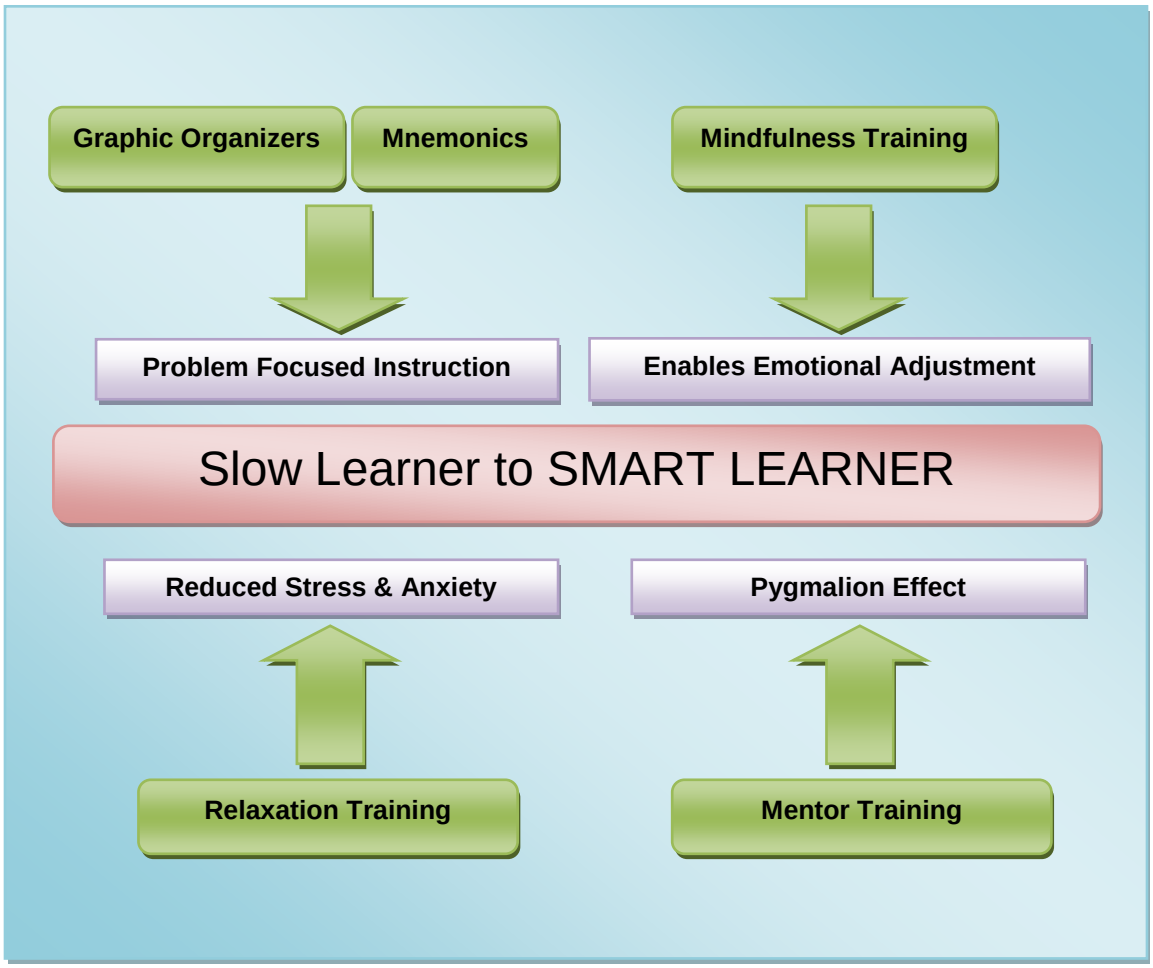

Figure 1. Graphical representation of the conceptual framework for the Integrated Intervention

Need for the Present Study

As the rate of slow learners of Higher Secondary Schools in the Government and Government Aided Schools is increasing alarmingly perhaps due to personal and situational factors, it has put additional demands and constraints on the concerned

stakeholders to arrest this undesirable phenomenon by evolving suitable strategies. Hapless and stressed, these neglected slow learners are not to be blamed if by a natural instinct they are driven to indulge in antisocial activities such as drug abuse and drug trafficking, robberies and other corrupt practices which apparently promise him a higher degree of financial security with a relatively hassle-free day-to-day living for themselves. For that matter, equipping the slow learners to possess adequate employable skills and talents, instead of being neglected by the parents or teachers due to poor learning skills, by evolving a suitable customized Integrated Intervention may facilitate to turn them around to some extent at a tolerable level.

To catch up with the pace of rapidly increasing demand for highly committed youth to take up various skills and semi-skilled jobs available in technical and service oriented fields of different sectors, it is of utmost importance to target slow learners to groom them adequately imparting appropriate skills and talents effectively. To utilize optimally such neglected human resources to the maximum extent possible and to keep such least preferred youth in active mode to undertake any available positions, a wide angled approach is necessary. We need to have a proper understanding of the individual, social, psychological factors, which facilitates the acceleration of the slow learners' learning process to the maximum extent. It is held that the slow learners can be turned around effectively by:

(i). Identifying and screening slow learners at 9^{th} grade level by various ways to take care of their special needs

(ii). Ensuring that those slow learners' learning process can be accelerated by implementing suitable customized Integrated Intervention strategies.

(iii). Maintaining high motivational levels that will make the slow learners' willingness to apply their efforts and skills to fulfill the demands of the curriculum.

As there is a worldwide phenomenon of occurrence of some adverse effects due to the life styles of slow learners during the past two decades, there has been great interest in exploring the key psychosocial factors of such youth and the means by which their learning process can be accelerated to the maximum extent to turn them around, but there is very little systematic research in India on this important problem.

The present study attempts to contribute to the above mentioned strategies, as applicable to slow learners who are about to decide on their career aspirations at the age of 13-15. The results of such an experimental study will help to evolve certain guidelines to formulate a standardized educational intervention program aiming at improving the performance of slow learners. Ideally, a child with scholastic backwardness needs a detailed psychological and educational evaluation by a team consisting of educational psychologists, counselors, clinical psychologists, teachers and parents. Specialized care rendered at the initial stage will certainly facilitate to turn slow learners around as smart learners.

The present study has been designed and conducted objectively and the results have been viewed with optimism. It may provide useful policy guidelines for educational planners, headmasters/principals, teachers, parents, officials of the Directorate Of Education to help them target and turn around slow learners and to utilize their potential perfectly matching for various positions in society. The present research is a contribution to theoretical models and constructs which may stimulate further Behavioral Research in these areas. Such a study may

also go a long away in establishing the identity or uniqueness of our special category of youths; slow learners, who would have, in due course of time, a wonderful chance to revive their skills and talents to contribute to the society.

Among the various potential determinants of academic achievement of slow learners, the exploration of key factors such as self-efficacy, self perception, socio-emotional adjustment, temperament and intrinsic motivation will be of much help to enhance the driving forces to turn slow learners around as smart learners. Based on those key psychological and social determinant factors, suitable comprehensive guidelines can be prepared addressing the specific needs of slow learners.

Objectives of the study

i) To determine whether the comprehensive Integrated Intervention strategy targeted at the slow learners facilitate to have a significant gain in their academic performance.

ii) To determine whether the comprehensive Integrated Intervention targeted at slow learners facilitate to have a significant change in the psychological characteristics of slow learners such as self-perception, self-efficacy, temperament, socio-emotional adjustment and intrinsic motivation.

iii) To arrive at an empirical based profile of slow learners before and after the Integrated Intervention.

iv) To test whether the key psychological factors have a significant association with the academic performance among slow learners.

CHAPTER II

REVIEW OF LITERATURE

As discussed in the previous chapter, the empirical findings on the gloomy picture of academic performance of slow learners, though in their infancy level, suggested various definitions and frameworks in explaining the causal factors responsible for the slow learning process. However, integrating these entire findings make the concept delightfully more complex. Over the last two decades, the concept has received much attention in the areas of academic achievement/motivation levels among the secondary school students. In this Chapter, a wide array of definitions and frameworks in connection with the concept of slow learners' academic performance is offered.

The literature is presented in eleven sections, each attempting to highlight a reasonable level of comprehensive survey of pertinent literature.

Section I: presents the research findings on the academic performance and academic achievement levels of slow learners.

Section II: deals with effects of different types of instructional intervention program on slow learners:

Section III: discusses the significance of cognitive based intervention using graphic organizers and its effect on improving academic performance

Section IV highlights the importance of mindfulness meditation, mnemonics for memory improvement among slow learners

Section V: views the importance of academic self-efficacy levels and its effect on academic performance among school students.

Section VI: presents the relations between self-perception and academic performance among school students

Section VII: deals with the socio-emotional adjustment and its relationship with academic performance among school students.

Section VIII: covers studies on the relationship of temperamental levels to the academic performance of school students

Section IX: covers relevant studies pertaining to intrinsic motivation and academic performance among school students

Section X: outlines the major lacunae in research on accelerating slow learners' academic performance

Section XI: lists some of the major research questions to be investigated in thisStudy.

Section I: Academic Performance and Academic Achievement Levels of Slow Learners

Identification of slow learners or borderline intelligence first usually occurs during the school years. Acquisition of basic academic skills is the first noticeable difficulty among slow learning children compared to social interactions and other activities (Fuchs et al., 2000). As slow learners have lower academic achievement and often fail to meet standard competency measures, they are often retained (Shaw, 2010) Grade retention, even though followed by some educators as a solution to slow learners' problems, it usually has negative consequences to students. Grade retention seldom solves the problems of slow learners. Retained students score significantly lower on

assessments of academic achievement, reading, math, and social studies when compared to students who were promoted. Retention is often associated with increased behavioral problems, poor attitude towards school, attendance problems, low self esteem, low social skills and poor social adjustment (Jimmerson, 2001).

Clark (2002) reported that children learn more quickly when instruction is made relevant. The brain changes physically and chemically when challenged, without which, neurons cease to fire and the brain does not increase in capacity. There are a number of risk factors associated with their below average intellectual functioning.

When slow learners are required to perform a task requiring higher mental process problems, they fail to accomplish the task, mainly due to deficits in abstract thinking, organizational skills, and generalization of information, which creates hurdles in their academic success (Balado, 2003).

Kaznowski (2004) compared the school performance of a sample of slow learners who qualified for special education as learning disabled with another sample of slow learners who did not qualify for special education. The study intended to determine which group of slow learners was more successful in school in order to find out whether special education or regular education was beneficial for the slow learners. Findings suggested that neither group of slow learners was successful in school as both the group of slow learners was doing remarkably poor. Cooter and Cooter (2004) expressed their concern that as slow learners are placed in the regular classroom and expected to perform at a level equivalent to the other average and above average students in the classroom, they struggle in their academic settings, which can lead to negative consequences including limited academic progress and lower self-concept.

Shaw and others (2005) reported that the following methods; such as curriculum and instruction techniques that are concrete and relevant as much as possible, encouraging skill transfer and generalization into every activity, increasing academic learning time and prevention of disciplinary programs can improve slow learners' learning process.

Slow learners have inadequate coping skills when faced with personal crises and they require additional support to be successful (Shaw, 2005). A student's inability to keep pace with the academic demands can lead to feelings of inadequacy, performance anxiety, depleted motivation and behavioral maladjustment (Levine & Barringer, 2008). Karande and others (2008) documented the clinical profile and academic history of children with borderline intellectual functioning or slow learners as follows: (i) struggling to cope up with the academic demands of the regular classroom, (ii) need to be identified at an early age and their parents need for counseling to understand their academic abilities, (iii) difficulty in writing (iv) poor performance in all subjects and difficulty in mathematics and (v) reluctant to consider the option of special education.

To ensure slow learners' success in schools, their rate of learning needs to be accommodated with specifically designed interventions matching their ability level (Shaw, 2008). The slow learners' low academic functioning has consequences to themselves, the school and the society as a whole. Students with borderline intellectual functioning require more practice opportunities when compared with students of average ability (Shaw, 2010).

Yasin and Dzulkifli (2009) observed that there exists a significant difference between high and low achieving students with respect to depression, anxiety, and stress experiences. Low achieving students are reported to have higher level of psychological problems comparing to high achieving students. Fernell and Ek (2010) reported that

borderline intellectual functioning students seldom get attention, therefore schools and society at large should adapt educational settings to cater to the needs of such students.

When slow learners begin school, they seldom lack in academic motivation. However, as they get older, increasing demands of cognitive skills in higher grades may lead to failures (Shaw, 2010). Lower academic achievement often results in grade retention and special education placement (Shaw, 2010).

Shaw (2010) noted that inspite of having low intelligence and low academic performance; slow learners usually do not qualify for special education meant for either cognitive or learning disabilities. They perform at a higher level when information is presented in a concrete fashion. They have problems in understanding abstract concepts. They have difficulty in transferring or generalizing skills, knowledge, and strategies. They have trouble in cognitively organizing new material and assimilating new information into previously acquired information. They usually have deficits in academic motivation. They suffer from poor self-concept and can develop emotional and behavioral problems. They have a high risk of dropping out. Mami and Arayesh (2010) reported that there is a significant relationship between slow learners' educational status and behavioral disorders.

An important limitation of training programs that are organized outside the school is that the academic improvement could not be replicated or sustained at school. To be replicable and sustainable, individualized training programs should be integrated with mainstream education (Krishnakumar et al., 2011). Chauhdary and Hussain (2012) explored the attitude of teachers towards slow learners' academic achievement and reported that slow learners need an interactive teaching methodology and the curriculum

content which should meet their academic needs and further, they highlighted that the teachers' positive attitude towards slow learners made them active.

Section II: Effects of Different Types of Instructional Intervention Program on Slow Learners

Multimodal training was found to be effective for teaching mathematical fractions to secondary school slow learners (Davies & Williams, 1972). Two studies investigated whether effectiveness of methods of instructing individuals to organize their recall will differentially facilitate the performance of fast and slow learners. In the first experiment, instructions to use alphabetic organization facilitated the performance of both ability groups to about the same extent. In the second experiment, instructions to use categorical organization in learning resulted in a substantial facilitation of performance for slow learners and a slight decrement in performance for fast learners (Shuell, 1983).

Guat and Teh (1987) examined the effects of providing written instructional objectives prior to instruction among secondary school children. The use of instructional objectives as an instructional strategy showed to enhance learning skills for less abled secondary school pupils. Schema based instruction improved to a considerable level the problem solving skills of students who are at risk (Jitendra et al, 1998). Schema based instruction was found to be effective with a heterogeneous group of students comprising of high, average and low achieving students (Jitendra et. al., 2007, Griffin & Jitendra, 2009).

Shaw et al. (2005) found that developing charter schools exclusively to provide curriculum modifications based on research about slow learners, individualizing educational courses, conducting frequent assessments, and parental involvement increases slow learner performance.

Krishnakumar and others (2006) indicated that providing resource room as a part of the normal school and offering Individualized Education Program (IEP) can increase academic performance of slow learners significantly. Wettasinghe & Hassan (2007) conducted a study focusing on the impact of Information and Communication Technology (ICT) on teaching and methodologies embraced by teachers working with slow learners to explore the workable teaching models or processes that can maximize slow learners' learning. The research indicated that all teachers were using ICT actively with their students as a support learning tool alongside the main curriculum. Technology can offer the slow learner an ability to move at his or her own pace. Garad (2010) also found that ICT can be an effective teaching tool to teach science subjects to slow learners.

Fenning et al. (2007) examined the parenting styles among families of children with borderline intelligence in comparison to families of typically developing children and reported that children with borderline intelligence are not more behaviorally problematic than other children; however, their mothers perceive more externalizing symptoms than mothers of typically developing children. Mothers' explanatory models are important for the slow learning child's difficulties. Children with borderline intelligence are at risk for poor parenting. Borderline intellectual functioning with unfavorable socio-economic conditions could increase the individual's vulnerability to psychopathology and compromise their quality of life (Fajardo et al., 2008).

Levine & Barringer (2008) reported that a student's inability to keep pace with the demands of the classroom can produce feelings of inadequacy, performance anxiety, depleted motivation, and even behavioral maladjustment. Moreover, they are unable to

maintain pace in reading, writing, mathematics, and other specific subject areas. Recent educational trends like the use of Response to Intervention (RTI) models and the implementation of inclusive education have increased awareness and may serve as a catalyst for improving the education levels of students with borderline intellectual functioning. Effective instructional practices can build academic resilience skills to mitigate the often ignored risk factor of slow learners (Shaw, 2008).

Pujar&Gaonkar (2008) reported that instructional intervention strategies such as science models, charts, picture books, individual instruction, peer tutoring etc. facilitated effectiveness levels in teaching science among slow learners. An intervention study by Malik (2009) revealed that after intervention the experimental group performed better in all the activities of verbal, perceptual performance, quantitative and memory aspects of mental abilities resulting in a marked improvement in the mental abilities of slow learners. An intervention based study by Sangeeta and Duhan (2009) showed that mental abilities particularly pertaining to perceptual performance, verbal aspects and memory levels of slow learners' have improved after intervention.

Wilkins & Dawne (2010) observed that teachers who were successful in working with slow learners have skills to address students' cognitive and motivational needs. School teams that had maintained an interactive communication process with slow learners were able to develop interventions through a collaborative process. Further resource room training as a part of regular schools, where the training module was based on normal school curriculum, led to improvement in academic functioning of children who were slow learners (Krishnakumar et al, 2011).

Malik and others (2012) reported that academic interventions were highly effective in enhancing the developmental skills of slow learners; namely, adaptive, communication, and cognitive developmental skills. However, the intervention failed to show any positive effect on personal, social and motor skills.

Sugapriya and Ramachandran (2012) found that teaching through computer animated models was found to be an excellent strategy for teaching slow learners as it helped students to make most of the sensory organs involved and enhances the power of understanding concepts. It also increases the ability for self-activity mainly due to enhanced visual memory and almost all the sensory organs relating to the learning process.

Section III: Significance of Cognitive based Interventions using Graphic Organizers and its Effect on Improving Academic Performance

A graphic organizer is a visual and graphic display that depicts the relationships among facts, terms, and or ideas within a learning task (Hudson et al., 1993). Graphic organizers are also sometimes referred to as knowledge maps, concept maps, story maps, cognitive organizers, advance organizers, or concept diagrams. Graphic organizers come in many varieties and have been widely researched for their effectiveness in improving learning outcomes for students of varying abilities (Bos& Anders, 1992; Fisher & Schumaker, 1995; Griffin et al, 1995; Griffin &Tulbert, 1995; Jitendra et al, 1999; Guastello et al., 2000; Horton et al, 1990; DiCecco & Gleason, 2002; Baxendell, 2003).

Visually displaying key content ideas can benefit learners who have difficulty in organizing information (Fisher &Schumaker, 1995). Graphic organizers are commonly used in many classrooms. Studies have linked the use of graphic organizers with

enhanced student achievement, recall, reading, comprehension and application, retention and understanding of science or social studies content, and greater organization and structure within written compositions (Griffin et al., 1995; Griffin & Tulbert, 1995).

Herbst (1995) investigated the effect of using graphic organizers on ninth grade students' achievement in social studies and indicated that the graphic organizers as an effective learning method to enhance the achievement levels of the students. Robinson and Kiewra (1995) conducted experiments to understand types of text information that could make use of graphic organizers and outlines to help college students learn faster and reported that when given enough time students studying graphic organizers learned more hierarchical and coordinate relations. They were more successful in applying that knowledge and in writing integrated essays than those students who were studying only outlines or text alone.

Robinson and Skinner (1996) investigated how quickly and accurately students could locate information in different types of displays and observed that those students who searched graphic organizers found the answer to a pattern question more quickly than those who searched either outlines or text. Further, the findings suggested that the facilitative advantage of graphic organizers in locating information is rather attributable to computationally efficient indexing than fewer words. Robinson and others (1999) reported that spatial encoding tends to enhance due to the facilitative effects of graphic organizers and concept maps.

Elizabeth and others (1998) investigated whether the use of graphic organizer facilitate student’s comprehension of expository text and indicated that graphic organizers did improve the presentation of materials. Further, teachers felt that students

were more engaged in learning process when they participated in the completion of graphic organizers.

According to Tomlinson (1999), instruction can be differentiated in three basic areas that include content, process, or product. Differentiating through process focuses on modifying instructional methodologies. All learners taught in their preferred instructional mode allow students to grasp important concepts successfully. Differentiated instruction allows all students to be motivated and successful. Graphic organizers engage students and connect them with content and processes while working independently, with partners, in small groups, or as a whole class (Hew et al. 2004). Graphic organizers allow teachers to differentiate instruction for all students.

Guastello, Beasley and Sinatra (2000) investigated the effects of concept maps on science content comprehension and indicated that concept mapping tend to improve the comprehension levels of low achieving seventh graders by approximately six standard deviations over a traditional instructional technique. When students lack background information on a topic to aid comprehension, the active participation in constructing semantic or concept maps may help students form a cognitive schema to assimilate and relate the new topic.

Graphic organizers have been recommended as helpful instruments for teaching students to read (Pressley, 2000; Duke & Pearson, 2002). Graphic organizers are computationally more efficient than outlines or texts. Graphic organizers engage students in learning that results in encoding benefits (Katayama & Robinson, 2000). Based on the integrated view of learning from verbal and pictorial representations, Schnotz & Bannert (2003) analyzed the effects of different kinds of multiple external representations on the

structure of mental models and reported that the structure of graphics organizer did have an effect on the structure of the mental model. Task appropriate graphics may support learning while task inappropriate graphics may interfere with mental model construction.

McCoy et al. (2004) showed that students who were provided with the concept-based approach outperformed those in a more traditional classroom on a problem-solving task. Further, overt identification of concepts and their characteristics along with the deliberate use of graphic organizers reduce the reading comprehension demands placed on students with low abilities.

Snead and Snead (2004) examined the effects of concept mapping on the science achievement of middle grade science students. Ability levels were also examined as a possible effect on student achievement. The results suggested that lower ability students appear to have better success with concept mapping than higher ability students. Graphic organizers benefit all learners and enable them to be successful and motivated learners (McMackin & Witherell, 2005).

Hawk (2006) confirmed the view that graphic organizers require minimal training time with teachers, little investment in materials, no investment in equipment, and no change in the existing physical plan. Further, he suggested that such teaching procedures will produce greater cognitive learning while making it more appealing.

Hsieh and Cifuentes (2006) explored the effects of student generated visualization on paper and on computers as a study strategy for middle school science concept learning. The findings suggested that the more the time students expended, for modeling and practicing visually represented the interrelationships among concepts, the more the likelihood of students learning science concepts through visualization quickly. Middle

school students must be encouraged to engage in the diverse practice of learning how to construct their own concept representations while receiving expert or teacher's feedback regarding their appropriateness.

Suzuki (2006) reported that students were able to generate more general comprehension strategies while using graphic organizers in comparison with those students who learned with summaries. While examining the effectiveness of graphic organizers and matrices on the reading comprehension levels among special need students, Stenson (2006) reported that the intervention facilitated improvement of self efficacy and reading comprehension. The most effective graphic organizers that can be used to help children improve reading comprehension are those that relate to the instructional text or the unit that is being taught (Vaughn & Edmonds, 2006).

Willerman and Mac Harg (2006) examined whether an advanced organizer facilitate achievement level of eighth grade students in science subject and reported that the concept map provide classroom teachers with a meaningful and practical structured approach for using advanced organizers in the classroom. Ives (2007) studied the effects of graphic organizers on teaching concepts and procedures for solving systems of linear equations to secondary students with learning disabilities. The results suggested that graphic organizers tend to be a powerful tool to facilitate learning process among the students with learning disabilities.

Graphic organizers that directly represent the discourse structures of a text provided stronger evidence for the effectiveness of the technique and such organizers should be adopted in comprehension instruction. Generic forms of graphic representations that apply to regularly recurring text structures have to be used for better

comprehension (Jiang & Grabe, 2007). Williams et al. (2007) evaluated the effectiveness of an integrated comprehension program which highlights 'cause and effect' text structure, emphasizing clue words, generic questions, graphic organizers, and reported that intervention improved the learning process.

Based on empirical findings, Tan and others (2008) recommended that organizers must be assessed for their cognitive difficulty and introduced sequentially according to the cognitive ability of the students in the class. Each organizer needs to be modeled by a teacher or knowledgeable peer and used on a number of occasions to enable students to become familiar with its applications. For an organizer to become embedded, it needs to be used frequently over an extended time frame. A school-wide focus may be needed to improve student exposure to such strategies. Assessment tasks that warrant the use of specific organizers must be included in teaching programs.

Mirzaie and others (2008) explored the effect of concept map usage on developing meaningful learning in the chemistry textbook among second grade Iranian high school students and indicated that there is a significant difference between the scores of students who received concept mapping type and those who did not.

Shihusa and Keraro (2009) examined the effect of using advanced graphic organizers on students' motivation to learn biology and reported that students who have been taught using advanced graphic organizers had a higher level of motivation than those who were taught using conventional teaching methods.

Kwon & Cifuentes (2009) reported that collaboratively and individually constructed computer based concept maps had equally positive effects on comprehension test among the seventh grade middle school students. However, the students who

collaboratively constructed concept maps created significantly "higher quality concept maps" than those who used individually constructed concept maps, indicating deeper conceptual understanding. Zaini and others (2012) observed that graphic organizers can act as roadmap that guides learners over the new content to be learned facilitating considerable improvement in academic performance and motivational levels.

Section IV: Importance of Mindfulness Meditation, Mnemonics for Memory Improvement on Slow Learners

Mindfulness Meditation

Mindfulness in contemporary psychology has been adopted as an approach for increasing awareness and responding skillfully to mental processes that contribute to emotional distress and maladaptive behaviors (Bishop et al., 2004). Mindfulness can be defined as, bringing one's complete attention to the present experience on a moment to moment basis. Mindfulness meditation involves the development of awareness of present moment experience with a compassionate and nonjudgmental stance (Kabat-Zinn, 1990). It has been suggested that this process is associated with a perceptual shift (Carmody, 2009), in which one's thoughts and feelings are recognized as events occurring in the broader field of awareness.

It has been well established that high levels of stress in the academic environment cause attention and concentration deficits, difficulties in memorizing and problem solving, deficits in study skills, low productivity and academic performance. Mindfulness has been demonstrated to be effective in a number of medical, psychological and educational problems, hence it has been included in a wide variety of psychological

interventions and therapies as an integrated component in a treatment program composed of other techniques (Baer, 2003).

Barnes et al. (2003) reported that there is a considerable level of stress reduction due to the intervention through Transcendental Meditation Program on school rule infractions in adolescents and further the results showed that there is a change in absenteeism, school rule infractions and suspensions. The findings demonstrated that the Transcendental Meditation program conducted in school settings had a beneficial impact upon absenteeism, rule infractions, and suspension rates in African-American adolescents.

Mindfulness Meditation has been reported to produce positive effects on psychological well-being that extend beyond the time of meditating. Over the last three decades, mindfulness meditation practices have been increasingly incorporated into psychotherapeutic programs (Grossman et al., 2004).

Flook et al. (2010) evaluated a school based program of Mindful Awareness Practices (MAPs). The children in the experimental group who were less well regulated showed greater improvement in executive functioning when compared with the control group. Those children starting out with poor executive functioning who went through the training showed significant gains in behavioral regulation, meta-cognition, and overall global executive control. These results indicate a stronger effect of MAPs on children with executive function difficulties.

Franco et al. (2010) investigated the impact of a mindfulness program on the levels of academic performance, self-concept and anxiety, of a group of first year students at secondary school and reported that there is a significant difference in favor of the experimental group in all the variables analyzed. Those who underwent the intervention

showed an increase in academic performance as well as improvements in all the self-concept dimensions, and a significant decrease in anxiety states and traits.

Schonert-Reichl and Lawlor (2010) evaluated the effectiveness of a Mindfulness Education program among pre-adolescent and early adolescent students' and reported that those who participated in the ME program showed increase in optimism and self-concept. Similarly, there is a significant improvement on dimensions of teacher rated classroom social competent behaviors. Pre-Adolescent students demonstrated more positive benefits in comparison with early adolescents. Mindfulness based interventions have established efficacy in reducing symptoms of a number of disorders, including anxiety, depression, substance abuse, eating disorders and chronic pain as well as improving well-being and quality of life (Hölzel et al., 2011).

Mnemonics for Memory Improvement

Memory techniques are often called mnemonics or mnemonic techniques and several of them dates back to thousands of years (Yates, 1966). Mnemonics are considered to be cognitive strategies (Brown, H. D., 2007)

Mnemonic strategies are systematic procedures for enhancing memory. Their use is in developing better ways to encode information so that it will be much easier to remember. Research has demonstrated that the ways in which an individual encodes information facilitates better recalling. The particular task in developing mnemonic strategies is to find a way which relates new information to information students already have in long term memory (Mastropieri & Scruggs, 1998).

Mnemonic strategies do not represent a philosophy of education, but they have been proven to be extremely effective in helping people remember things (Bulgren et al., 1994). The focus of mnemonic strategies is so specific that they are intended to be used to enhance the recall of the components of any lesson for which memory is needed.

It is important to consider that mnemonic strategies as memory strategies and not as comprehension strategies. Students who are trained mnemonically also perform better on comprehension tests of that content (Mastropieri, Scruggs, & Fulk, 1990).

Forgetting occurs because information in the working memory was not transferred to long term memory (Slavin, 1997). It also can occur because individuals lose their ability to recall information from long-term memory. Several key factors that can make it difficult to recall important information are failure to store, failure to retrieve, time decay, interference/inhibition, primacy and recency effects, insufficient practice, and exceptionality (Banikowski, 1999).

The limitations of working memory can be partially overcome by chunking and automaticity. Chunking requires less working memory space than the individual items of information. . As automaticity develops, the time and effort to perform tasks is dramatically reduced (Eggen and Kauchak, 1997). Automaticity can be developed through practice. Chunking is the process of combining separate items into large, meaningful units. Automaticity refers to mental operations that can be performed with little awareness or conscious effort (Banikowski, 1999).

Mnemonic strategies are used in many areas. Teachers use these strategies when they want students to remember important information. These techniques has been widely

applied in academic settings for the teaching of English, Science, History, Geography, Social Studies, etc. (Mastropieri & Scruggs, 1991). Scruggs and Mastropieri (1992) have found that mnemonic strategies can be used to enhance science learning particularly for the elements that require recall.

When comprehension enhancement is warranted, it is important to use specific comprehension strategies, such as content elaboration, prior knowledge activation, manipulation, coaching and questioning, or prediction and verification (Mastropieri & Scruggs, 1997). For students to succeed in school, there are many strategies a student should engage in. Remembering content information is only a part of the exercise. However, when there is academic content to be remembered, mnemonic strategies may be an important instructional component (Mastropieri & Scruggs, 1998).

Kleinheksel and Summy (2003) opined that mnemonic strategies can positively affect students with emotional and behavioral problems as these children receive instruction in general inclusive classrooms. Mnemonics techniques include techniques such as acronyms, the method of loci, the keyword, acrostics and the peg methods. Five reasons for mnemonic techniques being effective are i) meaningfulness, ii) organization, iii) association, iv) visualization, and v) attention (Higbee, 1988). Association and visualization play especially large roles in mnemonic techniques.

Richmond et al. (2008) investigated whether students could transfer use of a mnemonic under both specific and general transfer conditions. Eighth grade students were randomly assigned to one of four conditions namely method of loci, peg methods, keyword or free study. Results indicated that those students who used the keyword mnemonic could transfer the use of a mnemonic under specific transfer and general

transfer conditions. They suggested that teaching the keyword mnemonic to students may increase their repertoire of memory strategies to enhance academic performance.

Section V: Importance of Academic Self-Efficacy levels and its Effect on Academic Performance among School Students.

Self-efficacy is defined as "the conviction that one can successfully execute the behavior required to produce the outcomes" (Bandura, 1977) (p. 79). Experimental studies have shown that teaching low achieving students to set proximal goals enhances their sense of cognitive efficacy and their academic achievement (Bandura & Schunk, 1981; Schunk, 1983). Task accomplishment and mastery experiences have also been found to contribute to higher levels of self-esteem and self-efficacy in children. Feelings of self-esteem and self-efficacy may enable them to feel prepared when they enter a novel situation by virtue of their perceived competence and confidence. The role of mastery in promoting feelings of self-esteem and self-efficacy is therefore crucial (Masten et al., 1990). In a meta-analysis conducted by Multon and others (1991), a number of factors seemed to influence the extent of the relationship between self-efficacy and academic performance.

According to Bandura (1993) students with high academic self-efficacy increase their efforts in cases of failure to achieve their set goals. Self-efficacy affects achievement directly and indirectly through its influence on goals (Zimmerman & Bandura, 1994). Self-efficacy is enhanced when students perceive that they are performing well or becoming more skillful. Lack of success or slow progress will not necessarily lower self-efficacy, if the learner believes that heor she can perform better by expending more efforts or using more effective strategies (Schunk, 1995).

Schunk (1995) opines that it is not uncommon for children to feel highly efficacious about accomplishing difficult tasks, even after being provided with feedback indicating low performance. The incongruence between children's self-efficacy and their actual performance is due to lack of task familiarity and not fully understanding the requirements to execute a task successfully. Hence, instructional interventions that convey clear information about children's skills and progress raises the link between efficacy-performance correspondences.

Declination of Self-efficacy beliefs as students advance through school has been attributed to factors like greater competition, more norms referenced grading, less teacher attention to individual student progress, and stresses associated with school transitions. These and other school practices can weaken academic self-efficacy, especially among those students who are less academically prepared to cope with increasingly challenging academic tasks (Pintrich&Schunk, 1996). Student's beliefs about their efficacy to manage academic task demands influence them emotionallyby decreasing their stress and anxiety (Bandura, 1997).

The best predictors of specific academic performances will be self-efficacy beliefs about those specific academic problems (Pajares, 1996). Bandura (1997) also stated that the relationship between self-efficacy beliefs and performance is likely to be stronger when they are both measured in close temporal proximity.

According to Bandura (1997) self-efficacious students participate more readily, work harder, persist longer, and have fewer adverse emotional reactions when they encounter difficulties comparing to students who doubt their capabilities. Self-efficacy beliefs influence key indices of academic motivation such as choice of activities, level of

effort, persistence, and emotional reactions. Self-efficacy has proven to be responsive to improvements in students' methods of learning and predictive of achievement outcomes (Zimmerman, 2000). Self-efficacy is a personal belief of competency, rather than one's feelings or emotional reaction to an actual accomplishment (Nelson & Conner, 2008).

Processes beneficial for developing self-efficacy include proximal and specific learning goals, strategy instruction, social models, performance feedback, and performance contingent rewards. These processes enhance the students' awareness levels of their capabilities and progress in learning which ultimately motivate students to continue to perform well. Learning goals that are specific, short term and viewed as challenging but attainable further enhance students' self-efficacy better than those goals that are general, long term, and not viewed as attainable (Schunk&Pajares, 2001).

Self-efficacy beliefs influence key indices of academic motivation such as choice of activities, level of effort, persistence, and emotional reactions (Zimmerman, 2000). Self efficacy beliefs provide students with a "sense of agency to motivate their learning through use of such self-regulatory processes as goal setting, self-monitoring, self-evaluation, and strategy use" (Zimmerman, 2000, p. 87).

Marat (2005) assessed diverse students' self-efficacy in mathematics. Having assessed its relationship with achievement, it is reported that the role of self-efficacy in mathematics curriculum; along with self-efficacy for self-regulated learning, resource management strategies, self-assertiveness, leisure time skills, and meeting others' expectations emerge as major variables impacting academic achievement in mathematics. However, the level of perceived self-efficacy in mathematics did not reflect among the students' achievement in mathematics.

Zajacova and others (2005) investigated the joint effects of academic self-efficacy and stress on the academic performance and revealed that academic self-efficacy is a more robust and consistent predictor of academic success than stress. Mahyuddin and others (2006) showed that there is a positive correlation between self efficacy and academic performance in English language among higher secondary school students.

Marat (2007) examined students' and teachers' efficacy, in the use of learning strategies in mathematics and its relationship with achievement. It is reported that there is a illusory efficacy in a sizeable number of student participants who did not achieve, highlighting the importance of true efficacy and learning strategies to reduce disparities and enhance achievement.

Liew and others (2008) studied the linkages between self-regulatory processes and achievement across three years in first grade children who were identified as low achieving in literacy. At third grade, the academic self-efficacy beliefs were positively correlated with reading and mathematics. Hence, early efforts to promote children's self-regulatory skills would enhance future academic self-beliefs and achievement, particularly in literacy. Self efficacy is rather a personal belief of competency than one's feeling or emotional reaction to an actual accomplishment (Nelson & Conner, 2008)

Liem and others (2008) examined the role of self-efficacy, task value, and achievement goals with respect to students' learning strategies, task disengagement, peer relationship, and english achievement outcome, and observed that mastery and performance approach goals were both positive predictors of deep learning and peer relationship. Self efficacy predicted all the three types of achievement goals. Mastery goals were negatively associated with task disengagement and positively associated with

surface learning. Performance avoidance goals were a positive predictor of surface learning and task disengagement but a negative predictor of peer relationship. Further, the findings suggested that performance approach goals can generate adaptive outcomes.

Ferla and others (2009) investigated the relationships between academic self-concept and academic self-efficacy and their ability to predict academic achievement and reported that academic self-efficacy is a good direct predictor for academic achievement. In experimental studies that attempted to manipulate self-efficacy beliefs through guided mastery, modeling, or feedback, stronger relationship was observed. Relationships were stronger for samples of low achieving students than those students achieving at expected levels (Rosen et al., 2010). Gulati (2011) studied the impact of self-efficacy on academic performance of adolescents of science and non science streams, and reported that there is a positive impact of self-efficacy on academic performance of students in both science and non science streams.

Section VI: Relationship between Self-perception and Academic Performance among School Students

Self-perception is an individual's awareness of his or her own identity. Harter (1982) divides self-perception and actual competence into four smaller categories namely academic, social, emotional, and behavioral perceptions. Young children generally lack the ability to formulate accurate self-perception (Marsh, Craven & Debus, 1991).

Most children after eight years of age conceptualize themselves across several domains, which include attractiveness, scholastic ability, social status, behavioral conduct, and athleticism (Harter, 1985). Self-perception at school is affected by opinions of teachers, peers and significant others. Children perceive themselves across multiple

domains including: cognitive competence, social acceptance, physical competence, and global self-worth. As they progress through their school grades other domains also emerge affecting student self perception. As children enter middle school, they tend to demonstrate declines in their self worth (Harter, 1990). These declines have been associated with the changes they experience cognitively, physically, socially, and emotionally (Leahy & Shirk, 1985). The decline in self worth is perhaps due to maturity in assessing and making more realistic social comparisons. Self-perception plays a mediating role between motivation and academic performance (Harter et al., 1998). Some individuals' self-perception is based on external factors, such as the attitudes of people around them, others rely on internal factors such as how much effort or motivation they expend (Harter, 1990). Thus, for some, self esteem may change with their environment and others may have self-perception consistent with their values, successes and failures (Harter, 2006).

Factors pertinent to children's self-perception may include: the weight that the child places on academic success (Harter et al., 1998), the extent to which he feels worthy of himself, which may involve comparing himself with his peers (Harter, 2006), the extent to which he experiences stigmatization or social acceptance (Wiener & Schneider, 2002). Each of the above factors contributes to how students develop perception of self.

Enhancing the self-perception of students with special needs who are included in regular public secondary schools has a positive impact on their academic achievement as well as on their personal and social development. Factors that appear to influence the self perception of students with special needs include the following: degree of disability, age

of onset of disability, acceptance of the disability by parents, type of schooling in regular school or special school, and labeling (Westling, 2000).

Chapman and colleagues (2000) showed that a negative self-concept can remain intact throughout early schooling. At the completion of their first year of schooling and again during the middle of their third year of schooling, children with negative academic self-concept read lower-level books in class and performed at lower levels on several reading measures than did children with positive academic self-concept.

According to the skill development model of academic self-concept and academic achievement, academic self-concept is a consequence of prior academic achievement. Academic self-concept, be it global or in a specific academic domain, develops as a student gets feedback on academic work (Guay et al., 2003).

In the school setting, where academic success is of paramount importance, children are often evaluated by their peers, based on their academic success. Those struggling academically fall victim to negative feedback from their peers, teachers and significant others and are less socially accepted (Flook et al., 2005). This, in turn, may increase their negative self-perception, thereby impeding their academic success (Flook et al., 2005).Harter (2006) hypothesized that one risk factor for the decline in older children's self esteem is due to parents' increasing expectations of their children's competence, resulting in the parents' withholding of unconditional approval. Parents raise their expectations because of the social pressure of having academically successful children.

Gonida and colleagues (2006) found the significance of school achievement in formulating subsequent responses regarding self-concept which strengthen the evidence that school achievement is a major influencing factor of academic self-concept.

As children enter their school years, they begin to engage in social comparisons by comparing themselves with their peers, which facilitate children fostering a sense of individual strengths and weaknesses, leading to foster a sense of worth (Harter, 2006). As children age, their self-perceptions become more differentiated and multidimensional (Harter, 2006). Children's ranking in the domains to which they ascribe the greatest value has the most pronounced impact on their global self-worth (Harter, 2006). Approval and support from significant others is influential in the development of one's self reported self- worth.

Stringer and Heath (2008) studied one hundred and fifty-five students' reading, arithmetic, and academic self-perception in relation to academic achievement. The children's self-perception of academic competence accounted for significant variance in academic performance. Academic self-perception at the beginning of the study and changes in self perception over a period of time did not predict changes in academic performance. They posit that self-perception of academic competence cannot play a direct causal role in academic achievement.

Mucherah and others (2010) examined the relationship between self-concept and students' academic performance in Mathematics and English for high school students in Kenya and reported that there are differences in gender and grade in academic performance and most aspects of self-concept. On the measures of self perception, boys rated themselves significantly higher than girls except for physical appearance.

Section VII: Nature of Socio-Emotional Adjustment and its relationship with Academic Performance among School Students.

Having behavior problems in early childhood is associated with low peer acceptance, maladaptive teacher-child relationships, and anti-social disorders and delinquency in adolescence (Ladd & Burgess, 1999; Brody et al., 2003). Pro-social engagement and self regulation are closely linked with emotional competence and with social problem-solving skills (Crick & Dodge, 1994). Early childhood behavior that is more internalizing in nature, such as fearfulness or behavioral inhibition, is associated with the development of serious anxiety problems in middle childhood and later (Tincas et al., 2006).

Positive associations have been reported between a lack of peer acceptance, and parent and child descriptions of internalizing symptoms. This association holds even when composite scores based on combined parent, child, and teacher ratings of internalizing symptoms are used (Burks et al., 1995). There is a growing body of research that suggests that children's capacities to sustain attention and to regulate emotions and behavior contribute to school success by supporting effective approaches to learning (Ladd & Profilet, 1996).

Wentzel (1993) reported that pro-social classroom behavior is significantly related to better academic outcomes in a causal relationship among sixth and seventh grade students. Wentzel and Caldwell, (1997) found that healthy peer relationships predict students' grades both concurrently and over time. Roeser et al. (1998) summarized studies on the relationship between children's emotional distress and achievement behavior and found that students with frequent feelings of internalized distress like sadness, anxiety, and depression showed diminished academic functioning

and those with externalized distress like anger, frustration, and fear exhibit school difficulties including learning delays and poor achievement.

Specific social competencies which are linked empirically with school success include the following: pro-social behaviors that foster positive peer and teacher relationships and self-regulation skills that support the inhibitory control of aggression (Coolahan et al., 2000). Effective learning engagement includes the capacity to participate cooperatively in classroom activities, and to control attention and sustain task involvement (Ladd et al., 2000). The socio-emotional and self-regulation competencies that support effective learning engagement are important for school success (Blair, 2002). Training teachers to provide a warm, supportive and non-punitive classroom study climate has positive effects on children's pro-social behavior and reduced aggression (Webster-Stratton et al., 2004).

Granot and Mayseless (2001) examined the association between security of attachment and adaptive functioning at school in middle childhood and reported that secure children showed better adjustment to school as reported in teachers' reports of scholastic, emotional, social, and behavioral adjustment, as well as in peer rated social status. Avoidant and disorganized children showed the poorest adjustment. The findings of the study supported the association between attachment security and children's adjustment to school in middle childhood. The study showed that secure children demonstrated better adjustment to the school system and the intellectual, social, emotional, and behavioral demands than insecure children.

Goossens and others (2002) examined first and second grade children's judgments of aggressive, withdrawn, and pro-social behavior by means of fictional scenarios. In the

first study they compared judgments of aggressive children with those of withdrawn children. Aggressive children were perceived as more responsible for their behavior and elicited more feelings of anger, while withdrawn children were more likely to be chosen as a friend and elicited more feelings of pity. In the second study they compared judgments of aggressive, withdrawn, and pro-social children with each other and reported that aggressive children elicited the strong feelings of anger, while withdrawn children elicited the strongest feelings of pity while the pro-social children were the most adaptive among the three groups.

Gumora and Arsenio (2002) evaluated the relationship between emotional dispositions and academic performance among middle school students and found that emotional regulation significantly contributed to grade-point averages of students, over and above the contribution made by cognition-related abilities. Research indicated that well-planned and well-implemented social and emotional programming can positively affect academic outcomes (Greenberg et al., 2003).

Al-Yagon and Mikulincer (2004) examined the role of attachment based factors such as children's attachment style, children's appraisal of teacher as a secure base, and teacher's feelings of closeness to child in explaining differences in Israeli children's socio-emotional adjustment and academic functioning and reported that attachment based factors had an impact on socio-emotional and academic adjustment. Teacher's stronger feelings of closeness to a child contribute to that child's higher sense of coherence and academic functioning. A child's perception of a teacher as a source of secure base, as more accessible and less rejecting figure, also contributes to his or her higher sense of coherence, lower feelings of loneliness, and higher academic functioning. Secure

attachment patterns in close relationships with teachers have beneficial effects on children's socio-emotional and academic adjustment.

A longitudinal study by Fleming et al. (2005) showed that interventions that strengthen students' social, emotional, and decision-making skills had positive impact on their academic achievement. Children who can organize their behavior in a manner consistent with classroom expectations and engage with persistence on learning tasks exhibit higher levels of achievement in school (McClelland et al., 2006). Socialization and educational experiences also appear to play an important role (Blair, 2006). As a result, interventions that foster socio- emotional learning and improve behavioral self-regulation can strengthen cognitive development (Riggs et al., 2006).

Examination of child temperament and early adult-child relationships is of vital importance to children's socio-emotional development, school success, and the prevention of future problem behaviors. Children who are not well accepted by their peer group are likely to later display more externalizing symptoms (Ladd, 2006). In a meta-analysis of six longitudinal studies, Duncan et al. (2007) found that attention related skills are the only aspect of socio-emotional development at school entry that related to later academic outcomes.

Myers (2007) examined the interaction of parenting style, child temperament, and the quality of the teacher-child relationship in predicting low-income children's school adjustment and reported that negative reactivity, parental hostility, and teacher-child conflict are related to children's socio-emotional and academic difficulties. However, effortful control and low teacher-child conflict moderate the effects of these negative factors on low income pre-schoolers' adjustment in school. Reynolds et al. (2007) found that there is a significant relationship between early childhood program providing

educational and family-support services for low-income children and higher rates of school completion, higher educational attainment and lower rates convictions and depressive symptoms.

As children enter school they are faced with heightened demands for well regulated and goal directed activity, including sustained behavioral control, compliance with rules, and the capacity to initiate and sustain positive interpersonal relationships with teachers and peers (Campbell & von Stauffenberg, 2008). Children growing up in poverty are particularly likely to enter school with significant deficits in socio-emotional readiness.

Klima & Repetti (2008) studied children from fourth through sixth grades, to test whether problems in children's peer relations preceded psychological maladjustment and whether adjustment difficulties paved the way for poor social relationships. They reported that less peer acceptance predicted more internalizing and externalizing symptoms and less global self-worth. However, neither psychological adjustment predict future peer acceptance nor the lack of a supportive close friendship predict worse psychological functioning.

A longitudinal study by Neece and Baker (2008) examined the contribution of child social skills to maternal parenting stress across middle childhood, as well as the direction of the relationship between child social skills and parenting stress. They reported that child social skills accounted for variance in maternal parenting stress above and beyond child intellectual status and child behavior problems. As children matured, the investigators observed an interaction between children's social skills and behavior problems in predicting parenting stress. They also observed that early parenting stress

contributed to later social skills difficulties for children. They focus on highlighting parenting stress as a key target for intervention.

Jiaet al. (2009) and others explored students' perceptions of three dimensions of school climate; namely teacher-to-student support, student-to-student support, and opportunities for autonomy in the classroom, the associations between these dimensions and adolescent psychological and academic adjustment in China and the United States. It is reported that students in China perceived higher levels of teacher-to-student support, student-to-student support, and opportunities for autonomy in the classroom than students in the United States. It also stated that students' perceptions of teacher-to-student support and student-to-student support are positively associated with adolescents' self esteem and grade point average and is negatively associated with depressive symptoms for both Chinese and American adolescents. They posit school related factors, specifically student-to-student support, are more strongly associated with adjustment than family support for both Chinese and American adolescents.

Student-teacher relationships of children with moderate to borderline intellectual disability and students with typical cognitive development were assessed by Blacher and others (2009) from child ages 6 to 8 years. They observed that student-teacher relationship is moderately stable for the typical development group, but less stable for the intellectual disability group. By each assessment, these relationships were poorer for children with intellectual disability. Child behavior problems consistently predicted more conflict, whereas social skills predicted more closeness. Early student-teacher relationships predicted subsequent changes in child behavior problems and social skills.

Among intellectually disabled students, student-teacher relationships are low for children in regular classes than in special classes, by the time they are eight years of age.

Gormley Jr. et al. (2009) assessed the effects of two early childhood education programs on socio-emotional outcomes, using teacher ratings of children's disobedience, aggression, attention seeking, apathy, timidity and attentiveness. Participation in the programs was associated with lower timidity ratings, attention-seeking behavior and apathy, and higher ratings on attentiveness. They posit that high quality pre-school programs can enhance socio-emotional development, particularly in areas of behavior that affect the child's attentiveness and engagement in learning.

Section VIII: Temperamental levels and Academic Performance among School Students

Temperament has been defined by Allport (1961) as an individual's nature including his susceptibilities to emotional stimulation, his customary strength and speed of response, the quality of his prevailing mood and all the peculiarities of fluctuation and intensity of mood. These are considered as dependent on constitutional make up and therefore largely hereditary in origin.

Thomas and Chess (1977), conceptualized temperament as the stylistic component of behavior; the *how* of behavior as differentiated from the *why* and *what* of behavior. The *why* refers to the motivation of an action and *what* refers to the ability to perform a task/ behavior. Most of the definitions of temperament has the following concepts in common; temperament (a) has a biological root, (b) appears early in life and can be identified in infancy (c) is characterized as behavioral tendencies rather than discrete behavioral acts (Goldsmith et al., 1987). The most frequently used method for

measuring temperament variables is through the parent report questionnaire, because of its ease of use and the low cost of implementing the measure (Rothbart& Mauro, 1990).

Certain temperament profiles have been identified as difficult temperaments which can predict adjustment problems and difficulties for the individual in later life (Thomas &Chess, 1977). Temperament traits such as hyper activity level, negative emotionality, and impulsivity create stressful situations for the child as well as the teacher; hence the child struggles and may not be able to meet the academic and social behaviors demands of the classroom. A child with an easy temperament tends to have low negative emotionality and normal activity levels, both of which allow him/her to meet teachers' expectations for being on-task and compliant with classroom rules (Guerin et al., 1994).

Temperament characteristics, such as high levels of task persistence, normal levels of activity, and low levels of inhibition, are significantly related to academic achievement and are predictive of later academic achievement (Bramlett et al., 2000). Early interventions that teach school adjustment skills are associated with a high level of academic achievement and school completion. Children at-risk are likely to enter school, lacking the needed abilities and skills to meet the school's demands and expectations for their academic and social behaviors (Blair, 2002; Nelson et al., 2004).The studies revealed that there is a discrepancy between school demands and student skills, particularly for at-risk students. Students risk the possibility of school maladjustment unless these deficits are identified and suitably addressed.

Luiselli et al. (2005) described the effects of a whole school model of positive behavior support system that emphasized i) improving instructional methods,

ii) formulating behavioral expectations iii) increasing classroom engagement iv) reinforcing positive performance and monitoring efficacy. The whole school intervention decreased discipline problems as measured by office referrals and school suspensions. The intervention was also effective in improving academic performance as measured by standardized tests of reading and mathematics.

Colom et al. (2007) examined to what extent both cognitive and personality measures like fluid intelligence, short-term memory, working memory, processing speed, controlled attention, and temperament difficulties predicts academic achievement and reported that a latent factor defined by fluid intelligence and memory span along with a latent factor defined by impulsiveness, sensation seeking, and lack of fear; and temperament variables, account for 60% of the variance in academic performance.

Loukas and Murphy (2007) examined the role of student perception of four aspects of school climate; namely friction, cohesion, competition among students, and satisfaction with classes as moderators of the relations between effortful control and subsequent conduct problems and depressive symptoms. It is reported that high levels of perceived friction predicted more subsequent conduct problems and depressive symptoms. Low levels of effortful control also increased the risk for subsequent conduct problems.

Oren and Jones (2009) examined the relationships between child temperament, teacher-child relationships, and teacher-child interactions in four preschool classrooms and reported that teachers' relationships and interactions with children are affected by child temperament. It also suggested the need to investigate the effects of teacher temperament on teacher-child relationships and teacher-child interaction. The study posits the importance of considering a match between teacher's temperament or

personality and child temperament while enrolling a child to a classroom and teacher's expectations of an ideal child, teacher age, and classroom structural quality.

Liew et al. (2010) investigated the contributions of children's inhibitory control and task accuracy and positive teacher-student relationships on reading and mathematics achievement at second grade and indicated that task accuracy served as a protective factor so that children with high task accuracy performed well academically despite not having positive teacher-student relationships. Positive teacher-student relationships served as a compensatory factor so that children with low task accuracy performed just as well as those with high task accuracy, if they were paired with a positive and supportive teacher. Their findings also indicated that the influence of positive teacher–student relationships on future achievement was most pronounced for students with low effortful control on tasks that require fine motor skills, accuracy, and attention-related skills.

Rudasill et al. (2010 a) examined the interplay of children's temperamental attention and activity when they were four and half years old and classroom emotional support as they relate to children's academic achievement in third grade. Findings indicated that children's attention and activity level were associated with children's third grade reading and mathematics achievement, and classroom emotional support was associated with children's third grade reading and mathematics achievement. The study highlighted the importance of understanding how children's temperament and classroom emotional support may work together to promote or inhibit children's academic achievement.

Rusdasill et al. (2010 b) examined the mediating role of student–teacher relationship quality (conflict and closeness) in grades 4, 5, and 6 on the relationship between

background characteristics, difficult temperament at age 4-and-half and risky behavior in 6th grade and reported that that students' family income, gender, receipt of special services, and more difficult temperament were associated with risky behavior. Students with more difficult temperaments were more likely to report risky behavior and to have conflict in their relationships with teachers.

Curby et al. (2011) examined the moderating role of first grade classroom quality on the relationship between children's difficult temperament as assessed in infancy and their academic and social outcomes in early elementary school first grade. The subjects of the study were rated by their mothers at 6 months of age on difficult temperament. The quality of first grade classroom environments were then observed and rated along three domains: emotional support, classroom organization, and instructional support. The findings showed that high quality classroom environment may mitigate the academic and social risks associated with having a difficult temperament.

Section IX: Intrinsic Motivation and Academic Performance of School Students

The concept of intrinsic motivation has its roots in White's (1959) competence or effectance motivation. Harter (1981) measured motivation levels of students from third grade through ninth grade and reported that a linear trend was observed in which motivational orientation was at first very intrinsic in third grade but became increasingly extrinsic with each grade level.

Intrinsically motivated behavior is derived from and satisfies innate psychological needs, including needs for competence and autonomy (Deci & Ryan, 1985; Kasser & Ryan, 1996). According to Deci (1980), perceptions of personal control as opposed to external control satisfy these needs, and constitute the fundamental feature

distinguishing intrinsically motivated behavior from extrinsically motivated behavior. Achievement behavior studies among children pointed out that children expended more effort, showed more interest and value when their motivation was more intrinsic (Ryan & Connell, 1989). Deci (1995) and Jensen (1998) found that students are intrinsically motivated if they have choices.

Intrinsic motivation, deriving from within the person or from the activity itself, positively affects behavior, performance, and well-being (Ryan & Deci, 2000). Intrinsically motivated individuals have been found to have more interest, excitement and confidence which are usually manifested as enhanced performance, persistence, creativity, heightened vitality and self-esteem (Ryan & Deci 2000).

Studies in education, also showed that intrinsic motivation which provides more autonomy was associated with more engagement (Connell & Wellborn, 1991), lower dropout (Vallerand & Bissonnette, 1992), and better performance (Miserandino, 1996).

Studies of achievement goal orientations have found a decrease in personal task goals and an increase in personal extrinsic goals during the transition to middle school (Maehr & Anderman, 1993). Studies investigating changes in motivation indicate a general trend toward extrinsic motivation as students move further into their education.

Based on a longitudinal study, Gottfried and others (2001) found that intrinsic motivation declined substantially for math and science but did not change for social studies. Learning environments should be free from the pressures of grades, rewards and control pointing to the fact that instructively motivated learning is preferred. In more controlled environment, students lose intrinsic motivation and self-esteem. Specifically

and purposefully learning material can enhance student's intrinsic motivation to learn and improve the quality of their learning (Yahaya, 2004).

Lepper and others (2005) examined the age differences in intrinsic and extrinsic motivation and the relationships of both types of motivation to academic outcomes. They showed that intrinsic motivation is found to be linearly decreasing to a significant extent from third grade through eighth grade and proved that it is positively correlated with children's grades at all grade levels. Extrinsic motivation did not show any difference across grade levels and negatively correlated with academic outcomes. No differences based on children's sex or ethnicity was found. They opined that lower levels of intrinsic motivation for older versus younger children not only seem to be losing their enjoyment of the learning process itself, but the extrinsic incentives and constraints that schools employ to keep students on track do not compensate for the declines in intrinsic motivation.

Otis and colleagues (2005) examined changes in intrinsic and extrinsic motivation of students from eighth, ninth and tenth grades during the transition from junior to senior high school as well as the impact of motivational changes on various educational consequences like dropout intentions, absenteeism, homework frequency, and educational aspirations. Their findings indicated that students' intrinsic motivation and extrinsic motivation decreased gradually from eighth to tenth grade. Students experiencing a decline in external regulation during the transitional year had low educational adjustment. Students experiencing a decline in intrinsic motivation and identified regulation during the year after the transition also had less educational adjustment.

Gilmore and Boulton-Lewis (2005) opined that it is risky to assume that poor academic motivation can be attributed to laziness. They suggested that such a

misinterpretation is highly significant because of its potentially damaging effects on academic performance and self-esteem which may subsequently lead to anxiety, behavior problems and social difficulties. Family conflict may occur as a result of unrealistic parental expectations, based on the mistaken belief that low achievement is related simply to lack of effort. Children's difficulties will continue to be unrecognized if they are attributed to laziness.

Hardre and others (2006) investigated the predictive relationships among student characteristics that influence motivation for learning and achievement in Taiwan and reported that individual differences or need for cognition predicted classroom perceptions and perceptions predicted motivation.

Grolnick and others (2007) examined the effects of an after school program and reported that students participating in the program improved in terms of learning goals, engagement in school and in science class and science grades, and decreased in performance goals indicating autonomous motivation.

Under controlled conditions or external contingencies like evaluation, the following aspects such as feelings of joy, enthusiasm, and interest are replaced by experiences of anxiety, boredom, or alienation. This creates the self-fulfilling prophecy, whereby students no longer are interested in what is being taught, and teachers must externally control students to make learning occur (Niemiec & Ryan, 2009).

Niemiec and Ryan (2009) explained Self-Determination Theory which posits distinct types of extrinsic motivation that vary in the degree to which they are experienced as autonomous. The least autonomous type of extrinsic motivation is external regulation, in which behaviors are enacted to obtain a reward or to avoid a punishment. Such behaviors are

poorly maintained, once the controlling contingencies are removed. The next type of extrinsic motivation is introjected regulation, whereby behaviors are enacted to satisfy internal contingencies, such as self-aggrandizement or the avoidance of self-derogation. A particular type of introjected regulation is ego involvement, which refers to one's self-esteem being contingent on one's performance. When ego is involved, a student feels internal pressure to learn so as to avoid shame or to feel worthy.

Students' feelings of competence can be supported by teachers through the introduction of learning activities that are optimally challenging and allowing students to test and to expand their academic capabilities (Niemiec and Ryan, 2009). Othman and Leng (2011) examined the relationship between self concept, intrinsic motivation and self-determination with academic achievement among students and showed that correlations between independent variables namely self concept, intrinsic motivation and self-determination of students and the dependent variable academic achievement were low. Specifically a weak and negative relationship between students' intrinsic motivation and their academic achievement was observed.

Wiest and others (2011) examined motivationally related variables among three types of high school students. In particular, students' perceptions of competence, control, parental autonomy support, teacher autonomy support, peer autonomy support, and academic coping were investigated. Their findings suggested that regular education students reported a higher level of academic anxiety though not dysfunctional than did special education and alternative education students; however, regular education students had the highest level of positive coping.

Section X: Lacunae in Research on Accelerating Slow Learners' Academic Performance

Despite the evidence of the undesirable effects of poor academic performance of slow learners, much of the research studies on academically struggling children have usually been focused on special education classification instead of aiming at the children who are experiencing difficulties in the classroom and children who are at the lower end of the normal variation. In recent times, there has been much emphasis on incorporating inclusive education system which advocates the implementation of appropriate instructional methods or teaching strategies addressing the specific needs of students who tend to have differential levels of abilities ranging from the low end of the spectrum to the higher end in the same class room. Hence, a paradigm shift in adapting a differential method of instruction covering cognitive based models for imparting education to the slow learner students is necessary.

Such shift of focus has to be moved from a teacher centered model to a learner centered model emphasizing the need for fostering the intrinsic motivational methods of learning to learn. The intrinsic motivational learning to learn paradigm should not only focus on teaching intellectual skills but also emphasizing emotional, social, and cognitive aspects (Claxton, 2004).

In order to remain as effective learners in their studies, slow learning students must put an effort in acquiring adequate background knowledge, a repertoire of learning strategies, and the ability to accurately assess learning demands and match their strategies to the task at hand. They also need to evaluate and adapt those strategies that they use and know how they learn best. Instructional strategies therefore must focus not only on stimulating the divergent thinking process to look at the problems in different

perspectives but also on enabling the students to overcome barriers during the learning process. The customized instructional strategies must rather facilitate enhancing the comprehension levels than merely recalling information leading to better performance. Hardly any systematic research has been carried out to test the effectiveness of such instructional strategies which are designed exclusively to enrich problem-solving skills of slow learners. . The strategy has to facilitate the slow learner students to feel efficacious and enable him/her to meet the learning demands.

The active problem focused strategy should not only facilitate the students' academic performance but also enable them to enhance their key psychological indices. There is a dearth of research studies investigating the characteristics of slow learners and the methods to overcome their learning deficiency leading to poor academic performance. (Shaw 1999). Further, the primary focus of many interventions that aim at mitigating underachieving student problems are academic performance oriented. Hence, a comprehensive Integrated Intervention has to be taken into consideration encompassing multiple perspectives in handling slow learners' academic problems. Since previous research evidence highlight the role of socio-emotional, temperamental, behavioral and academic issues associated with student adjustment, the focus of the Integrated Intervention apart from instructional modification must give much emphasis on parental involvement, teacher expectations, teacher support and more importantly student's self-belief that he himself can be an agent of change.

Section XI: Research Questions to be investigated in the Present Study

This research is intended to investigate select psychological factors which facilitate enhancing the academic performance of slow learners and to formulate an Integrated Intervention stimulating the learning process. In this connection, several questions have been raised and will be addressed by the present investigation. The following are pertinent research questions that arise based on the overview of the literature survey.

1. Can the academic performance of the slow learners be improved by adopting a suitable Integrated Intervention Program?
2. Do the slow learners gain a significant improvement in their self efficacy through this Integrated Intervention program?
3. Will the implementation of an Integrated Intervention program facilitate a change in the self-perception profile (scholastic competence, self esteem, social acceptance, and perception of parents support)?
4. Will there be any dramatic change in their socio-emotional adjustment and temperament levels in their day-to-day activities through this Integrated Intervention program?
5. Will the Integrated Intervention inculcate intrinsic motivation with regard to academic activities among slow learners?

CHAPTER III

METHODS

The comprehensive review of literature on different perspectives of turning around slow learners' academic achievement provided some insightful observations on the role of Integrated Intervention and its impact on eliciting academic interest in reading and understanding the concerned subject matter. Further, it also brought to light many unresolved research problems on its mode of applications among the slow learners. Based on the review of literature, several hypotheses were formulated and the research redesign was finalized to meet the key objectives of the study. The following sections deal with the key aspects of research design and methods of data collection.

Section I lists the specific hypotheses to be tested in the proposed study.

Section II presents the experimental research design outlining the nature of the Integrated Interventions targeting the slow learners and the type of variables observed before and after the Integrated Intervention.

Section III covers the sample design.

Section IV introduces the appropriate research instruments used to assess the criterion variables before and after the Integrated Intervention.

Section V presents the method of data collection.

Section VI discusses the types of statistical techniques adopted to test the hypotheses.

Research Questions

A plethora of studies have been conducted in order to emphasize the efficacy of Integrated Intervention in turning around the learning process of slow learners. However, the current study is a pioneering one in the Indian scenario as it solicits the cooperation of the concerned parents, teachers and the slow learners themselves to participate in the Integrated Intervention Process to induce a considerable level of change in them. It is of special interest to mention that only the good and brilliant students are getting proper attention and praise all the time. But, unfortunately the most neglected segment of students: slow learners, which constitutes around 6 – 8 per cent in any class room is highly marginalized and hardly any attempt has been made to turn them around. If such a segment of students is neglected continuously without paying adequate attention, they are likely to get into the wrong side of the day-to-day activities posing immense threat to the society. So it is of utmost importance to take care of this vulnerable group during their studies, particularly before the State Board Level Examination so that an adequate level of academic interest can be elicited among them to a considerable level. Considering the importance of the Integrated Intervention, the following pertinent questions were raised:

(i) To what extent the Integrated Intervention targeted at the slow learners facilitate to enhance the academic performance?

(ii) How and in what ways does an aggregation of the three components of Integrated Intervention such as (1) individual skill development program consisting of training in Graphic Organizers, Mindfulness Meditation and Mnemonics, (2) Teachers Expectation and (3) Practicing Progressive Muscle Relaxation techniques affect the slow learners' academic performance?

(iii) To what extent the Integrated Intervention facilitate to have a considerable level of gain in certain psychological factors such as self-efficacy, self-perception, socio-emotional adjustment, temperament, intrinsic motivation and academic performance levels?

Section I: Hypothesis

Based on the review of literature, the following hypotheses are proposed which will be subjected to the rigorous statistical analysis.

- **H1:** The experimental group of slow learners which had been exposed to the Integrated Intervention will show more improvement in the academic performance of Biology subject than the control Group.
- **H2:** The experimental group of slow learners which had been exposed to the Integrated Intervention will show more improvement in the academic performance of History subject (Social Science) than the control group.
- **H3:** The experimental group of slow learners which had been exposed to the Integrated Intervention will show more improvement in Academic Self-Efficacy than the control group.
- **H4:** The experimental group of slow learners which had been exposed to the Integrated Intervention will show more improvement in Self-Perception than the control Group.
- **H5:** The experimental group of slow learners which had been exposed to the Integrated Intervention will show more improvement in Socio-Emotional Adjustment than the control group.

- **H6**: The experimental group of slow learners which had been exposed to the Integrated Intervention will show more improvement in Temperament than the control group.
- **H7**: The experimental group of slow learners which had been exposed to the Integrated Intervention will show more improvement in Intrinsic Motivation than the control group.

Section II: Experimental Research Design

Pre-test Post-test Randomized Control Group and Experimental Group Design was followed to assess the effects of the Integrated Intervention on the academic performance and other psychological indices of slow learners. In order to control the influence of certain extraneous factors, it was ensured that all the conditions are kept constant throughout the experiment for both the experimental group and control group, with the exception that only the experimental group is distinctively exposed to a treatment, whereas the control group is free from such exposure. Due care has been taken to ensure the validity of the research design, however, the maturation levels and other exposures available outside, are the major problems for internal validity. Similarly, the nature of interaction during pre-testing and post-testing might be a major threat to external validity (Dimitrov and Rumrill, 2003)

Then, it was also planned to examine the effects of Integrated Intervention on certain key psychological criterion factors such as self-efficacy, self-perception, socio-emotional adjustment, temperament, and intrinsic motivation in addition to academic performance. Finally, the extent to which the teachers' positive expectation towards slow learners and their real concern for slow learners affect the slow learners' learning process was also assessed.

The general description and scoring of the subjective rating scales to measure self-efficacy, self-perception, socio-emotional adjustment (teacher rated), temperament (parent rated) and intrinsic motivation are discussed in the forthcoming pages. The general outline of *Pre-test and Post-test Randomized Control Group and Experimental Group Research Design* pertaining to the above mentioned hypotheses of this study is depicted in Figure 2.

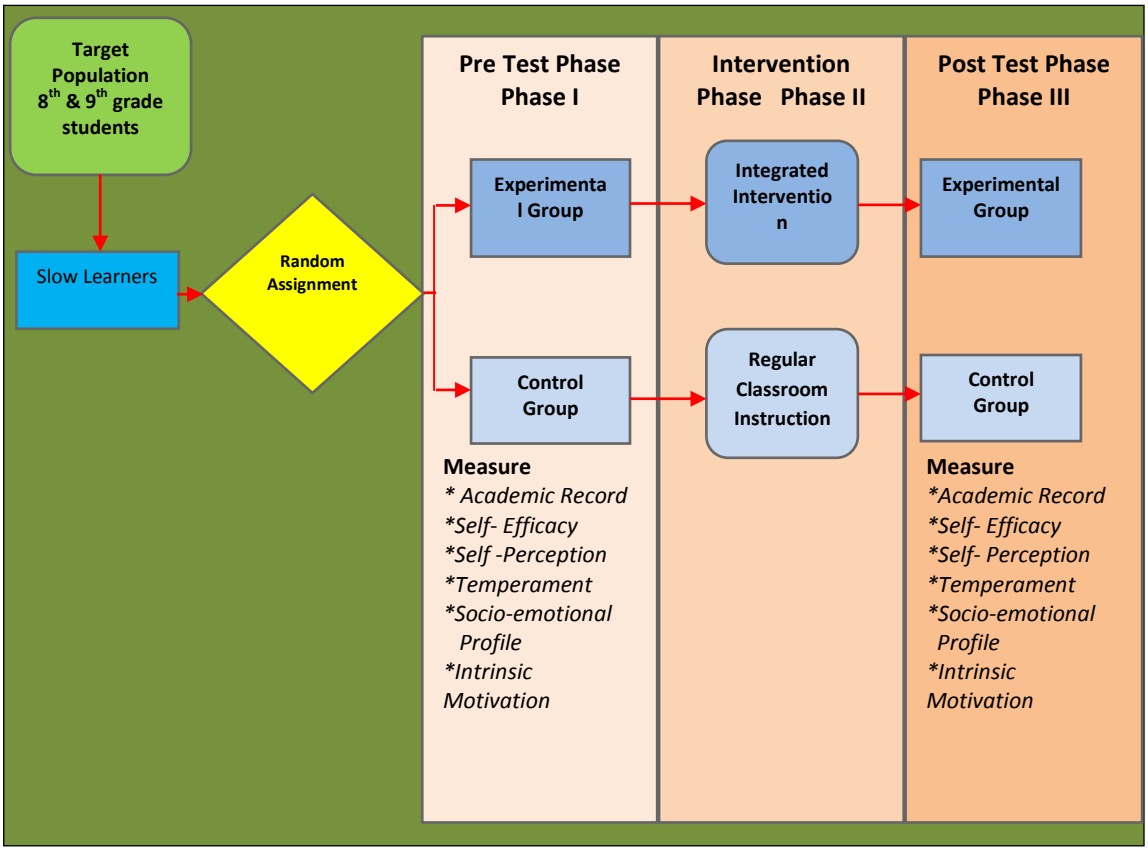

Figure 2: Pre-test and Post-test Randomized Control Group and Experimental Group Research Design with Integrated Intervention

A *Pre-test Post-test Randomized Control Group and Experimental Group Research Design* was used to test whether the Integrated Intervention had the intended causal effect on slow learners' learning process. There are three key components of a

Pre-test Post-test Randomized Control Group Experimental Design: (1) A pre-test and a post-test (2) A treatment group and a control group, and (3) Random assignment of study participants. All these three components were followed systematically to ensure that the Integrated Intervention intended to improve the slow learners' learning process is done efficaciously. Their details are as follows:

i. **Pre-test and Post-test:** A pre-test post-test design ensures that the relevant criterion factors such as academic performance and other key psychological factors must be obtained from the participants of the study before the intervention takes place (pre-test), and collecting the data using the same measures from the same participants once again after the intervention took place (post-test). This design is the best way to ensure that the intervention had a causal effect.

ii. **Treatment group and Control group:** To get the true effects of the Integrated Intervention, it was decided to have both a treatment group and a control group. As the name suggests, the treatment group received the intervention. The control group, however, gets the regular classroom instruction without any intervention. By having both; a group that received the intervention and another group that did not, the intervention effects will reflect only in the difference between the pre-test and post-test results of the experimental group alone. It was also ensured that both the experimental group and the control group are of adequate size to be able to determine whether an effect took place or not. The experimental group consisted of 60 slow learners and the control group also consisted of 60 slow learners.

iii. **Random Assignment of Participants:** As it was very critical to ensure that both the treatment group and the control group are homogenous in nature in all possible ways except the nature of exposure to intervention given, while no two groups will ever be exactly alike, the best way to make sure that they are as close as possible is having a random assignment of the study participants into the treatment group and control group. The sample of 120 screened slow learners was randomly assigned to both Experimental Group and Control Group. By following this, it was ensured that any difference between the Experimental Group and Control Group is due to chance alone, and not by a selection bias.

Section III: Sampling Design

Sample Selection

Targeting those students who tend to be slow in their academic and scholastic activities with a purpose of turning them around as good academic achievers in their studies is a very challenging task for the teaching community as there is a considerable risk of dropouts among the slow learners belonging to the age group of 12-16.

It is estimated that around 6 to 8 per cent of the students are likely to fall in the category of '*below average*', securing poor academic grades in the examination. Unless special attention is being paid to take care of the academic needs, the rate of decline of academic interest among slow learners will be so steep leading to drop-outs from the educational system. Hence, the present research is aiming at the ways in which the academic interest among slow learners can be inculcated to maximize their academic performance. Among the various types of interventions, a set of comprehensive and well integrated methods encompassing graphic organizers, memory

improvement programs (mnemonics, mindfulness, and relaxation), teacher's positive expectations etc., may facilitate the slow learners in improving their academic interest. High school teachers must redefine their strategies to design a tailor made pedagogical tool targeting slow learners to improve their comprehension or understanding level in their academic studies.

As it has been decided to conduct an intensive experimental research to assess the effectiveness of Integrated Intervention strategy to enhance the academic performance of slow learners, only a small group of around 120 slow learning students studying in the 9^{th} standard in Government Higher Secondary or Government Aided schools located in Coimbatore District, Tamil Nadu were chosen. In order to ensure the homogeneity of the sample in terms of socio-economic status of a family such as income, education, occupation of family members, etc., only the students of Government School or Government Aided Schools were selected.

Purposive Sampling Technique

As the focus of the present study is on Slow Learners' Academic Achievement levels, it was decided to follow the purposive sampling technique to pick only those students who happened to fall in the category of IQ below 90 in the standard intelligence test and also happened to secure just below average grade in their quarterly examination

Screening of Slow Learners

The screening of slow learners was based on the following two methods,

i. Academic Record and

ii. Administering Standard Progressive Matrices (SPM).

Academic Record

The academic performance of the quarterly academic examination conducted in August/September months of the 9th Standard students of two government schools and two government aided school were collected. Based on their academic performance, only those students who have secured below 50% marks in their quarterly academic examination were identified as slow learners. These students by and large exhibited low performance invariably in all the subjects. Further, the feedback of their concerned teachers was solicited to ensure that those who have been classified as slow learners are indeed very poor in their academic performance.

Administering Standard Progressive Matrices (SPM)

The level of intelligence was assessed by using The Standard Progressive Matrices (SPM) developed by Raven (2000 a). Only those students who had obtained the scores below the 25^{th} percentile were selected.

Only those students who had low academic performance and also happened to score between the 25^{th} percentile and the 5^{th} percentile were categorized as slow learners. Among the total strength of 926 students who were pursuing 9th standard in four higher secondary schools, only around 130 students were found to be categorized as slow learners based on their academic performance and the intelligence scores. Only 120 students volunteered to participate in the Integrated Intervention program, 10 students dropped out after the initial screening. In order to ensure homogeneity, the slow learners were matched for age, gender and additional external tuition. Further these students were randomly assigned to the Experimental Group (N=60) in which the exposure to the Integrated Intervention was given for the duration of three months in

addition to the regular classroom teaching. The remaining slow learners were assigned to the Control Group (N=60) which was not given any such exposure to the Integrated Intervention, but received only the conventional method of classroom teaching. The following inclusion and exclusion criteria were employed to screen slow learners.

Inclusion Criteria

i) Only those students who secured below 50% marks in all the subjects including Biology and Social Science subjects in their quarterly examination.

ii) Only those students who had been studying in the 9^{th} Grade.

iii) Only those students who had secured below the 25^{th} percentile and above the 5^{th} percentile scores in the Ravens Standard Progressive Matrices test.

iv) Only those students who had been studying in the Government or Government aided schools throughout their studies.

v) Only those students who were in the age group between 12 and 15 years.

vi) Only those students who had been promoted from 8^{th} to 9^{th} standard during the current academic year

Exclusion Criteria

i) Those students who were below 12 years of age or above 15 years of age

ii) Those students who had not appeared for their quarterly examination.

iii) Those students who had secured above 50% marks in either History (Social Science) or Biology.

iv) Those students who had secured above 25th percentile and below 5th percentile in the Raven's Standard Progressive Matrices.

v) Those students who had been detained in 9th Standard for more than a year.

vi) Those students who had been studying in private or other public schools.

vii) Those students who had physical illness, hearing and visual defects.

Operational Definitions

The following operational definitions were formulated as to what each variable refers to and how it has been assessed in the present study. This was done to gain clarity with reference to what and how the variables are measured and to make meaningful inferences from the results of the study.

- Intelligence Level: The grade classification made on the basis of the total score the subject scored in the Raven's Standard Progressive Matrices.
- Academic Performance: Marks scored by the students in his/her standard class examination, quarterly examination and final examination.
- Slow Learner: Students who have scored less than 50 percent marks in their class examination and their quarterly examination for Biology and History subjects and, who have scored below the 25th percentile and above the 5th percentile in the Raven's Standard Progressive Matrices. Students who were classified as GRADE IV or GRADE IV (-) as measured by Raven's Standard Progressive Matrices.

- Academic Self-Efficacy: Students' efficacy beliefs pertaining to academic activities as measured by the Academic Self-Efficacy scale.
- Self-Perception: Students' perception about oneself as assessed through sub-dimensions like Scholastic Competence, Global Self-Worth, Social Acceptance, and Parent Support in Harter's Self-Perception Profile.
- Socio-Emotional Adjustment: Students' socio-emotional adjustment as measured using the six sub-dimensions, such as aggression, anti-social behavior, hyper-active behavior, exclusion by peers, pro-social behavior and anxious/ fearful behaviors, of the Child Behavior Scale developed by Ladd and Profilet.
- Temperament: Students' temperament as measured through five factors, namely Sociability, Emotionality, Energy, Attentivity, and Rhythmicity, of Malhotra's Temperament Schedule (MTS).
- Intrinsic Motivation: Intrinsic Motivation or the inherent pleasure of engaging in an activity as measured as a summative score derived from the 7 dimensions of the Intrinsic Motivation Inventory; Interest/Enjoyment, Perceived Competence, Effort/Importance, Pressure/Tension, Perceived Choice, Value/Usefulness and Relatedness.

Section IV: Measures

As noted earlier, the efficacy level of the Integrated Intervention to turn the slow learners around by way of improving their learning process is tested using Pre-Post Randomized Experimental Group and Control Group Research Design. The following section discusses about the measurement instruments for each construct of the psychological

criterion variables such as: self-efficacy, self-perception, socio-emotional adjustment (teacher rated), temperament (parent rated), intrinsic motivation and academic performance.

Most measurement instruments for this study were designed using a likert type scale. The nature of Integrated Intervention encompassing (i) the development of specialized instructional tool – graphic organizers, self-development program such as memory improvement techniques, mindfulness mediation, (ii) training teachers to enhance their power of positive expectations levels and (iii) practicing body-mind relaxation are highlighted in the following section.

***(a) Ravens Standard Progressive Matrices*:** The Ravens Standard Progressive Matrices (SPM) (Raven et al., 2000 a) test was used to assess the level of intelligence of students. The Standard Progressive Matrices was constructed to measure the Eductive ability, which is derived from the Latin word 'educere', meaning 'to draw out', component of 'g' as defined in Spearman's theory of cognitive ability. Eductive ability is the ability to make meaning out of confusion, the ability to generate high level, usually nonverbal, schemata which make it easy to handle complexity (Raven, 2000 b). The SPM is designed to cover the widest possible range of mental ability and to be equally useful with persons of all ages, irrespective of their education, nationality or physical condition. The test is designed to provide a reliable estimate of a person's capacity to think clearly when allowed to work steadily and undisturbed at his own pace (Raven, 2000 b).

The Standard Progressive Matrices consists of a series of test items where a main box contains a 3 × 3 matrix of diagrams with a missing diagram in the third row. The examinee's task is to select one relevant alternative among six which were presented below. The chosen alternative will suffice to complete the third row meaningfully.

The test consists of 60 problems which were divided into five sets (A, B, C, D and E). Each set is made up of 12 problems. In each set, the first problem is nearly self-evident and easy to complete. The remaining problems that follow the first one in each set are progressively more difficult. To ensure sustained interest and freedom from fatigue, each problem is boldly presented and accurately drawn (Raven et al., 2000 a).

An individual's score (raw score) obtained in the test is then compared along with his or her age to find the percentile rank by using the appropriate norms. The individual's intelligence level is then classified on the basis of percentile score. The following are the classifications based on the percentile score.

Table 1

Classification of Intelligence Level Based on Percentile Score.

Grade I	Intellectually Superior	At or above 95th percentile
Grade II+	Above average in intellectual capacity	At or above 90th percentile
Grade II	Above average in intellectual capacity	At or above 75th percentile
Grade III+	Intellectually average	At or above 50th percentile
Grade III-	Intellectually average	At or above 26th percentile
Grade IV	Below average in intellectual capacity	At or above 11th percentile
Grade IV -	Below average in intellectual capacity	Above 5th percentile
Grade V	Intellectually impaired	At or below 5th percentile

The Indian norms for Intelligence level was developed based on a study conducted by Deshpande (Raven et al., 2000a). A sample of 10288 young pupils from two Indian cities - Mumbai, n=5161 and Pune, n=5127 from government, government aided and private schools in Marathi, English, Hindi and Gujarati medium were tested.

The scoring of the Standard Progressive Matrices was based on Indian norms for the present study. Students who scored in the GRADE IV and GRADE IV (-) grades were included in the study. An Indian study by Ganguly reported a split half reliability of 0.84 for the Standard Progressive Matrices (Raven et al., 2000a).

***(b) Academic Performance*:** The grades obtained by the students for subjects Biology and Social Science was collected from the respective schools periodically in two examinations before and after the intervention. The **quarterly examination** scores were considered as their pre-test values and their **final examination** academic scores was taken as the post-test values.

***(c) Academic Self-Efficacy*:** Self-efficacy is defined as "the conviction that one can successfully execute the behavior required to produce the outcomes" (Bandura, 1977, p. 79). Self-efficacy is a personal belief of competency, rather than one's emotional reaction to an actual accomplishment (Nelson & Conner, 2008).

Academic Self-Efficacy scale developed by Muris (2001) was used to measure academic self-efficacy. The academic self-efficacy scale consisted of 8 items which measure the person's perception of achieving academic goals. The Academic Self-Efficacy Scale is a part of The Self-Efficacy Questionnaire for Children (SEQ-C) which includes three 8 item scales that measure academic, social, and emotional self-efficacy. The academic self-efficacy scale includes questions about the person's perception of achieving academic goals.

The respondents are asked to rate on a 5 point rating scale ranging from 1 (Not at all) to 5 (Very well). Total self-efficacy score can be obtained by summing across all the items. The total score ranges from 8 to 40. It contains items such as '*How well can you*

study a chapter for a test?' The internal consistency of the measure was 0.620 (Cronbach's alpha) for the taken sample.

(d) Self-Perception Profile: In the present study the student's self-perception was assessed using the Harter's Self-Perception Profile (Harter, 1985). Self-perception at school is affected by the image that other significant persons like teachers, parents, and peers have about the students. In general children tend to perceive themselves across multiple domains including: cognitive competence, social acceptance, physical competence, and overall or global self-worth. The Profile of students' Self-Perception is generated along the following five domains.

I. **Scholastic Competence:** The scholastic self-competence subscale measures a child's perception of his or her ability to do schoolwork. For example, '*Some kids feel they are very good at school work BUT other kids worry about whether they can do the school work assigned to them*'. There are six items in this domain. Each item of this dimension has two polarized statements listed in two columns of the same row. The positive statement listed at the left side of the column has two options such as "Really true for me" (1), "Sort of true for me" (2) and in the same row, the negative statement is listed at the right side which has two options as "Sort of true for me" (3) and "Really True for me" (4). The respondents are required to read both the sides and choose the appropriate response for either one of the statements which is more or less fitting their day-to-day life. Items 1, 2, and 5 are reverse coded. Responses are then summed to produce a total score. The higher the score indicates the greater the scholastic competence.

II. **Global Self-Worth:** The global self-worth dimension is an overall measure of how well children value themselves and whether or not they are happy with themselves and the way they are leading their lives. This subscale consists of items such as '*Some kids are often unhappy with themselves BUT other kids are pretty pleased with themselves*'. There are six items in this domain. The respondents are required to read both the sides and choose the appropriate response for either one of the statements which is more or less fitting their day-to-day life. Items 3, 4, and 5 are reverse coded. Responses are then summed to produce a global self-worth score. The higher the score the greater the child's self-worth.

III. **Social Acceptance:** The social acceptance dimension measures the extent to which children believes that they are popular have friends and other children tend to like them. This subscale consists of items such as *'Some kids find it hard to make friends BUT other kids find it pretty easy to make friends'*. There are six items in this domain. The respondents are required to read both the sides and choose the appropriate response for either one of the statements which is more or less fitting their day-to-day life. Items 2, 4, and 6 are reverse coded. Responses are then summed to produce a final score. Higher the score, greater the social acceptance.

IV. **Parent Support:** This dimension measures the extent to which youth think parents understand their feelings and treat them in ways that make them feel important. This subscale consists of items such as '*Some kids have parents who don't really understand them BUT other kids have parents who do really*

understand them.' There are six items in this domain. Items 3, 4 and 5 are reverse coded. The responses are summed up to create a final score. Higher the score, greater the parent support.

***(e) Socio-Emotional Adjustment*:** Students' socio-emotional adjustment was measured using the Child Behavior Scale developed by Ladd and Profilet (1996). The socio-emotional and self-regulation competencies that support effective learning engagement are very much essential for school success (Blair, 2002). These include the capacity to participate cooperatively in classroom activities, to control attention and sustain task involvement (Ladd et al., 2000).

The scale consists of six sub-dimensions such as aggression, anti-social behavior, hyper-active behavior, exclusion by peers, pro-social behavior and anxious/fearful behaviors. These scales measure the key behavioral aspects that are considered, with the exception of the pro-social behavior scale, to be risk behaviors for young children and consist of items such as '*Bullies other children'* and *'Seems concerned when other children are distressed.'* There are around four to seven items per each sub-scale. The concerned class teachers are asked to rate the extent to which each of the descriptions applies to the child, particularly in the context of his/her behavior with peers. As the concerned class teacher is closely monitoring the behavior of children in their classroom over a considerable period of time, they are requested to rate the behavior of the students. For example, mark 'X' under 3- "Certainly applies" if the child often displays the behavior described in the statement, mark 'X' under 2- "Applies sometimes" if the child occasionally displays the behavior, and mark 'X' under 1- "Doesn't apply" if the child seldom displays the behavior.

The summated scores are created by averaging the item scores on each sub-scale. High scores indicate more of that particular behavior. This scale has to be completed by the concerned teachers or other staff in school. As much as possible the teachers are requested to be fair and true in assessing the behavior pattern of children and not resort to personal bias or favoritism.

Table 2

Child Behavior Scale's Sub-dimensions and Items.

Subscale	Items
Aggressive with peers	4,16,23,35,36,38,48
Anti-social with peers	25,31,32,51,55,57
Excluded by peers	5,27,30,33,43,45,54
Anxious-Fearful	6,8,12,19
Pro-Social behavior	26,28,34,40,46,53,56
Hyperactive-Distractible	1,2,11,17
Filler items	3,7,9,10,13,14,15,18,20,21,22,24,29,37,41,42,44,47,49,50,52,58,59

Among 59 items only 35 are originally accounted for in the subscales listed above. The remaining items are filler items which are listed in such a way that the teachers responding to the scale would be less able to decipher what constructs are being measured.

***(f) Temperament Profile*:** Malhotra's Temperament Schedule (MTS) developed by Savita Malhotra and Anil Malhotra (1988) is used to study the temperament profile of children to identify those who are at greater risk of developing emotional problem. The MTS is used to measure the temperament of slow learners in this study. Information is obtained

from either of the parents, preferably mother, regarding the child's temperament. The questions explore the style of behavior; *how* the child does rather than *why* or *what* the child does. The questions are pertaining to the day to day activities of the child.

Malhotra's Temperament Schedule consisted of five factors namely Sociability, Emotionality, Energy, Attentivity and Rhythmicity. Each question is rated on a five point scale considering both the intensity and frequency of occurrence of the behavior. The scores of 1 and 5 represent the extremes of intensity and/or frequency of the behavior rated either on positive or negative directions. The score of 3 at the midpoint represents average as per the parent's perception. The means of the five dimensions are calculated.

Factor I, represents *Sociability* which consists of three components – such as approach/withdrawal, adaptability and threshold of responsiveness. The means of these three components are summed up to get the sociability score. The range of possible scores is 3 to 15. High scores on this factor indicate that the child is responsive to the environment, adjustable, adaptable and uninhibited. Items such as '*If he is given a new food (or placed in a new situation) what is his first reaction will he try it or does he refuse to do so?*' pertain to the approach/withdrawal component. Items such as '*Does he settle back into school routine quickly after a long holiday or does it take him a long time to do so?*' pertain to the adaptability component. Items such as '*Does he seem to bother about minor noises or sounds around or does he ignore these?*' pertain to the threshold component.

Factor II highlights *Emotionality* which constitutes two components namely, mood and persistence. The means of these two components are summed up to get the emotionality score. The range of possible scores is 2 to 10. High scores on this factor indicate that the child is generally positive and in a relatively happy mood. Items such as

'*When with other children does he seem to be happy and having a good time or is he generally dissatisfied, angry and irritable?*' pertaining to the mood component. Items such as '*If he gets angry or annoyed how long does it take for him to come out of it, just a few moments or a long time?*' constitute the persistence component.

Factor III refers to *Energy* which constitutes two components namely activity and intensity. The means of these two components are summed up to get the energy score. The range of possible scores is 2 to 10. High scores on this factor indicate that the child exhibits more physically and psychologically energetic behavior. Items such as '*Can he keep still or does he have difficulty in doing so and keeps moving and fidgeting?*' pertaining to the activity component and items such as '*What is his reaction if another child takes away his toy or book or any other possession? Does not matter much, gets upset, cries, fights with the other child?*' pertaining to the intensity component.

Factor IV represents *Attentivity* which has only one component namely distractibility. The range of possible scores is 1 to 5. High scores indicate fleeting attention and distractibility and low scores indicate attentivity. This factor consists of items such as '*Do you find that if he is engrossed in an interesting task, you have to call out several times before he hears or responds?*'

Factor V highlights *Rhythmicity* which has only one component reflecting the routine activities. The range of possible scores is 1 to 5. High scores indicate regular and predictable biological functions and low scores indicate irregularity. This factor consists of items such as '*Does your child feel hungry at approximately the same time every day? Are you able to tell roughly at what time he is bound to feel hungry?*'

***(g) Intrinsic Motivation*:** Intrinsic Motivation Inventory (IMI) developed by Ryan (1982) is used to assess participants' subjective experience relating to an activity. The IMI is a multidimensional measurement device which is intended to assess intrinsic motivation. The instrument assesses the individual's interest/enjoyment, perceived competence, effort, value/usefulness, felt pressure and tension, perceived choice and relatedness while performing the given activity, thus yielding seven sub-scale scores.

The inventory uses six sub-scales to assess intrinsic motivation. Recently, a seventh subscale has been added to tap the experiences of relatedness. All the seven subscales are explained below.

(i). **Interest/Enjoyment** measures the extent to which the subject evinces keen interest in the task as well as enjoys performing the task. It is considered as the self-report measure of intrinsic motivation. This subscale consists of 7 items. For example '*I enjoyed studying very much* '.The internal consistency of the measure is 0.611 (Cronbach's alpha) for the present sample.

(ii). **Effort/Importance** deals with the extent to which the individual is ready to exert effort in doing the task as well as the amount of importance he/she places on the task. This subscale consists of 5 items. For example '*I tried very hard on studying*'. The internal consistency of the measure is 0.741 (Cronbach's alpha) for the present sample.

(iii). **Perceived Competence** measures the extent to which the individual feels he/she is competent enough to undertake the task with his/her skill level. This sub-scale consists of 6 items. For example '*I think I am pretty good at studying*'. The internal consistency of the measure is 0.672 (Cronbach's alpha) for the present sample.

(iv). **Pressure/Tension** covers the extent to which the individual feels pressurized doing the task at hand. It is considered to be a negative predictor of intrinsic motivation. This dimension consists of 5 Items. For example '*I was anxious while studying'* is a part of this subscale. The internal consistency of the measure is 0.715 (Cronbach's alpha) for the present sample.

(v). **Perceived Choice** assesses how far the individual has exerted his/her own will in choosing the particular task and the extent to which his/her choice was instrumental in doing the work. This is considered as a positive predictor of behavioral measures of intrinsic motivation. This subscale consists of 7 items. For example '*I studied because I wanted to* '. The internal consistency of the measure is 0.763 (Cronbach's alpha) for the present sample.

(vi). **Value/Usefulness** measures the extent to which the individual considers the task as useful and the value he/she places on the pertinent task. This subscale consists of 4 items. For example '*I believe studying could be beneficial to me*'. The internal consistency of the measure is 0.849 (Cronbach's alpha) for the present sample.

(vii). **Relatedness** assesses the extent to which the individual relates himself/herself to other members of the group that participates in the task. This covers the nature of interpersonal interactions, friendship formation etc. This subscale consists of 8 items. For example '*I felt like I could really trust my fellow students'*. The internal consistency of the measure is 0.727 (Cronbach's alpha) for the present sample.

The Intrinsic Motivation Inventory is a flexible assessment tool that determines participants' levels of intrinsic motivation as an additive function of the underlying dimensions. The inclusion and exclusion of any one dimension fails to adversely affect

the remaining factors (McAuley et. al., 1989). The Intrinsic Motivation Inventory (IMI) items have often been modified slightly to fit specific activities. For example, an item such as "*I tried very hard to do well at this activity*" can be changed to "*I tried very hard to do well in learning this material*" without effecting its reliability or validity.

There are two types of scoring: one is positive scoring and the other reverse. In positive scoring the items are scored 1 to 7 ranging from 'Very Untrue' to 'Very True'. In reverse scoring the items are scored 7 to 1 ranging from 'Very Untrue' to 'Very True'. The following is the list of items under each category and the way they are scored.

Table 3

Intrinsic Motivation Inventory Subscales and Items.

Subscale	**Positive scored items**	**Reverse scored items**
Interest/Enjoyment:	1, 8, 27, 32, 38.	14, 20.
Effort Importance:	3, 16, 22.	10, 29.
Perceived Competence:	2, 9, 15, 21, 28.	33.
Perceived Choice:	5.	12, 18, 24, 30, 35, 41.
Pressure/Tension:	11, 23, 34.	4, 17.
Value /Usefulness:	6, 25, 36, 39.	-
Relatedness:	19, 26, 40, 42.	7, 13, 31, 37.

The maximum score a subject can obtain is 294 (42 X 7) and the minimum is 42 (42 X 1). The internal consistency is 0.780 (Cronbach's alpha) for the present sample.

Table 4

Cronbach's alpha indicating Internal Consistency for all the Scales.

Scale – Subscale	**Cronbach's alpha**
Academic Self-Efficacy	0.812
Self-Perception Profile	0.881
Scholastic Competence	*0.793*
Global Self-Worth	*0.722*
Social Acceptance	*0.697*
Parental Support	*0.775*
Socio-emotional Adjustment	0.823
Aggressive with peers	*0.772*
Anti-social with peers	*0.792*
Excluded by peers	*0.713*
Anxious-Fearful	*0.742*
Pro-Social behavior	*0.801*
Hyperactive-Distractible	*0.769*
Temperament	0.831
Sociability	*0.791*
Emotionality	*0.776*
Energy	*0.725*
Attentivity	*0.811*
Rhythmicity	*0.823*
Intrinsic Motivation	0.813
Interest/Enjoyment	*0.711*

Scale – Subscale	Cronbach's alpha
Effort/Importance	*0.741*
Perceived Competence	*0.772*
Pressure/Tension	*0.763*
Perceived Choice	*0.715*
Value/Usefulness	*0.849*
Relatedness	*0.727*

Section V: Method of Data Collection

The data collection process was carried out in three phases for both experimental and control group of slow learners in a systematic way.

Voluntary Participation and Informed Consent: The questionnaires were administered to the respondents personally, once the permission to approach the respondents was granted by the Headmaster/Headmistress of the concerned school. Informed consent for undergoing the Integrated Intervention was obtained from the concerned parents. The respondents were included based on their willingness and voluntary participation in the study. Wherever possible, the investigator verbally outlined the purpose of the study highlighting what would be required from the participants. Further, it was ensured that their responses would be kept confidential and participation in the study would be voluntary. The respondents were clearly informed that participation would not lead to gaining any credit or additional points while appearing for the final examination. All the clarifications and queries raised by the respondents were resolved.

Phase I: Pre-test Data Collection: During this phase, the academic performance record and other psychological criterion factors were collected from the slow learners and their

parents and teachers using the standardized questionnaires/inventories. The parents and teachers of both control and experimental group were instructed to be free from any personal bias and remain as much as objective and fair in furnishing the details before the administration of the Integrated Intervention.

The Pre-test was carried out during the months of August/September 2011. As we intended to collect data on slow learners' academic performance and behavior profiles from three sources namely, slow learners, teachers and parents, it was felt that the data collection process should be carried out in two stages. Academic Self-Efficacy, Self-Perception, and Intrinsic Motivation scales were given to the students with the request to complete and return the instruments to the investigator immediately. Due care was taken to maintain a good rapport with the student population and all the doubts raised by the students were clarified while filling up the questionnaires. Later during the same week, the parents of the concerned student; either mother or father, and the concerned class teacher were requested to furnish the data on Malhotra's Temperament Schedule to measure Temperament and Child Behavior Scale to measure Socio-Emotional Adjustment respectively as they were the right persons to furnish the details more accurately. They were requested that they would be approached once again, perhaps after three or four months to furnish similar type of responses soon after the completion of the intended Integrated Intervention targeted on the slow learners. All the questionnaires were translated to Tamil Language and the quality of translation was cross-checked with the help of experts in Tamil language.

Pilot Study: A pilot study was carried out with the sample of 30 higher secondary school students pursuing 9th standard, studying in Coimbatore City. The following are the objectives of the Pilot Study:

- To pre-test the research instruments of the study
- To establish the reliability and validity of the tools developed and the existing standardized questionnaires.
- To ensure whether tools are fulfilling the conceptual frameworks and the methods adopted are effective.
- To check whether the procedure is followed systematically as planned.

Phase II: Administration of a Three Tier Integrated Intervention Program:

. Once the segregation of slow learners were formed based on the pre-test data on Academic Performance in the Quarterly Examination and also through the Raven's Standard Progressive Matrices, the randomization process was followed to group the 120 segregated slow learners into an experimental group (N = 60) and a control group (N = 60). During this second phase, a three-tier mutually supportive Integrated Intervention was offered to the experimental group for about 12 weeks period, parents and their teachers during September 2011 – January 2012.

(i) Individual Skill Development Program:

A three week graphic organizers instruction method, memory improvement skills such as mindfulness and mnemonics and other study skills training were given to the Experimental Group of Slow Learners from 3.30 to 5.30 pm. The details of these interventions are given in the following pages.

(ii) Mentor Training for Teachers (Conveying positive expectation to slow learners)

The main concern in this track was changing the negative expectations of the teachers from the slow learners. Instead, the teachers were asked to develop and convey positive expectations towards slow learners and render all possible assistance to accelerate slow learners' learning process. In essence, this track aimed at changing teacher's attitude towards their slow learning students in the areas of (i) acceptance, and supports to slow learners (ii) rewards or appreciation for demonstrating acceptable behaviors by the slow learners and (iii) conveying positive expectations to slow learners and not biased by past events.

(iii) Relaxation Training for increasing Concentration:

This channel focused on inducing relaxed and calm states among slow learners. Jacobson's Progressive Muscle Relaxation (Jacobson, 1929) was administered to slow learners to improve their concentration and, induce calm and relaxed states. Progressive muscle relaxation (PMR) is one of several relaxation techniques that attempt to reduce arousal and enhance self-control. Because of the effectiveness of PMR in arousal-related treatments, it is often included in interventions aimed at reducing anxiety and aggressive behavior. The goal of using PMR was to improve daily performance by reducing tension, anxiety, and stress, which were associated with arousal (Jacobson, 1942). Training slow learners to reduce arousal and tension could produce a relaxed and calm state that would be inconsistent with physiological and psychological arousal.

I. Individual Skill Development Program:

(a) Graphic Organizers Intervention:

Graphic Organizers were constructed using 'XMind' and 'Microsoft Smart Art' for Biology and History based on the lessons that were taught to them in their regular classes. The graphic organizers had been developed in the vernacular language to suit the medium of instruction used in the regular classroom. The Graphic Organizers were prepared in 2 ft × 1 ft charts and 1 ft × 1 ft charts and given to the students. Thirty nine Biology Graphic Organizers based on six chapters of Biology text book of the grade 9 and twenty three History Graphic Organizers based on six chapters of History text book of the grade 9 were constructed after due consultations with the teacher and review of the relevant chapters by the researcher. Only the slow learning students in experimental group were provided these graphic organizers as an additional academic input.

During the initial three sessions, the students were introduced to concept of Graphic Organizers highlighting the advantage of using visual imagery in the process of encoding information and its potential benefits in aiding recall of information. Students were then introduced to the various Graphic Organizers and its purpose of depicting a specific relationship. The graphic organizers were of the following types, such as:

Table 5

Types of Graphic Organizers administered to Slow Learners.

Hierarchy diagrams / Network tree	Organizing a hierarchical set of information, reflecting super ordinate or subordinate elements.
Cycle Maps	Useful for organizing information that is circular or cyclical, with no absolute beginning or ending.
5Ws Chart	Depicts 5 aspects of an idea or theme. What, When, Where, Why and Who of a particular event or main theme are depicted using this Chart.
TDE Charts	Lists Term, Definition and Example of various terms with a text. It can be a Chart containing related terms which enable comparison of terms, identify similarity or differences among them.
Spider Maps	Depicts main or central theme and related sub themes around it.
Sequence Diagrams/Timelines	Organizes information according to various steps or stages or according to a timeline or along a continuum.
Cause and Effect Chart	Depicts cause and effect relationships.
Compare and Contrast Chart / Venn Diagram	Intended to compare and contrast two concepts according to their features.
Free structure Mind maps	Intended to depict relationships with various concepts using connecting lines and labeling the relationship.

Students were given practice sessions using different graphic organizers, they were given tasks to create organizers from the subject material (not necessarily school related) which they already knew. Students were taught to recognize the various relationships within the textual information. Primarily graphic organizers were introduced as a post learning activity intended to recognize and identify text structure.

After the initial introductory sessions, the students were asked to copy the graphic organizer provided to them by the researcher. They had to discuss among themselves what had been depicted in the graphic organizer and they had to reconstruct the original theme from the organizer. Participants received instruction for a period of 12 weeks (60 school days X 1 hour = 60 hours). The graphic organizer intervention was given for one hour daily. Every day the investigator had given exposure for about one hour highlighting the key aspects such as concepts, usage and the process of retrieval. The control group of slow learners was not given any such exposure and they followed only the conventional method of teaching and learning. The slow learners of the experimental group were asked to copy the graphic organizers after discussing among themselves based on what was illustrated in the organizers. Students were also asked to describe the organizer, i.e.: reconstruct the original theme from the graphic organizer.

Students were then asked to read the textual material from their respective text books, after which they have to identify the key themes and their relationships. First the students surveyed the textual material to determine what the passage discussed and how the text is structured. Students were supposed to ask themselves questions like, are the concepts presented in a hierarchy or does the text depict a timeline of information or whether the author compares and contrasts concepts, does the text defines and

exemplifies something or the material presented depict a cyclical relationship etc. In this process the students interacted intensively with the textual material, identified key relationships within the text and chose items that are a part of the relationship.

The students then underlined key words, concepts, phrases, objects, events and nouns and then identified relationships between and among those keywords and concepts. Each concept is a potential candidate for understanding. They then organized the concepts or themes or linked the related concepts with lines and labeled each line. Essentially the resultant map or chart had to depict the relationship presented within text in an organized manner.

The design of the graphic organizer instruction was based on instructional scaffolding in a systematic fashion (i) introducing the concept of graphic organizers, (ii) helping the students by showing them how to construct the graphic organizers, providing them with pre constructed graphic organizers and describing them, (iii) helping them construct their own organizers and correcting them when necessary and (iv) students independently creating their own graphic organizers and enabling them to reconstruct the original theme that appears in their textbooks.

***(b) Mindfulness Meditation Program*:** The meditation program was given in 20 min sessions per day for about 12 weeks. The intervention program consisted of learning the mindfulness technique and practicing daily for 20 minutes even on holidays at home. The main purpose of this technique is not to control thoughts or change them or replace them with new ones, but to leave them alone, and accept any idea that might appear or emerge spontaneously, developing a state of full attention to this mental activity, while being aware of that they are transitory and non-permanent.

During the first week, the students in the experimental group were introduced to the mindfulness meditation program and their queries regarding the technique were answered. Thereafter, the instructor only guided the students during the meditation process giving relevant instructions as and when required. The students were then encouraged in the presence of the instructor to initiate the mindfulness state and maintain it for 20 minutes. The students were also advised to practice it at home sincerely on holidays throughout the duration of the experiment. During the intervention sessions, they were allowed to practice at the school.

One of the characteristics of mindfulness meditation is the ability to focus on a single set of signals such as breathing or thoughts, at the same time. This produces changes in the physiological structure of the organism, which in turn, results in a tendency towards more healthy and relaxed physiological behavior. With mindfulness meditation a considerable level of tension and anxiety are reduced to a great extent. Further, the heart beat and metabolism are slowed facilitating an increase in attention and ability to concentrate. Jha and others (2007) found that with practice, meditation is able to strengthen all the cognitive abilities upon acquiring the skill of methodically exercising mental attention and concentration.

(c) Mnemonic Methods **:** During the initial three sessions, the basic concepts of memory, short term memory, long term memory, the purpose of rehearsals, repeated rehearsals, chunking, forgetting and other relevant concepts were introduced. The purpose of using mnemonics was also taught to the slow learners explaining its importance for the purpose of recall. The students were primarily introduced to three main mnemonic strategies such as the method of loci, the letter method and the keyword technique.

I. ***The Method of Loci*:** primarily involves three major steps (i) the slow learners are required to memorize a series of distinct locations (loci) along a familiar pathway. (ii) Learners are required to convert the words or concepts to be remembered into mental representations. Then, (iii) they are required to place the image along some salient location along the path, for example: *Akbar* would be sitting in a chair at the room, preceded by *Humayun* at the door, preceded by *Babur* at the gate. Learners are then instructed to take a mental walk through the house.

II. ***Letter Method*:** One of the most well-known mnemonic is the letter method in which an acronym is used to stand for factual information. For example *VIBGYOR*, is used to designate the colors in a light spectrum. The word *TEENS* is used to remember the five senses namely T-Tongue, E-Ear, E-Eyes, N-Nose, S-Skin. The letter method appears to be the effective strategy but least empirically evaluated for its effectiveness among youth with disabilities (Scruggs & Mastropieri, 2000). Using the Letter method, students were asked to create their own acronyms based on the learning material in textbooks which they can easily remember.

III. ***Keyword Techniques*:** There are two stages in the keyword mnemonic: (i) an acoustic link stage and (ii) an imagery link stage. During the first stage, the learner is given a keyword that is acoustically similar to and that can be visualized as interacting with the concept/item/term to be remembered. For example, to remember the word *thiodan* a pesticide for stem boring insect. An acoustically similar and visually represented word would be 'thirudan' the Tamil word for thief. In the second stage, the learner would form the visual image of the keyword 'thirudan' and the target word *thiodan* interacting in some way. Thus, for remembering *thiodan* a learner might visualize a

thief holding a can of pesticide *thiodan* in his hands. Students during the intervention were encouraged to create their own keywords and memorize it. The students were also encouraged to discuss the keywords in the class so as to describe the logic of selecting the key word and enabling other students to form their own. The mnemonic strategies were employed for all the chapters that were covered during the intervention.

II. Mentor Training for Teachers (Conveying positive expectation to slow learners)

The main concern in this track is changing the negative expectations of the teachers from slow learners. The teachers are asked to develop and convey positive expectations towards slow learners and render all possible assistance to accelerate slow learners' learning process. In essence, this track aims at changing teacher's attitude towards their slow learning students in the areas of (i) acceptance and support to slow learners, (ii) rewards or appreciation for demonstrating acceptable behaviors of slow learners, and (iii) conveying positive expectations to slow learners without being biased by past events.

A three-day workshop was organized exclusively to the small group of teachers (6 to 8) of the concerned slow learners on the ways in which teachers can convey high positive expectations to their students particularly to address the slow learners. This workshop was conducted separately for the participating school teachers. The contents are classified into four general categories:

(i) Climate: Techniques of creating a warmer social and emotional mood for the slow learners both verbal and non-verbal communications, body language such as smiling, nodding approvingly, gazing at slow learners etc. are highlighted to ensure that they are more supportive, friendly, accepting and encouraging.

(ii) Input: Techniques of usages and application of graphic organizers on some specific subjects such as Biology and History, methods of assigning tasks as more challenging and offering high visibility.

(iii) Output: Techniques of making students to deliver the output more concretely, making them to speak at classroom, paying close attention to the slow learners' response and giving them more assistance or encouragement in generating solutions to problems.

(iv) Feedback: Techniques of giving reinforcement, particularly offering positive reinforcement to the slow learners such as praising them for good work and criticizing them less for making mistakes.

III. Relaxation Training for increasing Concentration:

Jacobson's Progressive Muscle Relaxation was administered to the slow learners to improve their concentration. Progressive Muscle Relaxation (PMR) is an adaptable procedure that can be suitably modified to specific situations. One way to use PMR is to have students sit quietly in their seats with their arms at their sides. During the PMR sessions the slow learners were specifically asked to tense and relax the following muscle groups. They had to tense the muscle groups for 4 to 5 seconds and then relax. After the

tensing and relaxing exercises the group was asked to maintain the relaxed state with their eyes closed for a period of 4 to 5 minutes.

The following instructions were given to the experimental group of slow learners to progressively induce muscle relaxation and to maintain a calm and relaxed state,

> "Clench your left hand and feel the tension. Relax and let the hand hang loosely. Same for right hand. Bend your wrists and relax. Bend your elbow towards your shoulders and tense biceps muscle and relax. Bring your shoulders up toward yours ears and relax. Let your shoulders drop down. Wrinkle your forehead, raise your eyebrows and relax. Close your eyes tightly and relax. Clench your jaws tightly and relax. Press your tongue against the roof of your mouth and relax. Press your lips together tightly and relax. Turn your head so that your chin is over your right shoulders, straighten and relax. Bend your head forward, pressing your chin against your chest, straighten and relax. Take a deep breath and hold it for 5 seconds, slowly exhale and relax. Tighten your stomach muscles and relax. Arch your back and relax. Stretch your legs in front of you tighten your thigh muscles and relax. Push your heels down into the floor, tighten your hamstring muscles and relax. Point your toes toward your head and relax. Curl your toes toward the bottom of your feet and relax. Take in a deep breath count till 4 and exhale while counting up to 4 and relax, repeat the slow breathing with the count".

After the exercise the slow learners were asked to stretch their body take a deep breath and exhale and were allowed to resume their activities.

In summary, it is expected that the overall Integrated Intervention will aim at eliciting more effort from the slow learners and their mentors to gain required knowledge and skills to master their subjects.

Phase III: Post-test Data Collection:

Soon after the completion of Integrated Intervention program given exclusively to the experimental group of slow learners for about 12 weeks period, the academic performance of both the experimental group and control group in their annual examination was collected along with other psychological criteria factors. For this purpose, once again, the concerned teachers, parents, and the respondents were requested to furnish data on the same parameters such as academic self-efficacy, self-perception, socio-emotional adjustment, temperament, intrinsic motivation, and academic performance levels using the same questionnaire/inventory as in phase I.

Section VI: Statistical Techniques:

An independent sample '*t*' test was carried out between the experimental and control group on the pre-test scores of the sample of slow learners exploring whether any significant differences existed between the experimental and control groups on various criterion variables such as academic performance scores, academic self-efficacy, self-perception, socio-emotional adjustment, temperament, and intrinsic motivation. These tests were carried out to ensure whether the two comparable groups are homogenous in nature before the administration of the Integrated Intervention.

Paired sample '*t*' test was carried out on both the experimental group and control group to assess the effects of Integrated Intervention strategy on academic performance

scores, academic self-efficacy, self-perception, socio-emotional adjustment, temperament, and intrinsic motivation between the pre-test and post-test scores. Gain Score Analysis (GSA) is also used to compare the differences between the experimental and control group

Regarding the 't' test on gain scores Knapp and Schafer (2009, p. 2) opine as follows:

> "The principal arguments favoring the 't' test approach are its relative simplicity, its fewer assumptions and calculations, and its ubiquitous use. Nothing is more straightforward than comparing the mean change from pre-test to post-test for an experimental group with the mean change from pre-test to post-test for a control group in order to get some evidence regarding the effect of an experimental treatment. There is no need even to carry out the regression of post-test scores on pre-test scores. Such analyses have been conducted for years."

Gain scores of both the experimental and control group was calculated using the formula; $D = Y2 - Y1$, where D is the gain, $Y2$ is the post test score and $Y1$ is the pre-test score. Gain Scores answer the question of whether the two groups differ in terms of their mean change. The gain score analysis concerns changes in group means (Fitzmaurice et al., 2004). Rogosa (1988) has shown that the analysis of gain scores can provide both a reliable and unbiased estimate of true change and the difference score is an unbiased estimate of true change. Gain scores, for such specific purposes such as the analysis of outcomes in randomized control trials can offer a better interpretation (Smolkowski, 2010).

Subsequent to the intervention, to explore the extent to which the Integrated Intervention facilitated a positive change exclusively among the slow learners of the experimental group were explored. For this purpose an independent sample 't' test based on the gain scores of the various criterion variables of both the experimental group and the control group was used to check for the differences between the experimental group and control group. This way of comparison will help to ensure whether the gains achieved after the Integrated Intervention was exclusive to the experimental group alone, thereby highlighting the effectiveness of the Integrated Intervention.

Effect sizes estimate the magnitude of effect between two or more variables. Cohen's *d* estimates the magnitude of difference between two or more groups. Tests of significance show to what extent experimental results differ from chance expectations; additionally effect-size measurements report the relative magnitude of the experimental treatment or the size of the experimental effect. Cohen (1992) suggested that effect sizes of 0.20 are small, 0.50 are medium, and 0.80 are large, which enables to compare an experiment's effect-size results to other known benchmarks. Effect sizes can also be interpreted as the percent of non-overlap of the treated group's distribution with that of the control group.

CHAPTER IV

RESULTS AND DISCUSSION

The primary purpose of the present study was to explore the extent to which the Comprehensive Integrated Intervention aimed at slow learners facilitates enhancing their learning process and their overall psychological state of well-being. The secondary purpose of the study was to validate which of the psychological variables, namely, academic self-efficacy, self-perception, socio-emotional adjustment, temperament and intrinsic motivation facilitated the slow learners to perform well in their academic activities. The data obtained from the respondents before and after administration of an Integrated Intervention Program were scored and analyzed using appropriate statistical analysis to draw meaningful inferences on the effect of Comprehensive Integrated Intervention Program.

The demographic profiles of the sample were drawn based on the personal information furnished by the respondents. Further, an Independent sample '*t*' test was used to compare the means of the criterion variables between experimental and control groups before the administration of Integrated Intervention. A paired sample '*t'* test was used to assess the mean difference between their pre-test and post-test scores of all the criterion variables for both the experimental and control group of slow learners. Subsequently, an Independent sample *'t'* test was used to compare gain score on all the criterion variables for the experimental and control group only after the Integrated Intervention. The obtained results and interpretation of the results are presented in the forthcoming sessions.

The results have been presented in the following sections.

Section I covers the profiling of the demographic factors of the slow learners based on the age, gender, parents education, geographical location, family income, birth order, number of family members, parents' occupation, and type of school etc. Cross-tabulation and percentage analysis were included in this section.

Section II deals with the results of the pre-test stage of the samples of slow learners exploring whether any such difference exist between the experimental and control groups on various criterion variables such as academic self-efficacy,, self-perception, socio-emotional adjustment, temperament, intrinsic motivation and academic performance.

Section III shows the effects of Integrated Intervention on criterion variables for both experimental and control groups after the Intervention based on the gain scores derived.

Section IV checks the tenability of the formulated hypotheses based on results.

Section I: Demographic Characteristics of the Participants:

One hundred and twenty (120) slow learners of high school students pursuing 9th grade were chosen based on the screening procedures as outlined in Chapter III. Further, they were requested to furnish the required data in two phases such as pre – intervention stage and post-intervention stage who have been categorized into experimental and control groups. Table 6 revealed the descriptive statistics which delineate the demographic profile of the sample such as age, gender, type of school, type of geographic area, birth order and type of level of class.

Table 6

Demographic Profile of the Slow Learners

Demographic Factors	N	Percentage
Age (n = 120)		
14	75	62.5
15	45	37.5
Gender (n=120)		
Male	62	52
Female	58	48
Birth Order (n=120)		
First-born	75	62.5
Second-born	37	30.8
Third-born	6	5.0
Four and above	2	1.7
Type of School (n=120)		
Government	96	80
Government Aided	24	20
Geographical Area (n=120)		
Rural	64	53.3
Urban	54	45.0
Semi-Urban	2	1.7

The description of samples in Table 6 showed that the mean age of the slow learning students, was 14.08 years (SD = .68). The majority of the slow learner students were belonging to 14 and 15 years with the percentage of 62.5%, and 37.5% respectively to the total sample size. Similarly, equal weightage was given to the both gender viz. male (52%) and female (48%) to avoid gender discrepancy. Nearly 62.5% of slow learner

students were first-born followed by the second-born (30.8) and the rest 6.7% of slow learners belonged to third and fourth-born category. While classifying the types of schools, the majority of the slow learning students were studying at Government Schools (80%) and the remaining students were enrolled in the Government Aided Schools (20%). Due care was taken to ensure that the slow learning students belonging to both rural and urban areas were drawn equally (rural = 53.3% and urban 45%) and only the small residual was hailing from semi urban area (1.7%).

Table 7 outlined the demographic profile of the slow learning students particularly the socio-economic status such as number of family members, family income, parent's education and parent's occupation particulars. Demographic profile revealed that around 61.7% of the slow learning students have a family size of four members, followed by having just three members (18.3%) which are inclusive of parents. Only 16.7% of slow learners have a bigger size of families with more than four members, and meager 3.3% of slow learners' students have only a size of two members. Considering the family income of the overall sample size, the majority of them (37.5%) had less than Rs.5000 per month, followed by 5,000 – 10,000 per month (around 36%). Around 20.8% of the slow learning students had a family income in the range of 10,000 – 20,000 per month. A meager 4.2% of slow learning students reported to have an income ranging from 20,000 to 30,000 and a thin number (0.8%) of the family had a higher income more than 30,000 per month.

Table 7

Demographic Profile of the Parents of Slow Learners Students

Demographic Factors	N	Percentage
No of Family Members (n=120)		
2	4	3.3
3	22	18.3
4	74	61.7
5 and above	20	16.7
Family Income (n=120)		
5000 – below	45	37.5
5000 – 10000	44	36.7
10000 – 20000	25	20.8
20000 – 30000	5	4.2
30000 – above	1	.80
Father's Education (n=120)		
No School	2	1.7
School Education	101	84.2
Basic Degree	9	7.5
Post-graduation	8	6.7
Father's Occupation (n=120)		
Private Employee	20	16.7
Government Employee	8	6.7
Daily Wages	61	50.8
Others	31	25.8
Mother's Education (n=120)		
No School	1	.8
School Education	94	78.3
Basic Degree	18	15.0
Post-graduation	7	5.8
Mother's Occupation (n=120)		
Housewives	58	48.3
Private Employee	10	8.3
Government Employee	Nil	Nil
Daily Wages	36	30.0
Others	16	13.3

While classifying the parents' educational level, nearly 84.2% of their fathers had education at high school levels, followed by possessing basic degree (7.5%), and post-graduation (around 6.7%). More or less, the same trend was noticed for their mother's level of education as nearly 78.3% had completed basic school education, followed by possessing a basic degree (15 %).

The description of father's occupation showed that around 16.7% of them were employed in private concern as support service employee, followed by government service (6.7%) as assistance, teachers, helpers etc. Around 50.8% of their parents were employed as daily wage earners by doing odd jobs. More strikingly, the majority of their mothers are home makers taking care of family (48.3%), followed by serving in private concerns as assistance and support services (8.3%). A daily wage earner category of mothers was accounted for about 30% and rest 13.3% of mothers reported as doing other odd jobs. In general, the socio-economic status of family covers a wide range representing more or less all the cross-section of the population.

Section II: Independent '*t*' test (Pre-test scores for both Experimental and Control Groups of Slow Learners)

Section II deals with the results of the pre-test stage of the samples of slow learners exploring whether any such difference existed between the experimental and control groups on various criterion variables such as academic performance, self-efficacy, self-perception, socio-emotional adjustment, temperament, and intrinsic motivation. These tests were carried out to ensure whether two comparable groups were homogenous in nature before the administration of Integrated Intervention. The results of independent sample'*t*' test (pre-test scores) between the experimental and control group

of slow learners on Academic Performance on Biology and History were presented in Table 8 and Figure 3.

Table 8

Independent 't' Test between Pre-Control and Pre- Experimental Group of Slow Learners on Academic Performance

Variables	Mean		df	't' Value
	Experimental	Control		
Biology	41.50 (4.42)	41.11 (3.90)	118	0.511 ^{ns}
History	42.17 (3.95)	41.98 (4.47)	118	0.244 ^{ns}

Note: Figures in parentheses indicate standard deviation
* p < .05, ** p < .01, *** p < .001, ns – not significant

Levene's test for equality of variance for Academic Performance scores for History F(1,118)=0.491, p=0.485 and Academic Performance scores for Biology F(1,118)=0.183, p=0.670 indicated there was no significant difference between the experimental and control groups which confirmed the homogeneity of the respondents of both the groups. An independent sample '*t*' test also revealed there were no significant differences between the two groups with regard to the Academic Performance of Biology t(118)=.511, p>0.05 and History t(118)=.244, p >0.05 before the Integrated Intervention. The illustration in Figure 3 clearly depicted that the experimental and control group did not significantly differ from each other with respect to their Academic Performance on Biology and History before the implementation of Integrated Intervention.

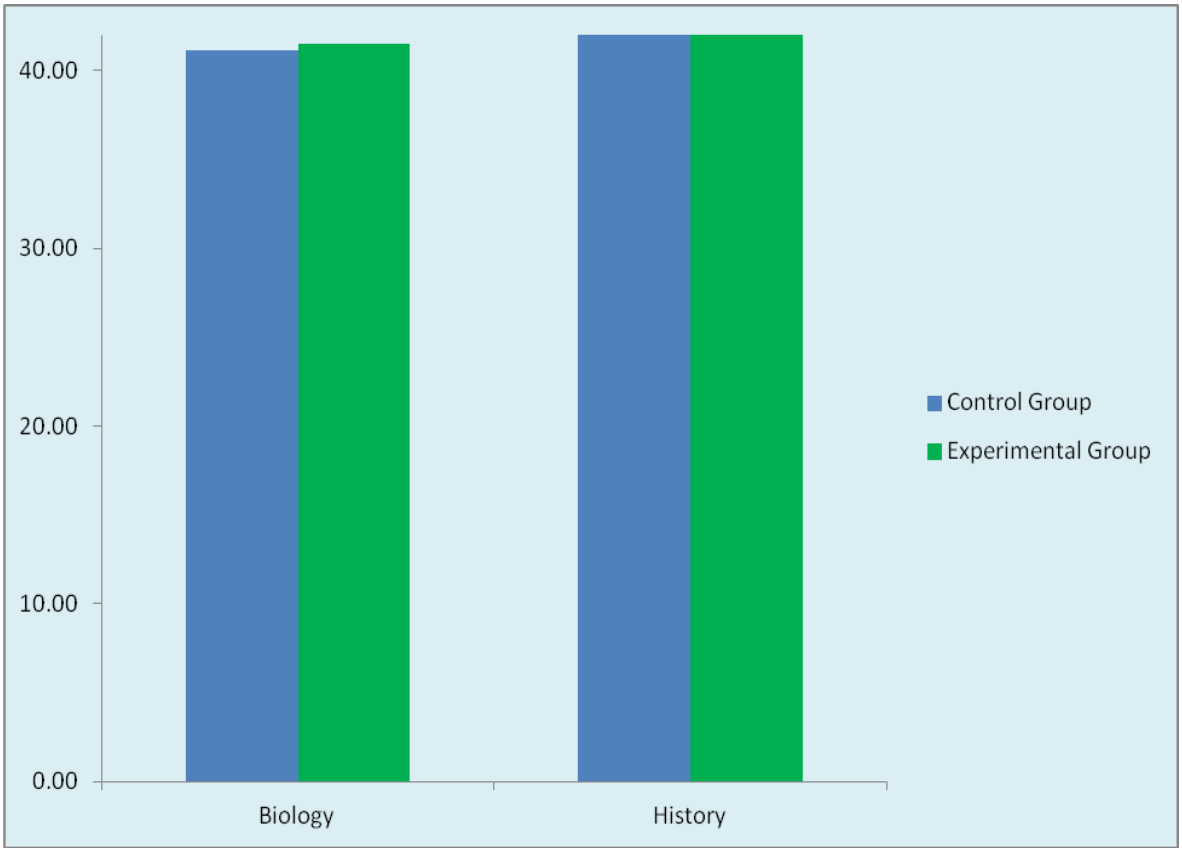

Figure 3: Mean Scores of Pre-Experimental and Pre-Control Groups on Academic Performance of Biology and History before the administration of Integrated Intervention.

Table 9

Independent 't' Test between Pre-Control and Pre-Experimental Group of Slow Learners on Academic Self-Efficacy and Self Perception Profile

Variable	Mean		df	't' Value
	Experimental	Control		
Academic Self-Efficacy	27.83 (3.55)	27.17 (3.63)	118	1.017 ^{ns}
Self Perception Profile				
Scholastic Competence	11.92 (2.33)	11.45 (2.31)	118	1.101 ^{ns}
Global Self-Worth	12.55 (2.74)	12.05 (2.25)	118	1.091 ^{ns}
Social Acceptance	13.03 (2.60)	12.60 (3.04)	118	0.837 ^{ns}
Parent Support	11.87 (1.93)	11.85 (1.84)	118	0.048 ^{ns}

Note: Figures in parentheses indicate standard deviation
* p < .05, ** p < .01, *** p < .001, ns – not significant

Table 9 and Figure 4 indicated that there is no significant difference between the pre-control and pre-experimental groups on Academic Self-Efficacy and Self-Perception Profile dimensions. The results revealed that both the groups were homogeneous in nature before conducting the intervention program.

Based on the Levene's test, Equality of Variance between the two groups was assumed, F (1, 118) = 1.017, p =. 331. The Academic Self-Efficacy mean pre-test score of the slow learning students in the experimental group was 27.83, while the mean pre-test scores of the slow learning students in the control group was 27.17. The mean difference between the two groups was .66. The results of the independent samples '*t*'

test indicated that there is no significant difference between two groups. The same trend was noticed on Self-Perception profile dimensions such as Scholastic Competence (F (1, 118) = 1.101, p =.27), Global Self-Worth (F (1,118) = 1.091, p =.28), Social Acceptance (F (1,118) = 0.837, p =.404), Parent Support (F (1, 118) = 0.048), p =.962). From the Table 9 and Figure 4, it could be inferred that both the control and experimental groups were very much homogenous in nature as there was no significant difference between pre-control and pre-experimental groups.

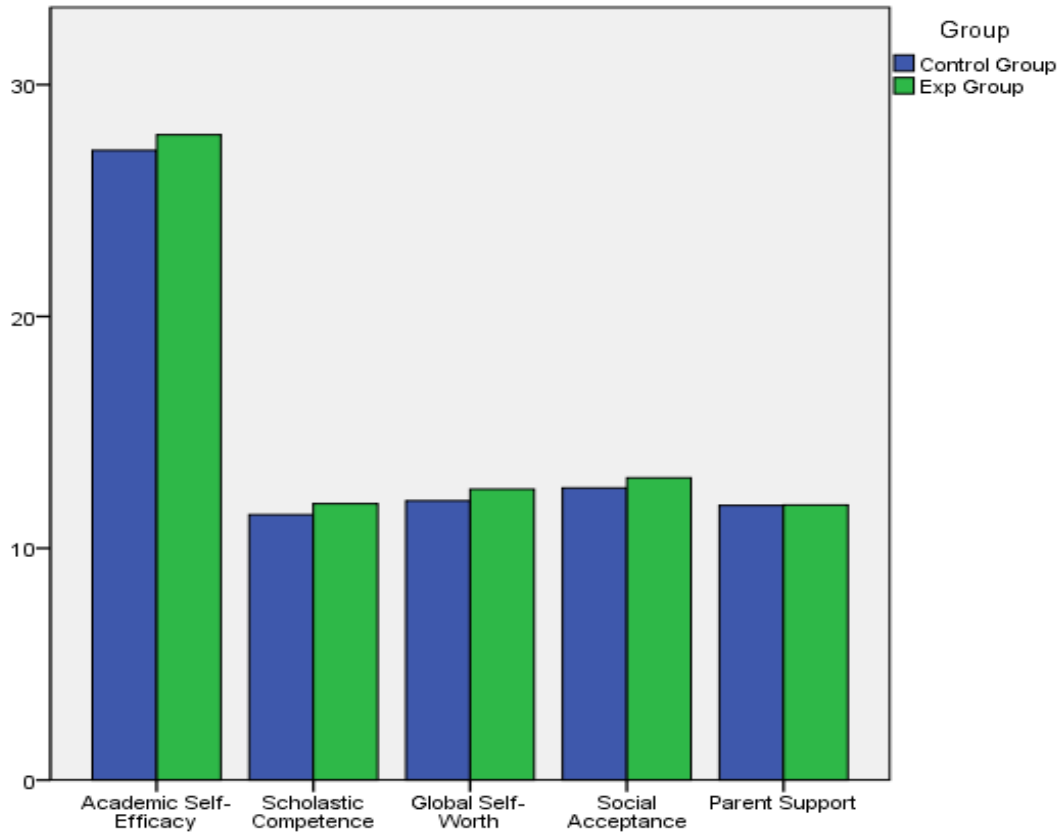

Figure 4. Means scores of Pre-Experimental and Pre-Control Groups on Academic Self-Efficacy and Self-Perception Profile before the administration of Integrated Intervention.

Table 10

Independent 't' Test between Pre-Control and Pre-Experimental Group on Socio-Emotional Adjustment Scale

Dimensions	Mean		df	't' Value
	Experimental	Control		
Aggressive with peers	11.78 (1.78)	12.35 (2.20)	118	1.546 ^{ns}
Anti-Social with peers	10.08 (1.70)	10.12 (1.69)	118	0.107 ^{ns}
Excluded by Peers	11.52 (2.32)	12.03 (2.08)	118	1.282 ^{ns}
Anxious Fearful	6.93 (1.69)	7.17 (1.81)	118	0.874 ^{ns}
Pro-Social behavior	11.30 (2.04)	11.08 (1.74)	118	1.441 ^{ns}
Hyper Active Distractible	6.82 (1.53)	6.68 (1.45)	118	0.488 ^{ns}

Note: Figures in parentheses indicate standard deviation
* p < .05, ** p < .01, *** p < .001, ns – not significant

An independent sample '*t*' test which was conducted to determine whether the slow learning students in the experimental group tend to differ significantly from the slow learners of the control group on mean pre-test score of the socio-emotional adjustment scale was presented in Table 10 and Figures 5. Based on Levene's test, Equality of Variance between the two groups was assumed for the six dimensions viz. Aggressive with Peers (F (1, 118) = 1.546, p =.125), Antisocial with Peers (F (1, 118) = 1.107, p =.915), Excluded by Peers (F (1, 118) = 1.282, p =.202), Anxious Fearful (F (1, 118) = 0.874, p =.384), Pro-social Behavior (F (1, 118) = 1.441, p =.152), Hyper Active-Distractible (F (1, 118) = 0.488, p =.326). As there was no significant difference

between pre-control and pre-experimental groups in any of the dimensions, both the groups were homogeneous in nature before conducting the Integrated Intervention program.

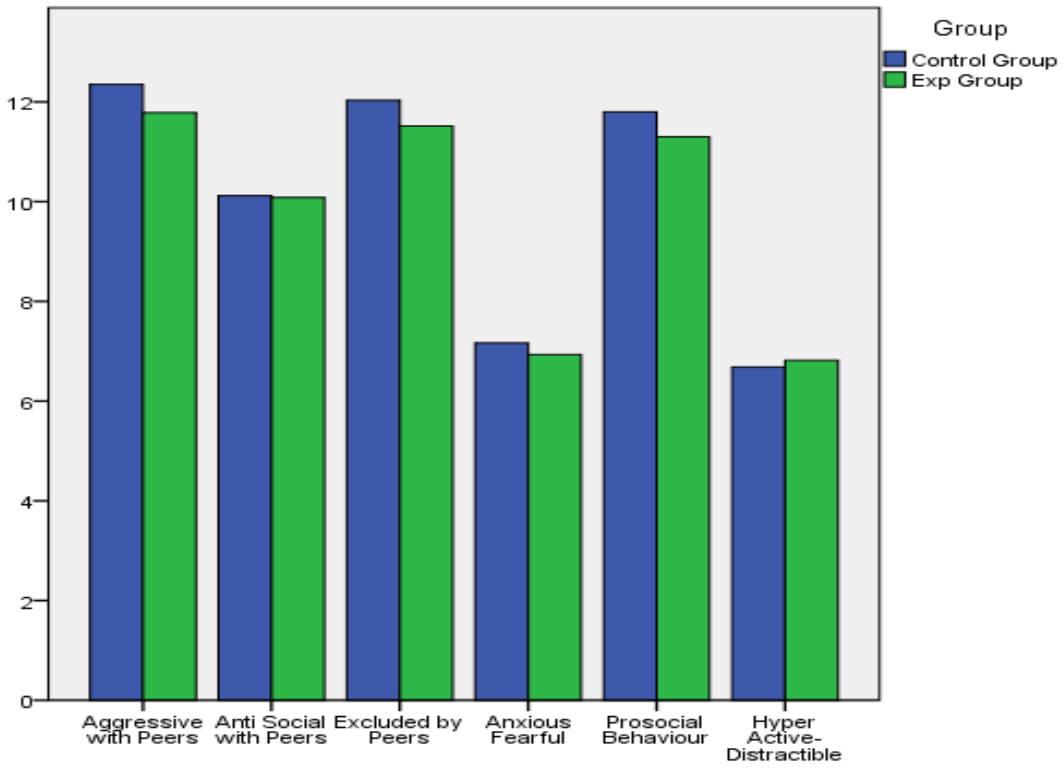

Figure 5. Mean scores of Pre-Experimental and Pre-Control Groups on Socio-Emotional Adjustment levels of Slow Learners before the administration of Integrated Intervention.

Table 11

Independent 't' Test between Pre-Control and Pre-Experimental Group on Malhotra's Temperament Schedule

Factors	Mean		df	't' Value
	Experimental	Control		
Sociability	10.88 (1.32)	10.85 (1.29)	118	0.139 ^{ns}
Emotionality	12.52 (1.96)	12.33 (2.40)	118	0.458 ^{ns}
Energy	13.45 (1.84)	13.12 (1.64)	118	1.044 ^{ns}
Attentivity	11.18 (2.42)	11.23 (2.05)	118	0.122 ^{ns}
Rhythmicity	13.45 (1.84)	13.63 (2.71)	118	0.433 ^{ns}

Note: Figures in parentheses indicate standard deviation
* p < .05, ** p < .01, *** p < .001, ns – not significant

Table 11 and Figure 6 indicated that there is no significant difference between the pre-control and pre-experimental groups on Temperament schedule. The assumption of homogeneity of variance was met by Levene's Test for Equality of Error Variance, which displayed a non-significant result for Pre-Temperament schedule dimensions such as Sociability (F (1, 118) = 1.139, p =.890), Emotionality (F (1, 118) = 0.458, p =.648), Energy (F (1, 118) = 1.044, p =.299), Attentively (F (1, 118) = 0.122, p =.903), and Rhythmicity (F (1, 118) = 0.433, p =.666). From the Table 11 and Figure 6, it can be inferred that both experimental group and control group were homogenous in nature.

.

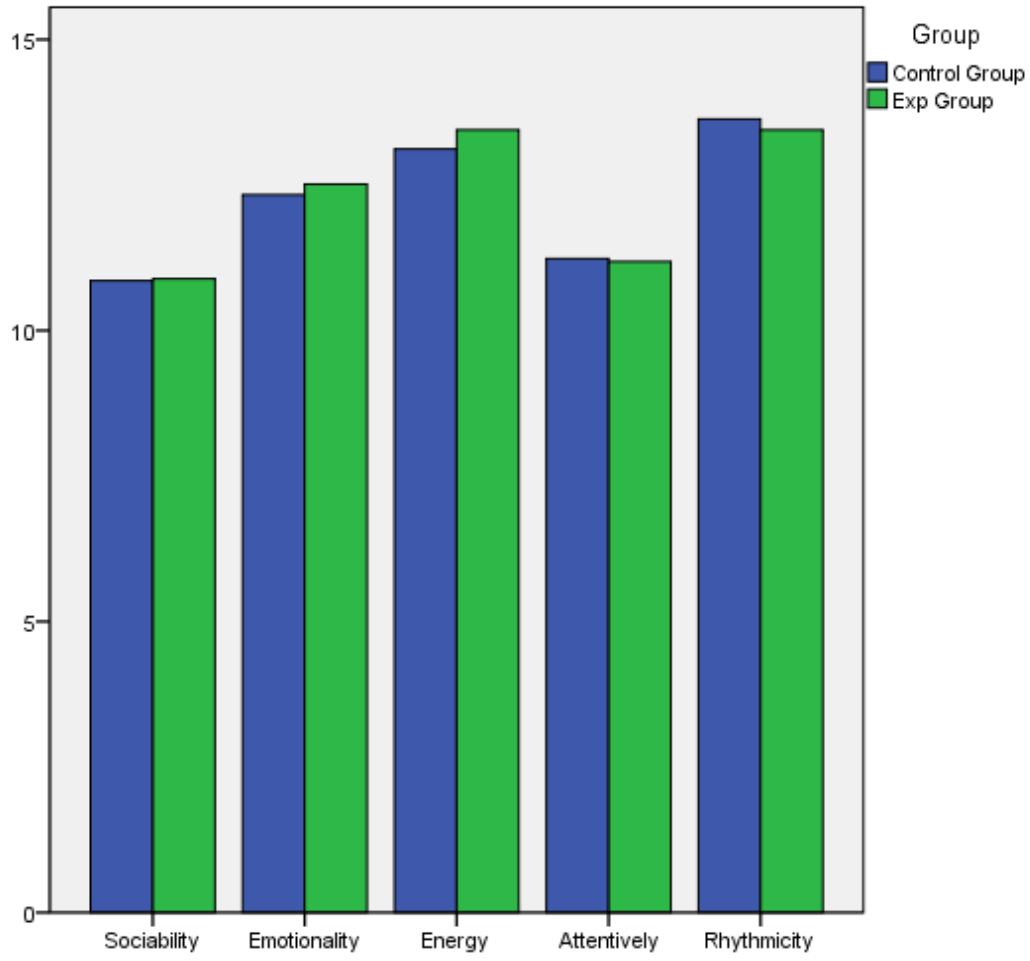

Figure 6. Mean scores of Pre-Experimental and Pre-Control Groups on Temperament Scale

Table 12

Independent 't' Test between Pre-Control and Pre-Experimental Group on Intrinsic Motivation and its Dimensions

Variable/Dimensions	Mean		df	't' Value
	Experimental	Control		
Intrinsic Motivation	38.77 (1.30)	38.63 (1.26)	118	0.586 ^{ns}
Interest/Enjoyment	5.61 (0.29)	5.65 (0.29)	118	0.896 ^{ns}
Perceived Competence	5.39 (0.36)	5.45 (0.38)	118	0.910 ^{ns}
Effort / Importance	5.56 (0.38)	5.49 (0.39)	118	1.044 ^{ns}
Pressure / Tension	4.89 (0.37)	4.83 (0.42)	118	0.823 ^{ns}
Perceived Choice	5.41 (0.33)	5.39 (0.28)	118	0.253 ^{ns}
Value / Usefulness	5.99 (0.36)	5.93 (0.41)	118	1.008 ^{ns}
Relatedness	5.93 (0.24)	5.90 (0.25)	118	0.606 ^{ns}

Note: Figures in parentheses indicate standard deviation

* p < .05, ** p < .01, *** p < .001, ns – not significant

The experimental and control groups were tested for homogeneity of variance using the Levene's test. The results indicated that variance between the experimental and control groups were homogenous with regard to Intrinsic Motivation F(1,118) = .115, p=.735, Interest/Enjoyment F(1,118) = .292, p=.590, Perceived Competence F(1,118) = .622, p = .432, Effort/Importance F(1,188) = .082, p= .775, Pressure/Tension F(1,118) = 1.398, p = .240, Perceived Choice F(1,118) = .096, p = .757, Value/

Usefulness F(1,118) = 1.425, p = .235 and Relatedness F(1,118) = .109, p = .742. Further the results listed in Table 12 indicated that the independent sample '*t*' test between the experimental and control group did not yield significant differences between the two groups with regard to intrinsic motivation and its dimensions.

The bar graph in Figure 7 clearly depicted that the experimental and control groups were similar and did not differ significantly from each other.

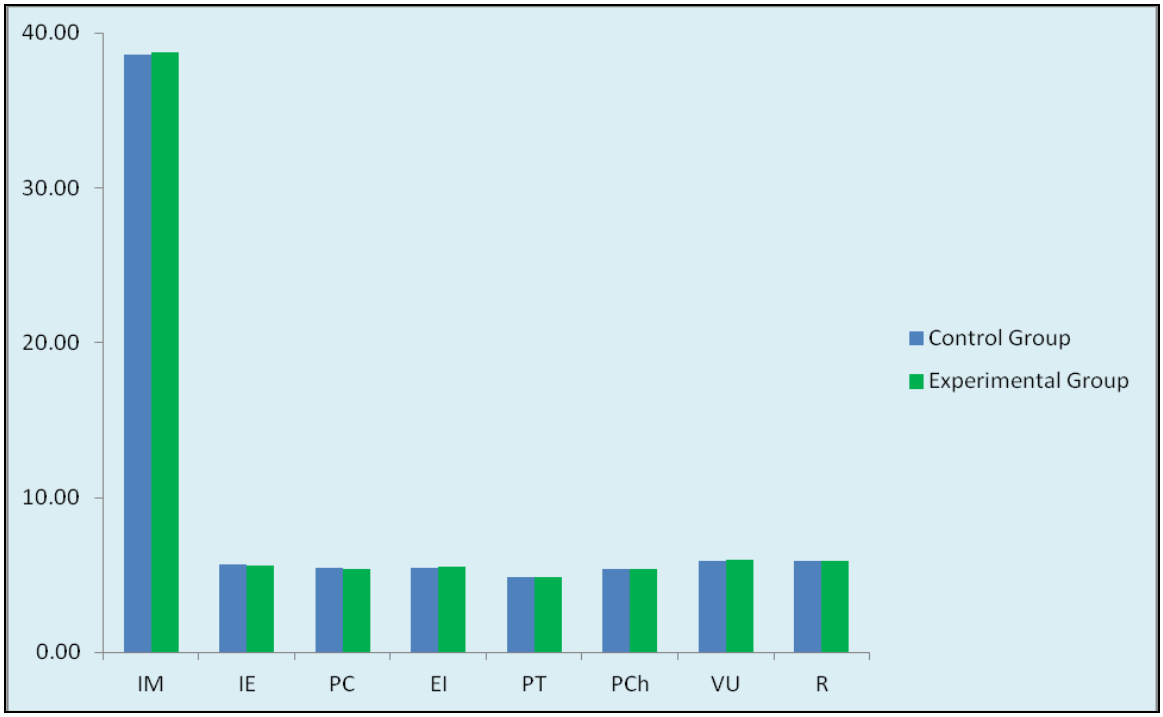

Figure 7. Mean scores of Pre-Experimental and Pre-Control Groups on Intrinsic Motivation and its Dimensions

Section III: Paired '*t*' Tests between Pre-test and Post-test for both the Experimental Group and Control Group of Slow Learners' after the implementation of Integrated Intervention based on Gain Scores

This section highlights whether any significant difference existed between pre-test and post-test stage due to the administration of Integrated Intervention which was given exclusively to the experimental group of slow learners.

Table 13

Paired 't' Test between Pre-Test and Post-Test for Both Experimental and Control Groups of Slow Learners on Academic Performance for Biology and History Subjects.

Variable	N	Mean		Gain Score	'*t*' value
		Pre-test	Post-test		
Biology					
Experimental	60	41.50 (4.42)	61.25 (7.03)	19.75	15.654***
Control	60	41.11 (3.90)	42.25 (5.15)	1.14	1.417 *ns*
History					
Experimental	60	42.17 (3.95)	60.12 (5.62)	17.95	21.092 ***
Control	60	41.98 (4.47)	43.07 (2.86)	1.09	1.566 *ns*

Note: Figures in parentheses indicate standard deviation
* p < .05, ** p < .01, *** p < .001, ns – not significant

The results in Table 13 indicated that a significant change existed in the experimental group due to the implementation of Integrated Intervention for the Academic Performance of Biology $t(59) = 15.654$, $p < 0.001$ and for the Academic

Performance of History t(59) = 21.092, p < 0.001. The control group of slow learners however did not post any such significant gains in the Academic performance of Biology t(59) = 1.417, p>0.05 and History t(59) = 1.566, p> 0.05. It is evident from Figure 8 that the experimental group had posted greater scores in the post-test of both Biology and History subjects in comparison with control group.

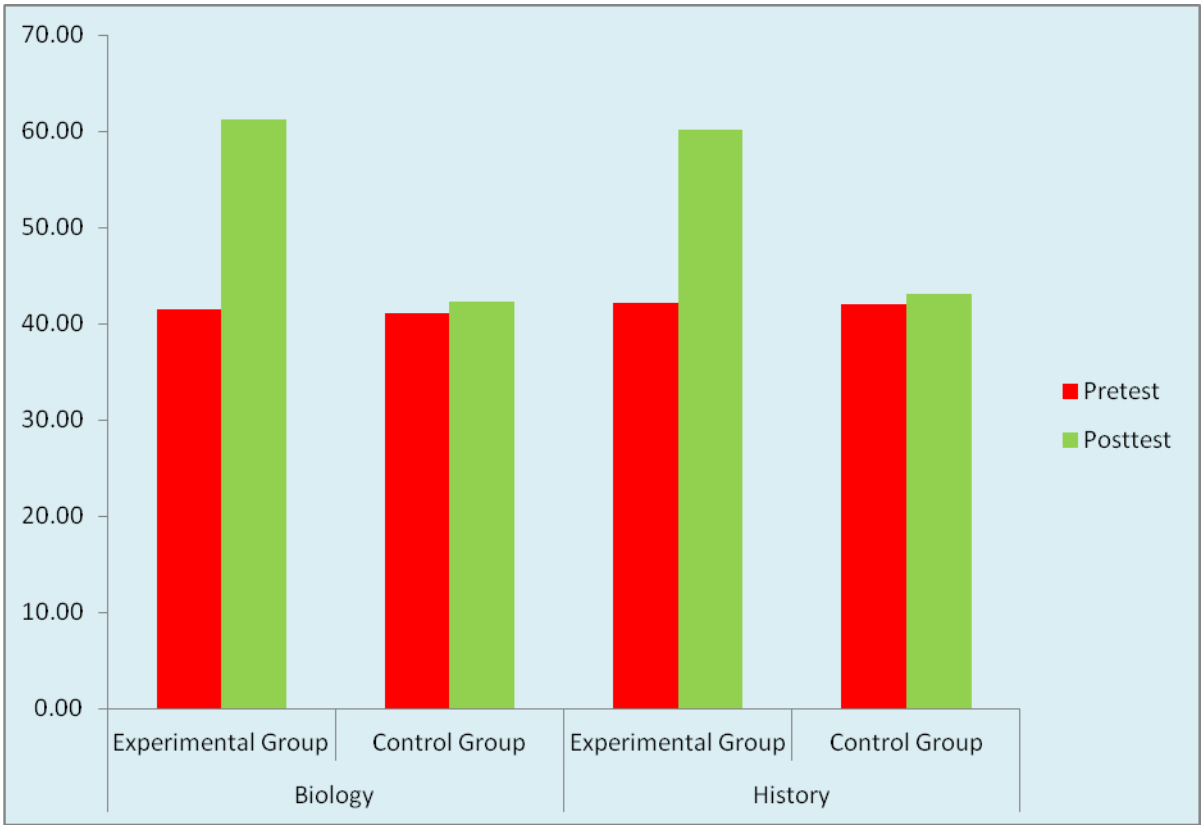

Figure 8. Mean Scores of Experimental and Control groups after the Implementation of the Integrated Intervention for the Academic Performance on Biology and History Subjects.

The paired sample '*t*' test compared the pre-test and post-test scores of the experimental and control group separately. Subsequently the experimental and control groups were compared with each other based on the gain score they have posted in the respective domain to ensure that the gains posted was exclusively due to the effects of the Integrated Intervention.

Table 14

Independent 't' Test between Control and Experimental Group of Slow Learners on Academic Performance after the Integrated Intervention.

Variables	Gain		df	't' Value	Cohen's d
	Experimental	Control			
Biology	19.75 (9.77)	1.14 (6.22)	118	12.443***	2.29
History	17.95 (6.59)	1.09 (5.38)	118	15.353***	2.83

Note: Figures in parentheses indicate standard deviation
* p < .05, ** p < .01, *** p < .001, ns – not significant

The independent sample '*t'* test between the experimental and control groups based on the gain scores as given in Table 14 revealed that the experimental group of slow learners differed significantly from the control group with respect to the Academic Performance of Biology 't' (118) = 12.443, p < .001, d=2.29 and History 't' (118) = 15.353, p < 0.001, d=2.83. Cohen's d indicated a strong effect for Biology (*d=2.29*) and a strong effect for History (*d=2.83*). Figure 9 clearly depicted that the gains posted by experimental group did differ significantly from the control group with regard to the Academic Performance of Biology and History.

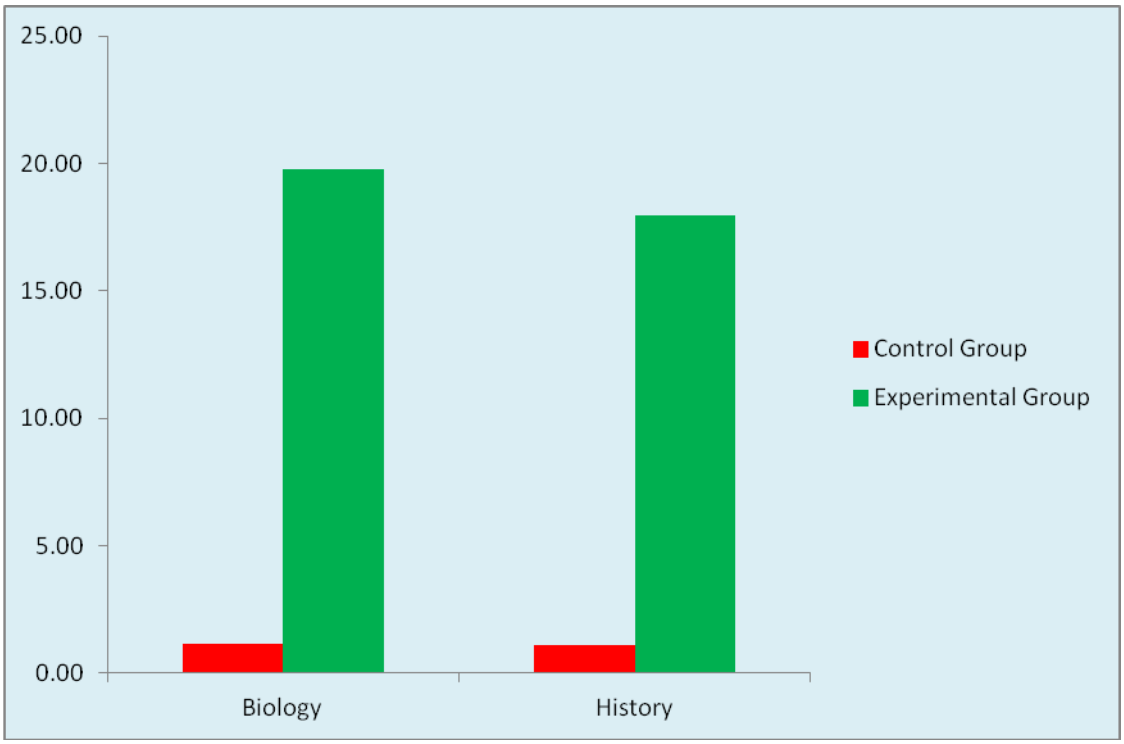

Figure 9. Mean Gain scores of Experimental and Control Groups after the Implementation of the Integrated Intervention on the Academic Performance for Biology and History Subjects

It was quite evident from Table 14 that the slow learners tend to have higher score in Biology subject in the post-test after the implementation of Integrated Intervention and further it had been confirmed in Figure 9 that they had scored more than the control group which received only conventional classroom instruction. It could also be observed that the slow learners tend to have higher score for History (Social Science) subject in the post-test stage than the control group. The results showed that the slow learners of experimental group had posted statistically significant gains in both Science and Arts subjects after the Integrated Intervention. The gains in Academic Performance score which was perhaps due to the implementation of Integrated Intervention is in line with previous research findings (Bos & Anders, 1992, Griffin et al, 1995, Griffin & Tulbert, 1995, Jitendra et al, 1999, Guastello et al, 2000, Baxendell, 2003). Integrated Intervention

strategies, when used coherently, consistently and creatively, had tremendous potential in yielding positive results among the special needs students (Baxendell, 2003).

The present work is supported firmly by the earlier research findings of Herbst (1995) which indicated that the graphic organizers and elaborations were very effective in enhancing learning activities of slow learners investigating the effect of using graphic organizers on ninth grade students' achievement in social studies. Willerman and Mac Harg (2006) suggested that concept maps which were used as advance organizers can improve the science achievement of eighth grade students. Snead and Snead (2004) examined the effects of concept mapping on the science achievement of middle grade science students and proved that the lower ability students appear to have better success with concept mapping than higher ability students. Robinson and others (1999) reported that spatial encoding tend to enhance due to the facilitative effects of graphic organizers and concept maps.

The results showed that the students of slow learners in the experimental group were able to obtain more marks in the post-test than the pre-test after using Integrated Intervention in both the subjects Biology and History. Integrated Intervention was proven to be an effective result oriented strategy in enhancing the learning process of the slow learners. It seems that the Integrated Intervention had facilitated in fulfilling the need based requirements of the slow learners to a considerable level in accelerating their learning process. Graphic organizers tend to organize information from linear form to non-linear (relational) forms involving multiple senses in encoding information which enables the user to have multiple cues for retrieving learned information and in turn help in improving academic performance.

During instruction, one can draw and sustain their attention relatively for little longer time and promote concentration as the teacher concentrates on the individual. By differentiating instruction and incorporating different ways and modes of instructions (materials, mind mapping, mindfulness meditation for better concentration and memory techniques can be used for the development of difficult concepts) the teacher shall keep pace with the speed of learning of the individual student. Some students learn science subject quickly and easily, but for those who feel it is difficult, no timetable should be set. Children should always be given adequate time they need to explore, understand, and remember. Similar findings were also reported by Lidho and Khan (1990) which highlighted the significant role of intervention in improving the underachievers to gain their scholastic achievement.

The present results support the Hypothesis I strongly that the Integrated Intervention enhances the Academic Performance of the slow learners very significantly in both Biology and History subjects.

Table 15

The Paired 't' Value for Academic Self-Efficacy, Self Perception Profile and its Dimensions between the Pre and Post Test Data for Experimental and Control Groups

Variable	N	Mean		Gain Score	't' value
		Pre-test	Post-test		
Academic Self-Efficacy					
Experimental	60	19.28 (4.43)	27.83 (3.55)	8.55	11.42 ***
Control	60	27.17 (3.63)	27.41 (3.34)	0.24	0.403 *ns*
Self Perception Profile					
Scholastic Competence					
Experimental	60	11.92 (2.33)	18.20 (1.97)	6.28	15.79 ***
Control	60	11.45 (2.31)	11.21 (2.44)	-0.24	1.491 *ns*
Global Self-Worth					
Experimental	60	12.55 (2.74)	19.13 (2.03)	6.58	13.62 ***
Control	60	12.05 (2.25)	11.80 (2.71)	-0.25	0.634 *ns*
Social Acceptance					
Experimental	60	13.03 (2.60)	13.25 (2.46)	0.22	0.468 *ns*
Control	60	12.60 (3.040	12.65 (2.46)	0.05	0.105 *ns*
Parent Support					
Experimental	60	11.87 (1.93)	12.25 (1.91)	0.38	1.129 *ns*
Control	60	11.85 (1.84)	12.11 (1.86)	0.26	0.758 *ns*

Note: Figures in parentheses indicate standard deviation
* p < .05, ** p < .01, *** p < .001, ns – not significant

Figure 10. The paired 't' value obtained for Academic Self-Efficacy, Self-Perception Profile and its dimensions between the Pre and Post-test data for Experimental and Control Groups

The results of the paired sample '*t*' test presented in Table 15 and Figure 10 revealed that there is a significant difference between the pre-test and post-test data in Academic Self-Efficacy $t(59) = 11.42$, $p<0.001$ and in some of the dimensions of Self-Perception only in the experimental group but hardly any difference existed in the control group.

Further, Table 15 and figure 10 showed the significance of difference in the pre-test and post-test scores of control and experimental groups of slow learners on "Self-Perception Profile". The results revealed that hardly any significant difference existed between the pre and post-test control group of slow learners on all the four dimensions

namely Scholastic Competence 't' (59) = 1.491, p > 0.05, Global Self-Worth t(59) = 0.634, p> 0.05, Social Acceptance t(59) = 0.105, p > 0.05, and Parent Support t(59) = 0.758, p> 0.05. But quite contrastingly, the experimental group of slow learners showed a significant difference remarkably on two dimensions of Self Perception Profile such as Scholastic Competence and Global self-worth. Figure 10 depicted that the two dimensions of the Self Perception Profile namely Scholastic Competence and Global Self-worth of the slow learners of the experimental group have increased to a considerable level in the post-test.

Table 16

Gain Scores Mean of Experimental and Control Groups after Integrated Intervention for Academic Self-Efficacy, Self Perception Profile and its Dimensions

Variable	Gain		df	t value	Cohen's d
	Experimental	Control			
Academic Self-Efficacy	8.55 (5.80)	0.25 (4.81)	118	8.532***	1.57
Self Perception Profile					
Scholastic Competence	6.28 (3.08)	-0.24 (1.21)	118	15.24***	2.81
Global Self-Worth	6.58 (3.74)	0.25 (3.05)	118	10.95***	2.02
Social Acceptance	0.22 (3.62)	0.05 (3.70)	118	0.249 *ns*	0.04
Parent Support	0.38 (2.63)	0.26 (2.72)	118	0.239 *ns*	0.04

Note: Figures in parentheses indicate standard deviation
* p < .05, ** p < .01, *** p < .001, ns – not significant

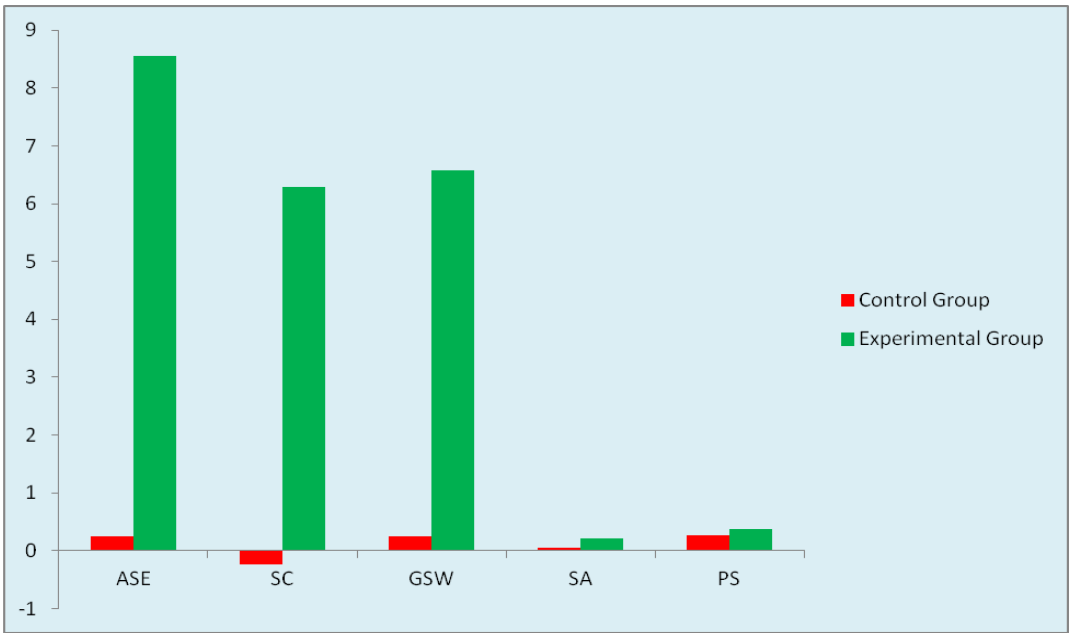

Figure 11. Gain Scores means of Experimental and Control Groups after Integrated Intervention for Academic Self-Efficacy, Self Perception Profile and its Dimensions

The gain score comparison of the experimental and control group using an independent sample '*t*' test is listed in Table 16. The results indicated that the experimental group of slow learners significantly differed from the control group with respect to Academic Self-Efficacy 't' (118) = 8.532, p <0.001, d=1.57 Scholastic Competence dimension of the Self Perception Profile 't' (118) = 15.24, p <0.001, d=2.81 and Global Self-worth dimension of the Self Perception Profile 't' (118) = 10.95, p <0.001, d=2.02. Effect sizes indicated that the Integrated Intervention had a large effect on Academic Self-efficacy (*d=1.57*), and strong effects on the Scholastic Competence (*d=2.81*) and Global Self-worth dimension of the Self Perception Profile (*d=2.02*).

The slow learners of experimental group have gained in their confidence levels and firmly believe that they have adequate skills and put more effort in enhancing the academic performance in all the facets of academic activities. Thus, the Integrated Intervention program produced a significant effect on slow learners' Academic

Self-efficacy. The experimental group showed a significant improvement in Academic Self-efficacy perhaps due to the effect of Integrated Intervention. It can be inferred that the graphic organizer and memory techniques could have acted as effective tools which drive the slow learners to summarize their ideas and structure their writing work and worked as a visualizer by converting a text into an appropriate paragraph which, in turn, further facilitates to retrieve the required information at the appropriate time. Due to this process, the slow learners tend to have more confidence in their academic tasks. Once, the slow learners started strengthening their belief about higher academic abilities it automatically reduces their performance anxiety and increase the level of Self-Confidence. Similar studies have reported that graphic organizer, identified as an effective strategy to improve feelings of competence and success, has been widely used as a means of enhancing Academic Self-Efficacy (Chularut, & DeBacker 2004; DiCecco, & Gleason, 2002). It has been shown that the students of slow learners with high precepts of self-efficacy consequently tend to persist longer, seek moderately challenging learning tasks, view failures as learning opportunities, and achieve more academic success (Al-Harthy, Was, & Isaacson 2010; Deemer, 2004). The interpretation of these present results confirms that along with Graphic Organizer, the Integrated Intervention can increase effectively the Academic Self-Efficacy. Thus, the slow learners who have high self-efficacy beliefs may likely to have high confidence in their abilities to successfully perform their academic tasks and set mastery goals and are more likely to see the academic/study experience as a challenge rather than a threat. Hence, the concerned stake holder such as school head masters, class teachers, school counselors must evolve suitable strategies to cultivate self-efficacy beliefs among the slow learners.

It is very surprising to note that the two dimensions of Self-Perception, namely – Social Acceptance and Parental Support did not have any significant enhancement among slow learners of experimental group after the Integrated Intervention. Perhaps, either the parents may not be paying adequate attention in emulating the demanding role change, or even retreating to their original role though they had continued to change their required modified role or the wards might tend to maintain static perception of their parents traditional parenting style even if they had attempted to change some extent. Unless, there is a strong determination or commitment among the parents to change their role/behavior pattern which is utmost essential at this juncture, the chances of turning around slow learners would be very bleak.

Though there is no significant difference between pre-test and post-test phases on the two dimensions of Self-Perception such as Social Acceptance and Parent Support, the role of parents, peer group members and other social support must not be neglected. Perhaps as the slow learners are unable to meet their academic demand which is more than their capacities', they are required to spend more time in comprehending the academic inputs fulfilling the expectation of teachers, putting more effort in academic activities, they may restrict to look into other aspects particularly parents support and social acceptance. Once there is remarkable improvement in self-efficacy and self-perception, they may likely to perceive the parental support and social acceptance in a positive manner. However, the parents and members of peer group's must also be so considerate in paying adequate attention to enhance the slow learners' academic interest. Unless these "contextual" or surrounding factors are being taken care of adequately, the slow learners cannot concentrate on the "content" factors of academic activities such as

studying, writing, presenting etc. The findings confirmed that the Integrated Intervention appears to be a useful means of changing the self-perception and judgment of slow learners on the academic tasks.

Perceived Scholastic Competence of Self-Perception had increased significantly more in the experimental group than for the control group. Perhaps, it might be due to the effect of Graphical Organizer and Mindfulness Training which facilitate to achieve academic target by focusing on maintaining concentration, completing school work, maintaining perseverance in studies, organizing their notes etc. The present findings provide a major insight on the impact of the Integrated Intervention program. Supporting these findings, the earlier research studies have found that low achievers put forth more effort and are more academically successful if they hold positive self-perception regarding their academic competence (Meltzer et al. 2004). Similarly, slow learners' perceptions of their global self-worth increased significantly due to the positive effect of the intervention. Hence, there is 'high possibility of enhancing positive self-perception if there is a regular individual attention being paid to the concerned slow learners from the trainers and class teachers. However, if a student possesses negative self-perceptions, it may likely underestimate their academic potential (Coleman, 2004). Some research studies suggested that individuals with poor perceived competence will always strive to minimize damage to their self-worth by withdrawing effort when they suspect failure or poorer performance in comparison with their peers (Thompson & Perry, 2005). Hence, the present Integrated Intervention Program is facilitating to increase the slow learning students self-worth effectively as it is reflected in raising their scores on slow learning students' scholastic competence.

As the Integrated Intervention program enhance the positive self-perception of the slow learning students more effectively in their academic arena, it can be inferred that teachers must avoid giving less priority to the slow learners in the class rooms, placing less emphasis on their academic subjects and ignoring any positive signals exhibited by them. Otherwise, it might have served to give a wrong signal to the slow learners that high intellectual achievement is not expected of them. This type of biased perceptions of the teachers appears to have resulted in low achievement motive among slow learning students diminishing their interest to attain their scholastic achievements. Therefore, teacher must show an equal importance to the both high achieving and low achieving groups of students, which may, in turn, facilitate the slow learners to understand what they have been expected of by their teachers through their day-to-day class room proceedings. When teachers show that they expect the slow learning students to perform well with genuine interest and intent, they reciprocate it by doing well in their academic studies. Otherwise, if the teachers project no such expectation, the slow learning students do not have any interest or enthusiasm to exhibit higher level of performance. Research evidences are strongly supporting this type of Pygmalion Effect spanning several decades (Rosenthal & Jacobson, 1968; Cooper, 1979; Dusak & Joseph, 1985; Babad, 1995).

The results showed in Table 15 and Table 16 support the Hypothesis 2 significantly that the Integrated Intervention did have an effect in facilitating the enhancement of Academic Self-Efficacy levels of slow learners. Similarly, as the two dimensions of Self-Perception such as Scholastic Competence and Global Self-Worth had significant level of increase after the implementation of Integrated Intervention, the Hypotheses 3 has been confirmed partly.

Table 17

The Paired 't' Value Obtained for Socio-Emotional Adjustment Scale and its Dimensions between the Pre and Post Experimental and Control Groups

Variable	N	Mean		Gain Score	't' value
		Pre-test	Post-test		
Aggressive with Peers					
Experimental	60	11.78 (1.78)	11.85 (1.65)	0.07	0.213 ^{ns}
Control	60	12.35 (2.20)	12.50 (2.14)	0.15	0.349 ^{ns}
Anti-Social with Peers					
Experimental	60	10.08 (1.70)	10.33 (1.38)	0.25	0.863 ^{ns}
Control	60	10.12 (1.69)	10.26 (1.79)	0.14	0.476 ^{ns}
Excluded by Peers					
Experimental	60	11.52 (2.32)	11.83 (2.42)	0.31	0.678 ^{ns}
Control	60	12.03 (2.08)	12.10 (2.08)	0.07	0.184 ^{ns}
Anxious Fearful					
Experimental	60	9.38 (1.39)	6.93 (1.69)	-2.45	7.99 ***
Control	60	7.17 (1.18)	7.23 (1.18)	0.06	0.308 ^{ns}
Pro-Social Behavior					
Experimental	60	11.30 (2.04)	16.76 (1.72)	5.46	14.50 ***
Control	60	11.80 (1.74)	11.95 (1.75)	0.15	0.460 ^{ns}
Hyper Active-Distractible					
Experimental	60	7.98 (1.84)	6.82 (1.53)	-1.16	3.92 *
Control	60	6.68 (1.45)	6.98 (1.48)	0.30	1.081 ^{ns}

Note: Figures in parentheses indicate standard deviation
* $p < .05$, ** $p < .01$, *** $p < .001$, ns – not significant

Figure 12. The Paired 't' value obtained for Socio-Emotional Adjustment between the Pre and Post tests scores of Experimental and Control Groups

Table 17 and Figure 12 showed the significance of difference in the pre and post-test scores of control and pre and post-test scores of experimental groups on "Socio-Emotional Adjustment Scale". The results revealed that, there exists no significant difference between the pre and post-tests scores of control group on all the six dimensions of the socio-emotional adjustment scale. Comparing to their counter parts, the experimental groups showed a significant difference on three dimensions of Socio-Emotional Adjustment such as Anxious Fearful 't' (59)=7.99, $p < 0.001$, Pro-social Behavior 't' (59)=14.5, $p < 0.001$ and Hyper Active Distractible 't' (59)=3.92, $p < 0.05$. The remaining three dimensions of the Socio-Emotional Adjustment such as "Aggressive

with Peers", "Anti-Social with Peers", and "Excluded by Peers" did not have any significant difference before and after intervention. Overall, the mean scores of experimental group which had an Integrated Intervention showed an increase over the mean scores of the control group which were significant on three dimensions.

Table 18

Gain Scores Means of Experimental and Control Groups after Intervention for Socio-Emotional Adjustment Scale and its Dimensions.

Dimensions	Gain		df	t Value	Cohen's d
	Experimental	Control			
Aggressive with peers	0.07 (2.42)	0.15 (3.33)	118	0.157 *ns*	0.02
Anti-Social with peers	0.25 (2.24)	0.14 (2.44)	118	0.234 *ns*	0.04
Excluded by Peers	0.31 (3.61)	0.07 (2.80)	118	0.423 *ns*	0.07
Anxious Fearful	-2.45 (2.37)	0.06 (1.67)	118	6.706***	1.23
Pro-Social behavior	5.46 (2.91)	0.15 (2.52)	118	10.672***	1.96
Hyper Active Distractible	-1.16 (2.30)	0.30 (2.14)	118	3.60***	0.66

Note: Figures in parentheses indicate standard deviation
* p < .05, ** p < .01, *** p < .001, ns – not significant

Figure 13. Gain scores means of Experimental and Control Groups after the Integrated Intervention for Socio- Emotional Adjustment scale and its Dimensions

The comparison of the experimental and control group after the Integrated Intervention using an independent sample '*t'* test revealed that experimental group of slow learners showed significant reduction in the Anxious and Fearful dimension 't' (118) = 6.706, $p < 0.001$, d=1.23 and Hyperactive Distractible dimension 't' (118) = 3.60 , $p < 0.001$, d=0.66 and a significant increase in the Pro-Social Behavior dimension 't' (118) = 10.672, $p < 0.001$, d=1.96 of the Socio-Emotional Adjustment scale. The data analysis provided strong evidence for the positive impact of the Integrated Intervention program on slow learners' Socio-Emotional Adjustment. The Integrated Intervention showed a large effect for Anxious and Fearful dimension (*d=1.23*), a medium effect for Hyperactive distractible (*d=0.66*) dimension and a large effect for the Pro-Social behavior (d=*1.96*) dimension.

As depicted by the results the teachers' ratings of the student's Socio-Emotional Adjustment indicated a significant reduction in Anxious Fearful Behavior Problems and Hyper Active-Distractible dimensions while there was a significant improvement in the Pro-social Behavior dimension, this might be due to the effective implementation of Integrated Intervention program. Due to the effect of present Integrated Intervention Program, a substantial proportion of the slow learning students were no longer rejected by their peers. The basic tenet of Integrated Intervention program is that it provides slow learners an opportunity to practice and acquire certain critical cognitive skills (i.e. graphic organizer, mindfulness meditation, metacognitive techniques) which enable them to experience and accelerate their learning process and subsequently facilitates to have successful interactions with teachers and peers. Hence, the results emerged from this study indicated that there is a substantial level of reduction in Anxious Fearful Behavior and increased Pro-Social Behavior which may alter their cognitive capacities to acquire additional reading skills helping them to overcome the suppressed feelings about their inadequacy in academic activities. Such activities results in putting them at ease in their interaction with peers and teachers. This findings concur with the results of Langer, (1993) which stated that, if student can learn to be "fully-present", they can increase the quality of their learning performance by being more focused, and become better able to deal with fearful and stressful situation. Hence, if the fearful state and anxiety level about their academic activities exceeds disproportionately beyond their level of control, the slow learners perceive them as hostile and unfriendly which, in turn, lead to thinking and committing more errors resulting in inappropriate reactions and responses on their part.

It is quite interesting to note that there is a considerable level of reduction in Hyper Active-Distractible Behavior among the slow learners in the experimental group, perhaps due to the effect of implementation of Integrated Intervention Program. It is well known that mindfulness training may increase student's ability to selectively focus their attention on their academic activities during their class room proceedings. Thus, Mindfulness training is one of the effective strategies that has potentially assisted the slow learners to alleviate distractible behavior on the moment, so that they can fully focus on class room activities which allow them to look at things in different perspective, recognize the novelty of the theoretical concepts from the teachers and better understand the concepts through the creation of new form of mental schemas. Research studies provide substantial evidence that classrooms that use mindfulness as a core ingredient in the student's learning process enable them to transfer their learned material into a new and novel idea, make them more creative and think independently (Richart & Perkins, 2000; Wong, 1994). Indeed, such mindfulness training undoubtedly would allow students to increase their learning process (Langer & Moldoveanu, 2000).

As it was noticed, there had been a significant level of raise in Pro-Social Behavior and at the same time significant level of reduction in two dimensions such as Anxious Fearful and Hyper Active-Distractible, the Hypothesis 4 had been accepted partially that the Integrated Intervention did have significant effect in regulating the Socio-Emotional Adjustment level among the slow learners.

Table 19

The Paired 't' Test between Pre-Test and Post-Test for both the Experimental and Control Group of Slow Learners on Malhotras Temperament Schedule and its Dimensions

Variable	N	Mean		Gain Score	't' value
		Pre-test	Post-test		
Sociability					
Experimental	60	10.88 (1.32)	13.90 (1.27)	3.02	14.77 ***
Control	60	10.85 (1.29)	11.07 (1.32)	0.22	0.898 ^{ns}
Emotionality					
Experimental	60	12.52 (1.96)	12.10 (1.78)	-0.42	1.468 ^{ns}
Control	60	12.33 (2.18)	13.12 (1.64)	0.79	0.573 ^{ns}
Energy					
Experimental	60	13.45 (1.84)	13.77 (1.92)	0.32	0.953 ^{ns}
Control	60	13.12 (1.640	13.45 (2.69)	0.33	0.936 ^{ns}
Attentivity					
Experimental	60	11.18 (2.42)	12.50 (3.24)	1.32	2.19 *
Control	60	11.23 (2.05)	11.25 (2.65)	0.02	0.241 ^{ns}
Rhythmicity					
Experimental	60	13.45 (1.84)	13.98 (2.47)	0.53	1.300 ^{ns}
Control	60	13.63 (2.71)	13.91 (2.24)	0.28	0.975 ^{ns}

Note: Figures in parentheses indicate standard deviation
* $p < .05$, ** $p < .01$, *** $p < .001$, ns – not significant

The results depicted in Table 19 and figure 14 showed the significance of difference between the pre and post-test control and pre and post-test experimental groups on "Temperament" of the slow learners. The results revealed that there is no significant difference between the pre and post-test control group on all the five dimensions of the Malhotra's Temperament Schedule. Comparing their counter parts, the experimental group of slow learners showed a significant difference only in two dimensions of Temperament Schedule such as Sociability and Attentivity. The results of the paired sample 't' test indicated that there exists a statistically significant difference between the pre and post-test scores of experiment group of slow learners on Sociability 't' $(59) = 14.77$, $p < 0.001$, and Attentivity 't' $(59) = 2.19$, $p < 0.05$.

Further, Figure 14, clearly illustrates that the experimental group of slow learners had scored significantly more in "Sociability" and "Attentivity" dimensions of the Malhotra's Temperament Schedule in the post test.

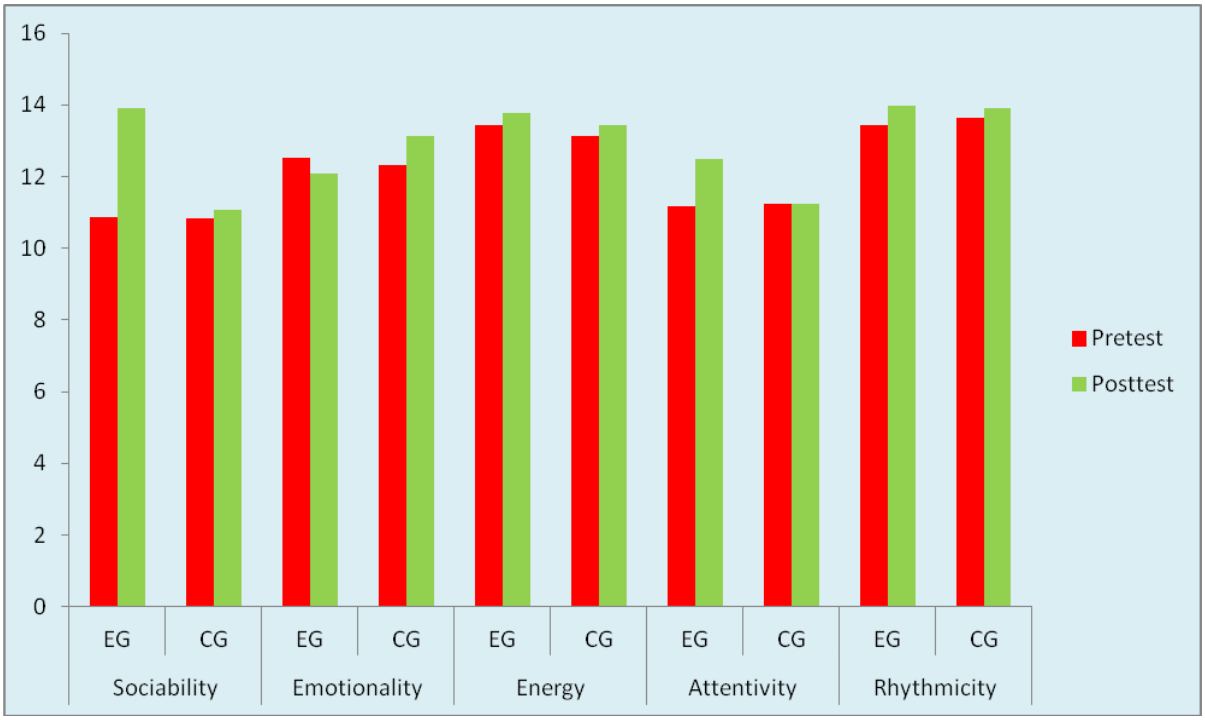

Figure 14. Mean scores of Experimental and Control groups after the Integrated Intervention on Malhotras Temperament Schedule and its Dimensions

Table 20

Gain Scores Means of Experimental and Control Groups after the Integrated Intervention for Malhotras Temperament Schedule and its Dimensions

Factors	Gain		df	't' Value	Cohen's d
	Experimental	Control			
Sociability	3.02 (1.57)	0.22 (1.91)	118	8.695***	1.6
Emotionality	-0.42 (2.19)	0.79 (3.38)	118	1.280 ^{ns}	0.24
Energy	0.32 (2.64)	0.33 (2.82)	118	0.33 ^{ns}	0.06
Attentivity	1.32 (4.64)	0.02 (3.12)	118	1.98*	0.36
Rhythmicity	0.53 (3.17)	0.28 (3.25)	118	0.426 ^{ns}	0.08

Note: Figures in parentheses indicate standard deviation
* p < .05, ** p < .01, *** p < .001, ns – not significant

Further the gain score comparison of the experimental group and control group for the variable Temperament presented in Table 20 indicated that the experimental group of slow learners had scored significantly more in Sociability 't' (118) = 8.695, $p < 0.001$, d=1.6 and Attentivity 't' (118) = 1.98, $p < 0.05$, d=0.36 dimensions of the Temperament Schedule. Cohen's *d* indicated the intervention had a large effect on the Sociability dimension (*d=1.6*), a small effect on Emotionality (*d=0.24*) and Attentivity (*d=0.36*) dimensions of the Malhotra's Temperament Schedule. Even though the Emotionality 't' (118) =1.280, $p > 0.05$ dimension did not show any significant gain in the independent sample *t* test the effect size indicated a small effect on this dimension.

Figure 15 clearly depicts that the gain scores of the experimental group on dimensions Sociability and Attentivity are markedly greater than the control group. However the gains in the other dimensions are not significantly different.

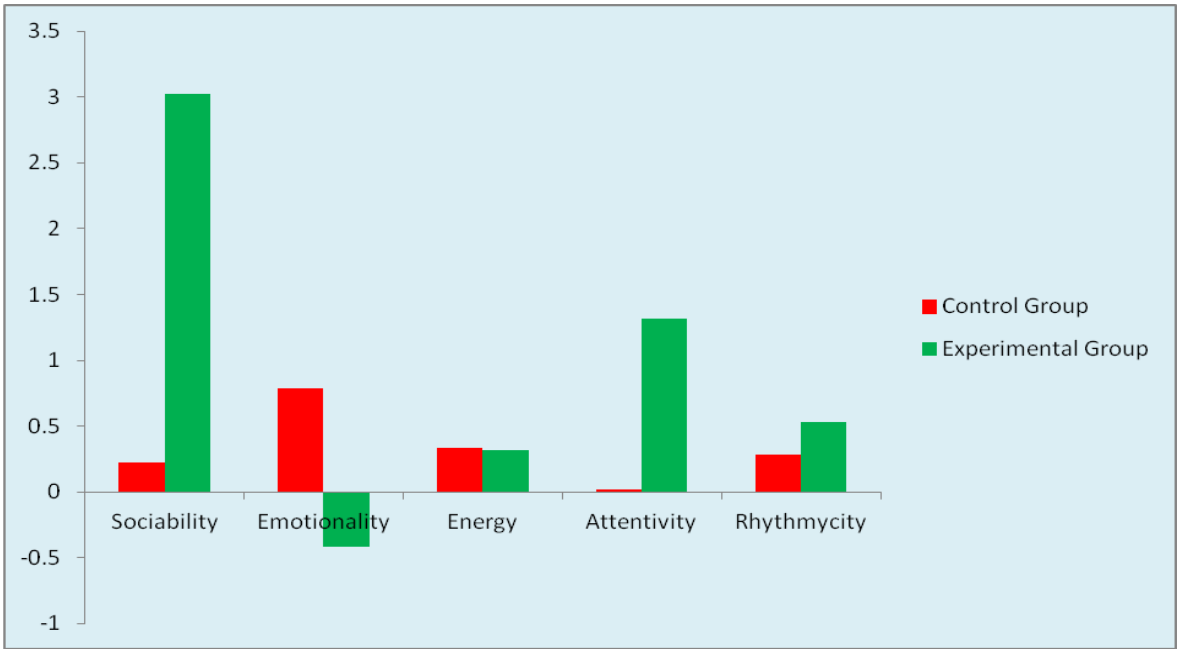

Figure 15. Gain Scores Means of Experimental and Control Groups after Integrated Intervention for Malhotra's Temperamental Schedule and its Dimensions

It is of special interest to mention that the implementation of Integrated Intervention on experimental group of slow learners had facilitated to enhance the social interaction between and among the peer group members, teachers, and other staff members in the school. The withdrawal tendencies from the peer group members' activities had reduced at considerable level and they tend to exhibit more responsiveness and adaptability while maintaining relationship with others. Due to this Integrated Intervention, their level of attentiveness in the class room proceedings and responding to the queries raised by the teachers/peer group members had increased quite significantly.

Also, it indicated that the slow learners had improved quality of mood, ability to adapt to the changes in his/her classroom environment, and their readiness to show their interest in new academic activities. Supporting these findings, Guerin et al. (1994) stated that mood, distractibility, intensity of reactions, and adaptability had significantly correlated with student-teacher relationship quality in a sample of adolescents. The current results highlighted that the Integrated Intervention Program specifically graphic organizer and mindfulness training aimed at enhancing student's attentiveness towards their studies proved its worthiness. Rabiner et al. (2004) suggested that poor attention is generally associated with poor academic achievement and may even inhibit the ability to take advantage of positive outcomes of implementation of such Integrated Intervention.

Hence, it can be inferred that the present Integrated Intervention program assists the slow learners in improving their relationship with their teachers, parent and peers and also exhibit higher levels of interest in academic activities. It is clearly evident from these findings that the Integrated Intervention Program may support as buffer for the slow learners to get some remedial measures to overcome the lower academic achievement

associated with poor attention. Thus the student's temperamental attention and individual attention must work together to improve their academic achievement. Thus, the results of the present study support the earlier research reports which examined their role of individualized education program supporting the role of improving the slow learners' academic achievement (Krishnakumar, Geeta and Palat (2006)

Notably, the emotionality component did not show any significant difference between before and after intervention. Supporting this, the research findings of Coplan et al. (1999) reported that emotionality was negatively related to literacy and academic skills. Also, other researchers (Martin, 1992; Martin et al., 1988) stated that the students who attribute more emotional intensity tend to display lesser level of their academic performance. Taken these things together, the current findings indicated that the dimension of emotionality showed a good sign by not producing any significant effect between pre and post-test scores. Thus, the mindfulness training facilitate the slow learning students to some extent control the arousal level of emotionality and it is protecting them from the adverse effects of interference of emotionality so that the slow learners shall concentrate on effective learning in the class room environment. Perhaps, the inherent capacity to control the emotionality facilitates the slow learning students to perform well on the post-test scores. Though the decline in emotionality scores did not show a significant change the Cohen's *d* measurement indicated a small effect of the Integrated Intervention in reducing the emotionality component.

Among the five dimensions of Temperament, the levels of two dimensions such as Sociability and Attentivity had increased significantly due the Integrated Intervention. Hence, the Hypothesis 5 had been confirmed partially.

Table 21

Paired 't' Test between Pre-Test and Post-Test Scores for both the Experimental and Control Group of Slow Learners on Intrinsic Motivation and its Dimensions.

Variable	N	Mean		Gain Score	't' value
		Pre-test	Post-test		
Intrinsic Motivation					
Experimental	60	38.77 (1.30)	38.93 (1.11)	0.16	1.002 ^{ns}
Control	60	38.63 (1.26)	38.75 (1.03)	0.12	0.678 ^{ns}
Interest/Enjoyment					
Experimental	60	5.61 (0.29)	5.66 (0.34)	0.06	1.222 ^{ns}
Control	60	5.65 (0.29)	5.66 (0.28)	0.01	0.304 ^{ns}
Perceived Competence					
Experimental	60	5.39 (0.36)	5.84 (0.30)	0.45	8.662 ***
Control	60	5.45 (0.38)	5.48 (0.30)	0.03	0.605 ^{ns}
Effort/Importance					
Experimental	60	5.56 (0.38)	5.82 (0.37)	0.26	4.776***
Control	60	5.49 (0.39)	5.50 (0.32)	0.01	0.260 ^{ns}
Pressure/Tension					
Experimental	60	4.89 (0.37)	4.18 (0.29)	-0.71	11.791 ***
Control	60	4.83 (0.42)	4.75 (0.35)	-0.08	1.189 ^{ns}
Perceived Choice					
Experimental	60	5.41 (0.33)	5.44 (0.37)	0.03	0.862 ^{ns}
Control	60	5.39 (0.28)	5.41 (0.30)	0.02	0.406 ^{ns}
Value/Usefulness					
Experimental	60	5.99 (0.36)	6.03 (0.31)	0.04	0.634 ^{ns}
Control	60	5.93 (0.41)	5.98 (0.36)	0.05	0.727 ^{ns}
Relatedness					
Experimental	60	5.93 (0.24)	5.95 (0.24)	0.02	0.701 ^{ns}
Control	60	5.90 (0.25)	5.97 (0.27)	0.07	1.541 ^{ns}

Note: Figures in parentheses indicate standard deviation
* $p < .05$, ** $p < .01$, *** $p < .001$, ns – not significant

The gains posted in the Perceived Competence, 't' (59) =8.662, $p<0.001$ and Effort/Importance, 't' (59) =4.776, $p<0.001$ dimension is statistically significant which substantiated that the Integrated Intervention did have a significant impact in improving the Perceived Competency and Effort/Importance aspects. The reduction in the Pressure/Tension dimension, 't' (59) =11.791, $p<0.001$ is also statistically significant for the experimental group of slow learners. However the changes in the other dimensions of Intrinsic Motivation were not statistically significant. Perhaps the Integrated Intervention facilitated simplifying the learning process and the ability to comprehend the complex aspects of the learning material as more simple. The changes in control group post test scores in all the seven dimensions were not statistically significant.

Figure 16 clearly depicted that the experimental group of slow learners have scored significantly more in the dimensions Perceived Competence, Effort/Importance of Intrinsic Motivation in the post test in comparison with the control group. Further a significant reduction in the Pressure Tension dimension is also clearly depicted in the post test of the experimental group.

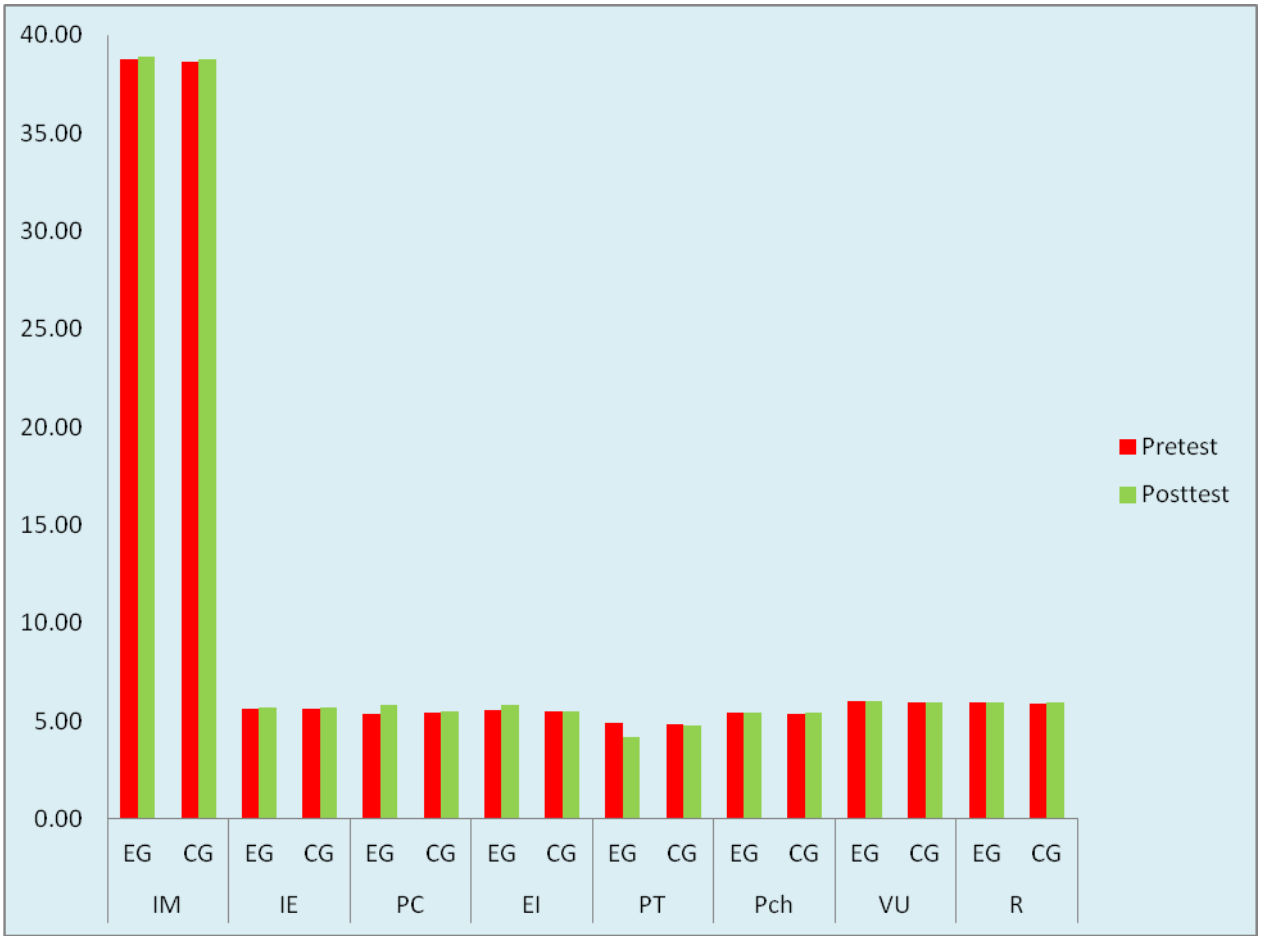

Figure 16. Mean Scores of Experimental and Control Groups after the Integrated Intervention on Intrinsic Motivation and its Dimensions

Table 22

Gain Scores Means of Experimental and Control Groups after the Integrated Intervention for Intrinsic Motivation and its Dimensions

Variable/Dimensions	Gain		df	t Value	Cohen's d
	Experimental	Control			
Intrinsic Motivation	0.16 (1.23)	0.12 (1.37)	118	0.166 ^{ns}	0.03
Interest/Enjoyment	0.05 (0.35)	0.01 (0.36)	118	0.624 ^{ns}	0.15
Perceived Competence	0.45 (0.40)	0.03 (0.43)	118	5.528***	1.02
Effort / Importance	0.26 (0.43)	0.43 (0.43)	118	2.920**	0.54
Pressure / Tension	-0.71 (0.47)	-0.08 (0.52)	118	6.979***	1.28
Perceived Choice	0.04 (0.32)	0.02 (0.32)	118	0.327 ^{ns}	0.06
Value / Usefulness	0.04 (0.46)	0.05 (0.53)	118	0.138 ^{ns}	0.03
Relatedness	0.03 (0.28)	0.07 (0.35)	118	0.766 ^{ns}	0.14

Note: Figures in parentheses indicate standard deviation
* $p < .05$, ** $p < .01$, *** $p < .001$, ns – not significant

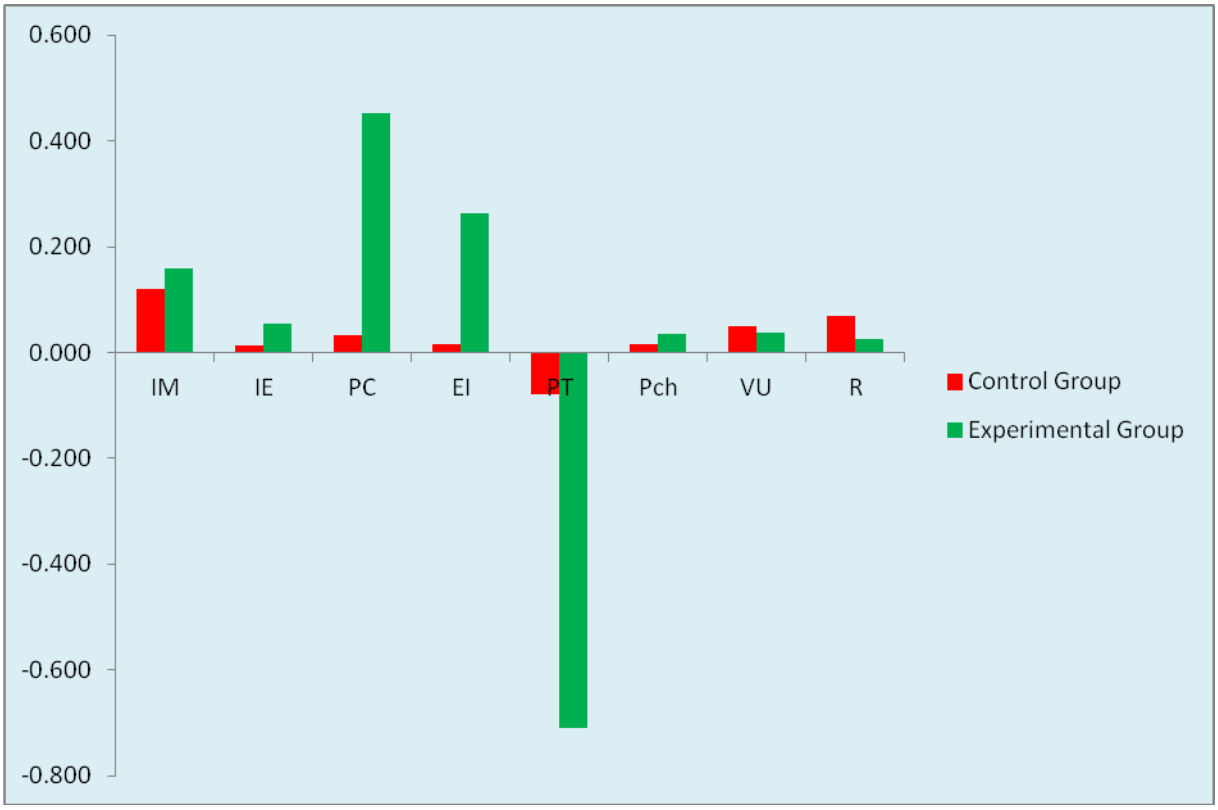

Figure 17. Gain Scores Means of Experimental and Control Groups after the Integrated Intervention for Intrinsic Motivation and its Dimensions

The comparison of the experimental and control groups based on the gain scores is depicted in Table 22. It is quite evident that the three dimensions such as Perceived Competence 't' (118) = 5.528, p < 0.001, d=1.02, Effort/Importance 't' (118) = 2.920, p < 0.01, d=0.54 and Pressure/Tension 't' (118) = 6.979, p < 0.001, d=1.28 significantly differ from that of the control group. The Effect size measurement indicated that the Integrated Intervention had a medium effect on Effort/Importance (*d=0.54*) dimension, and a large effect on the Perceived Competence (*d=1.02*) and Pressure/Tension (*d=1.28*) dimension.

The obtained gain score in the Perceived Competence, and Effort/Importance, dimensions are statistically significant proving that the Integrated Intervention did have a significant impact in improving the Perceived Competency and Effort/Importance

aspects. The reduction in the Pressure/Tension dimension is also statistically significant for the experimental group of slow learners. Perhaps the Graphic Organizer Intervention facilitated simplifying the learning process and the ability to comprehend the complex aspects of the learning material as more simple. The changes in control group post-test scores in all the seven dimensions were not statistically significant.

In the Pressure/Tension dimension, the experimental group of slow learners had scored significantly lower than the control group. Tanaka (2007) pointed out that worry or an individual's concern about performance, the consequences of failing and their own competence relative to that of others has been consistently been associated with performance avoidance goals resulting in declining of performance.

The reduction in felt pressure and tension as reported by the Pressure/Tension dimension among the experimental groups of slow learners is rather following a performance approach orientation than following a performance avoidance goal and would have experienced less worry; a component of test anxiety. This is evident by the fact the experimental group of slow learners have scored significantly higher in their academic performance and experienced less pressure and tension.

The experimental group of slow learners would have generated situational interest in the new method of learning which would have sustained the situational interest in them thereby reducing felt pressure and tension in the specific learning situation. However, the reduction of pressure and tension would not have generalized into day to day activities. By following a performance oriented target task goals and showing a sustained interest to the new way of learning, the subjective experience of worry or pressure/tension would have reduced to a considerable level.

However, the experimental groups of slow learners had shown significant improvements on Effort and Perceived Competence dimensions which is in line with previous findings that performance oriented individual do expend more effort and display competence (Durik & Harackewiez, 2007).

Slow learners were able to develop a strategic plan for attaining self-set goals, to implement study strategies and monitor performance processes and outcomes, and to evaluate strategy effectiveness and to make strategic adjustments as needed. It may require more time to evaluate strategy effectiveness and make relevant adjustments and thereby valuing and choosing which strategy to use. More time is required by slow learners to develop strategy and they should be able to successfully and consistently achieve academic goals for successful and effective peer comparison, teacher acceptance and parental approval, which may have resulted in insignificant gains in the Relatedness dimension. The statistically insignificant increase in Interest/Enjoyment dimension also suggests that even though slow learners evinced interest, additional time would be required to internalize the new learning strategy and start enjoying the learning process. Even though some moderate gains were posted by the control group in the Relatedness and Value/Usefulness dimensions, the gains were not statistically significant. This study did not observe any significant change in total Intrinsic Motivation.

Studies conducted by Otis and colleagues (2005) indicated that students' intrinsic motivation and extrinsic motivation decreased gradually from eighth to tenth grade. Students experiencing a decline in external regulation during the transitional year had low educational adjustment. Students experiencing a decline in intrinsic motivation and identified regulation during the year after the transition also had less educational adjustment.

A longitudinal study by Gottfried and others (2001) found that intrinsic motivation declined substantially for Mathematics and Science but did not change for Social Studies from the middle elementary through the high school years. A linear trend was observed in which motivational orientation was at first very intrinsic in third grade but became increasingly extrinsic with each grade level through ninth grade (Harter, 1981).

Studies of achievement goal orientations have found a decrease in personal task goals and an increase in personal extrinsic goals during the transition to middle school (Maehr & Anderman, 1993). Research studies which investigated changes in motivation indicated a general trend toward extrinsic motivation as students move further into their education. These studies suggested that our findings are in line with previous findings.

As it was noticed, there had been a significant level of increase in Perceived Competence and Effort/Importance and the same time a significant level of reduction in the Pressure/Tension dimension, the Hypothesis 7 had been accepted partially that the Integrated Intervention did have significant effect in improving the Intrinsic Motivation among the Slow Learners.

The present study observed that significant changes in academic achievement in Science and History (Social Science) subjects, Academic Self-Efficacy, and certain key dimensions of Self-Perception, Socio-Emotional Adjustment, Temperament and Intrinsic Motivation namely Perceived Competence, Effort/Importance and Pressure/Tension occurred as a result of the implementation of the Integrated Intervention in addition to classroom teaching. However, no significant changes were found in certain dimensions of Intrinsic Motivation namely, Interest/Enjoyment, Perceived Choice, Value/Usefulness and Relatedness subsequent to the Integrated Intervention.

Section IV checks the tenability of the formulated hypotheses based on results in a tabular format.

Table 23

Tenability of the Formulated Hypotheses.

No	Hypotheses	Tenability
1	The Experimental Group of Slow learners which had been exposed to Integrated Intervention will show more improvement in the academic achievement of Biology than the Control Group.	Substantiated
2	The Experimental Group of Slow learners which had been exposed to Integrated Intervention will show more improvement in the academic achievement of History than the Control Group.	Substantiated
3	The Experimental Group of Slow learners which had been exposed to Integrated Intervention will show more improvement in Academic Self Efficacy than the Control Group.	Not Substantiated
4	The Experimental Group of Slow learners which had been exposed to Integrated Intervention will show more improvement in Self Perception than the Control Group.	Partially Substantiated
	Dimensions of Self Perception	
	Scholastic Competence	Substantiated
	Global Self-Worth	Substantiated
	Social Acceptance	Not Substantiated
	Parent Support	Not Substantiated
5	The Experimental Group of Slow learners which had been exposed to Integrated Intervention will show more improvement in Socio-Emotional Adjustment than the Control Group.	Partially Substantiated
	Dimensions of the Socio-Emotional Adjustment	
	Aggressive with Peers	Not Substantiated
	Anti-Social with Peers	Not Substantiated

	Excluded by Peers	Not Substantiated
	Anxious Fearful	Substantiated
	Pro-Social Behavior	Substantiated
	Hyper Active-Distractible	Substantiated
6	The Experimental Group of Slow learners which had been exposed to Integrated Intervention will show more improvement in Temperament than the Control Group.	Partially Substantiated
	Dimensions of Temperament	
	Sociability	Substantiated
	Emotionality	Not Substantiated
	Energy	Not Substantiated
	Attentivity	Substantiated
	Rhythmicity	Not Substantiated
7	The Experimental Group of Slow learners which had been exposed to Integrated Intervention will show more improvement in Intrinsic Motivation than the Control Group.	Partially Substantiated
	Dimensions of Intrinsic Motivation	
	Interest/Enjoyment	Not Substantiated
	Effort/Importance	Substantiated
	Perceived Competence	Substantiated
	Pressure/Tension	Substantiated
	Perceived Choice	Not Substantiated
	Value/Usefulness	Not Substantiated
	Relatedness	Not Substantiated

The present study supported the earlier research findings to some extent that the slow learner students were able to improve their Academic Performance in Science and Arts subjects, develop Self-Efficacy beliefs, improve some aspects of Self-Perception, Socio-Emotional Adjustment, Temperament and showed improvements in some of the dimensions of Intrinsic Motivation such as Perceived Competence and experienced less Pressure and Tension. The absence of significant changes in Intrinsic Motivation is also supported by previous research findings.

Profile of Slow Learners before Integrated Intervention:

The slow learners had obtained academic grades below 50 percent in Biology and History (Social Science) consistently in both the first monthly test and their quarterly examination. The concerned class teachers as well as other subject teachers tend to perceive theses students as dull and weak in their studies.

Further, while analyzing their psychological indices, it was revealed that they tend to possess lower level of well-being in most of the following dimensions:

Self-Efficacy: Possessing lower levels of belief in their abilities in completing academic activities, paying less attention and exhibiting reluctance to seek help.

Self-Perception: Feeling lower levels of self-worth, holding a negative attitude towards themselves and having a tendency to feel that they are a failure.

Socio-emotional adjustment: Exhibiting more anxiety and fearful behavior, and showing tendency of hyperactive and distractible activities quite often.

Temperament: Showing more of withdrawal tendencies from teachers and peers, less attentive in the class room proceedings, and hardly responding to the queries raised by the teachers/peers.

Intrinsic Motivation: Showing less interest in academic activities, feeling incompetent to handle academic challenges, experiencing higher levels of tension and stress while dealing with academic challenges, feeling that they had little choice but to pursue academics, and tend to perceive that they are inefficient to handle unexpected problems.

Profile of Slow Learners after Integrated Intervention:

Subsequent to the Integrated Intervention, the slow learners showed remarkable improvement in their academic performance by securing more than 60 percent marks in Biology and History (Social Science) subjects. Further, while analyzing their psychological indices, the slow learners tend to improve in certain key aspects.

Self-efficacy: Possessing higher levels of self-efficacy beliefs such as high confidence in their abilities to successfully perform academic tasks and set mastery goals.

Self-perception: Perceiving higher levels of global self-worth and scholastic competence in learning process due to the positive effect of the intervention by trainers and class teachers.

Social-emotional Adjustment: Exhibiting a substantial level of reduction in anxious fearful behavior, expressing more of pro-social behavior, having enhanced cognitive capacities to acquire additional reading skills, and feeling at ease in their interaction with peers and teachers.

Temperament: Showing remarkable improvement in their level of attentiveness in the class room proceedings, having enhanced social interaction between and among peers as well as teachers, and exhibiting considerable reduction in withdrawal tendencies.

Intrinsic Motivation: Willing to expend more effort, placing more importance to academic activities, feeling competent about their abilities to deal with academic challenges, and experiencing reduced pressure and stress while dealing with academic activities.

CHAPTER V

SUMMARY, CONCLUSIONS AND IMPLICATIONS

INTRODUCTION

Slow learners are students who are very poor in meeting minimum academic requirements in comparison with normal students. They are often struggling to get even a minimum pass grade and tend to have below average level of intelligence which made them to be grouped together as slow learners as they fail repeatedly in examinations. These children do not get sufficient attention in the mainstream education. Establishing special schools for children of this category is neither practical nor advisable. It is ideal to evolve strategies to provide education to these children in normal school itself.

Further, these slow learners are not eligible for special education as given for children with intellectual disabilities because their intelligence levels are too high to be classified as mentally retarded. If we leave these slow learners category without any proper care, they are likely to lose interest in their studies and become dropouts. Further, as they do not get any special attention or support to get uplifted as those with learning disabilities, they are likely to get dejected totally in their studies and end up in anti-social activities such as illicit drug users, violent offenders, alcohol abusers, unemployed, and under employed. Among the various factors, the following are some of the prime inhibiting factors attributed widely to the poor performance of slow learners such as low self-esteem, lack of problem solving skills, poor memorizing abilities, lack of achievement motivation, emotional disturbances, poor peer relationship, lack of parental support etc.

Although they have no intellectual disability, no identifiable neurological impairments nor any learning disorders, they perform poorly in school and exhibit

discrepancy between expected achievement and actual achievement. As children advance in school, there is a corresponding increase in difficulty of school subjects and assignments. Thus, children's performance depends more on their motivation to sustain an active commitment to and efforts towards self-regulated learning (Bouffard, Boisvert and Vezeau, 2003).

Proportionately these problems affect slows learners more often than children with intellectual disabilities. A general education teacher's decision on not to provide extra help to a slow learner has lifelong consequences. It has been estimated that 5 to 15 percent of school going children suffer from scholastic backwardness (Nair *et al*, 2003). The early identification of students who are at risk for educational failure is an important process that deserves much attention and research. Proper identification is therefore crucial for the implementation of appropriate and timely intervention.

The primary focus of many interventions that aim at mitigating underachieving student problems is academic performance oriented. A comprehensive Integrated Intervention must also take into consideration multiple perspectives in handling under achieving student problems. Since previous evidence emphasized that some key factors such as socio-emotional, temperamental, behavioral, and academic issues are associated significantly with student adjustment, the focus of an integrated intervention apart from instructional modification should intend to encompass those contextual determinants such as parental involvement, teacher expectations, teacher support etc.

Keeping in mind all the above facts, an Integrated Intervention based experimental study is proposed to assess the ways in which a significant gain in academic performance of slow learners can be realized.

NEED FOR THE STUDY

As the rate of slow learners of High Schools in the Government and GovernmentAidedSchools is increasing alarmingly, it has put additional demands and constraints on the concerned stakeholders to arrest this undesirable phenomenon by evolving suitable strategies.

Equipping the slow learners to possess adequate employable skills and talents, instead of being neglected by the parents and teachers due to poor learning skills, by evolving a suitable customized Integrated Intervention may facilitate in turning them around to some extent.

To optimally utilize such neglected human resources to the maximum extent possible and to keep such least preferred youth in active mode to grab any available opportunity, a wide angled approach is necessary. We need to have a proper understanding of the individual, social, and psychological factors, which facilitate the acceleration of the slow learners' learning process to the maximum extent. It is held that the slow learners can be turned around effectively by:

i) Identifying and screening slow learners at 8^{th} and 9^{th} grade level by various ways to take care of their special needs.
ii) Ensuring that slow learners' learning process can be accelerated by implementing suitable customized Integrated Intervention strategies.
iii) Maintaining high motivational levels that will make the slow learners' willingness to apply their efforts and skills to fulfill the demands of the curriculum.

This study attempts to contribute to the above mentioned strategies, as applicable to slow learners who are about to decide on their career aspirations at the age of 13-15.

The results of such an experimental study will help to evolve certain guidelines to formulate a Standardized Educational Intervention Program aiming at improving the performance of slow learners.

Among the various potential determinants of academic achievement of slow learners, exploration of key factors such as self-efficacy, self-perception, socio-emotional adjustment, temperament and intrinsic motivation will be of much help in turning around slow learners as smart learners. Based on those key psychological and social determinant factors, suitable comprehensive guidelines can be prepared addressing the specific needs of slow learners.

OBJECTIVES OF THE STUDY:

i) To determine whether the comprehensive Integrated Intervention strategy targeted at the slow learners facilitate a significant gain in their academic performance.

ii) To determine whether the comprehensive Integrated Intervention targeted at slow learners facilitate a significant change in the psychological characteristics, such as self-perception, self-efficacy, temperament, socio-emotional adjustment, and intrinsic motivation of slow learners.

iii) To arrive at an empirical based profile of slow learners before and after the Integrated Intervention.

Empirical research studies conducted in India and overseas were reviewed for the purpose of identifying various psycho-social variables relating to the slow learners' academic performance and the ways in which improvement of their performance can be realized. The pertinent literature was presented in ten sections covering various aspects.

After reviewing the literature, the major lacunae with respect to the problems of slow learners' academic achievement with relevant reference to exploring various psychological factors were highlighted.

HYPOTHESES:

Based on the review of literature, the following hypotheses were proposed which would be subjected to the rigorous statistical analysis.

- **H1:** The experimental group of slow learners which had been exposed to the Integrated Intervention will show more improvement in the academic performance of Biology subject than the control Group.
- **H2:** The experimental group of slow learners which had been exposed to the Integrated Intervention will show more improvement in the academic performance of History subject (Social Science) than the control group.
- **H3:** The experimental group of slow learners which had been exposed to the Integrated Intervention will show more improvement in Academic Self-Efficacy than the control group.
- **H4:** The experimental group of slow learners which had been exposed to the Integrated Intervention will show more improvement in Self-Perception than the control Group.
- **H5:** The experimental group of slow learners which had been exposed to the Integrated Intervention will show more improvement in Socio-Emotional Adjustment than the control group.

- **H6**: The experimental group of slow learners which had been exposed to the Integrated Intervention will show more improvement in Temperament than the control group.
- **H7**: The experimental group of slow learners which had been exposed to the Integrated Intervention will show more improvement in Intrinsic Motivation than the control group.

METHODOLOGY

SAMPLE

The total sample comprised of 60 slow learners as experimental group studying in 9^{th} standard in government and government aided high schools in Coimbatore District, Tamil Nadu and another matching 60 slow learners of the same schools as control group. In order to have the homogeneity in the sample size, they were matched for age, gender, IQ, mother tongue, socio-economic status etc. The slow learners will be selected using the following three screening methods,

i) **Academic Achievement:** Only those students who scored less than 50 % of marks in all the subjects consistently during their monthly and quarterly examination.

ii) **Teachers Assessment:** Teachers rating on children's overall performance in class room and found to be dull or below average had also been used to identify as slow learners.

iii) **Intelligence Tests:** The Standard Progressive Matrices (SPM) developed by Raven et al., (2000a) would be used to assess the level of intelligence. The students who scored below 25^{th} percentile would be categorized as slow learners.

RESEARCH DESIGN

A Pretest Posttest Randomized Control Group Experimental Group Research Design was followed to assess the effects of the Integrated Instruction on the academic performance and other psychological indices of slow learners.

i) Experimental Group: A group of 60 slow learners had been given an exposure of a specially designed integrated intervention program for the duration of six weeks period of time.

ii) Control Group: Another group of 60 slow learners had been kept as control group. No such exposure to intervention would be given for this group.

In order to control the influence of certain extraneous factors, it was ensured that all the conditions were kept constant throughout the experiment for both groups. Due care was taken to ensure the validity of the research design. However, the maturation levels and other exposures available outside were the major problems for internal validity.

NATURE OF INTEGRATED INTERVENTION:

A Three Tier Individualized Integrated Intervention Program:

A three-tier mutually supportive and an integrated intervention program were used concurrently among slow learners.

I. Individual Skill Development Program:

The following three types of activities such as graphic organizer, mindfulness meditation and mnemonics which had been designed exclusively to address the specific needs of the slow learners were administered between 3.30 to 5.30 pm.

(a) Graphic Organizer Method: Graphic Organizers were constructed using 'XMind' and 'Microsoft Smart Art' for Biology and History based on the regular class lessons. The graphic organizers had been developed in the vernacular language to suit the medium of instruction used in the regular classroom. Thirty nine Biology graphic organizers based on Biology text book of grade 9 and twenty three History graphic organizers based on the History text book of grade 9 were constructed after due consultations with the teacher and review of the relevant chapters by the researcher. Slow learning students only in experimental group were provided these graphic organizers as an additional academic input. Participants received instruction for a period of 12 weeks (60 school days). The intervention was given for 40 minutes daily.

(b) Mindfulness Meditation: The meditation program was given in 20 minutes per day sessions for 12 weeks. The intervention program consisted of learning the mindfulness technique and practicing daily for 20 minutes even on holidays at home. The main purpose of this technique is not to control thoughts or change them or replace them with new ones, but to leave them alone, and accept any idea that might appear or emerge spontaneously, developing a state of full attention to this mental activity, while being aware that they are transitory and non-permanent. The mindfulness strategy was intended to facilitate emotional control and adjustment.

(c) Mnemonic Strategies: The participants were introduced to basic concepts of memory, short term memory, long term memory, the purpose of rehearsals, repeated rehearsals, chunking, forgetting and other relevant concepts. The purpose of using mnemonics was also taught to children explaining its importance for the purpose of recall.

Students were primarily introduced to three main mnemonic strategies namely the method of loci, the letter method and the keyword technique.

II. Mentor Training for Teachers (Conveying positive expectation to slow learners)

The main concern in this track was changing teachers' negative expectations towards slow learners. Instead, the teachers were asked to develop and convey positive expectations towards slow learners and render all possible assistance to accelerate slow learners' learning process. In essence, this track aimed at changing teacher's attitude towards slow learners in the areas of (i) acceptance and support (ii) rewards or appreciation for demonstrating acceptable behaviors, and (iii) conveying positive expectations to slow learners and not biased by past events. A three day workshop was organized to impart these behavior science input to the concerned teachers.

III. Relaxation Training for increasing Concentration:

Jacobson's Progressive Muscle Relaxation therapy was administered to the respondents to improve their concentration in their subjects. In summary, the overall intervention was aiming at eliciting more effort from the slow learners and their mentors to gain required knowledge and skills to master their subjects.

MEASURES

The following instruments were used to collect data for the study.

- The Ravens Standard Progressive Matrices (SPM) (Raven, 2000 a)
- Objective Academic Performance collected from the school records
- Academic Self-Efficacy scale developed by Muris (2001)
- Harter's Self-Perception Profile (Harter, 1985) to assess Self-Perception

- Child Behaviour Scale developed by Ladd and Profilet (1996) to assess Socio-emotional adjustment
- Malhotra's Temperament Schedule (MTS) developed by SavitaMalhotra and Anil Malhotra (1988).
- Intrinsic Motivation Inventory (IMI) developed by Ryan (1982)

Methods of Data Collection

Phase I: Pretest Data Collection:

During this phase, the academic performance record and other psychological criterion factors were collected from the slow learners and their parents and teachers using the standardized questionnaires/inventories. The parents and teachers of both control and experimental group were instructed to be free from any personal bias and remain objective and fair in furnishing the details before the administration of the Integrated Intervention. The Pre-test was carried out during the months of August/September 2011.

Phase II: Administration of a Three Tier Integrated Intervention Program:

A three-tier mutually supportive Integrated Intervention program was administered during the period of October 2011 - January 2012 to the Experimental Group of Slow Learners, their parents and teachers.

Phase III: Posttest Data Collection:

Soon after the completion of Integrated Intervention program given exclusively to the experimental group of slow learners for about 12 weeks period, the academic performance of both the experimental group and control group in their annual examination was collected along with other psychological factors. For this purpose, once

again, the concerned teachers, parents, and the respondents were requested to furnish data on the same parameters such as academic self-efficacy, self-perception, socio-emotional adjustment, temperament, and intrinsic motivation levels using the same questionnaire / inventory as in phase I.

Analysis of Data

At the pretest phase the experimental group and control group of slow learners where compared using an independent sample *t* test to ensure that the two groups of slow learners were homogenous prior to the intervention. Gain Score Analyses (GSA) was carried out to measure the effects on the Integrated Intervention on slow learners' academic performance and other criterion variables. Subsequent to the Integrated Intervention a paired sample *t* test was used to measure the changes in mean scores from pretest to posttest for both the experimental and control group. Further, the gain score acquired by the experimental group and control group of slow learners were compared using an independent sample *t* test to ensure that the effects of the Integrated Intervention were significant and specific to the experimental group of slow learners. In addition to the test of significance, effect sizes were calculated to measure the relative magnitude of the experimental treatment using Cohen's *d*.

Findings:

(i) Academic Performance: Integrated Intervention in addition to conventional classroom teaching was effective in improving the academic performance in Biology (Science) and History-Social Science (Arts) of slow learning students in the 9^{th} standard. This might be due to imparting knowledge through graphic

organizers which are lucid and illustrative. Use of mnemonics and mindfulness meditation would have resulted in enhanced recall and attention respectively.

(ii) **Academic Self-Efficacy:** The Academic Self-Efficacy of slow learning students improved significantly subsequent to the Integrated Intervention. Since slow learners were taught new skills in learning academic material, their self-perceptions about their abilities to deal with academic activities and demands would have increased. The Integrated Intervention had two problem focused strategies that would have led the slow learners to reappraise their threatful perceptions of academic activities through skill improvements.

(iii) **Self-Perception:** Slow learners showed significant improvements in the Scholastic Competence and Global Self-worth dimensions. Other dimensions such as Social Acceptance and Parent Support did not project any significant change post intervention. Having been provided with aids such as graphic organizers, mnemonics, mindfulness meditation, and relaxation techniques; which resulted in improved Academic Self-efficacy might have kindled slow learning students to perceive themselves as more scholastically competent. This might have had a significant impact upon their enhanced global self-worth as well.

(iv) **Socio-Emotional Adjustment:** Respondents showed significant reduction and improvement in Anxious Fearful and Hyper-Active Distractible dimensions, and Pro-Social behavior respectively. However, dimensions such as Aggressive with peers, Anti-Social with peers, and Excluded by Peers did not show any significant change after intervention. Use of Progressive Relaxation Techniques would have resulted in acquisition of relaxed and calm

state which is inconsistent with anxiety and fear. Such an environment would be an ideal breeding ground for Pro-Social Behavior.

(v) **Temperament:** Statistical analysis had shown marked improvements in Sociability and Attentivity. However, there were no significant changes in dimensions such as Emotionality, Energy and Rhythmicity. Increased attentivity might be due to the impact of Mindfulness Meditation whose effect on improving attention has been well documented. Moreover the inter-personal relationships with the peer groups and teachers, facilitated by the Integrated Intervention strategy, would have enhanced the Sociability dimension.

(vi) **Intrinsic Motivation:** Slow learners showed significant improvements in certain key dimensions of intrinsic motivation such as Perceived Competence dimension and Effort/Importance dimension. A significant reduction in Pressure/Tension dimension was reported by the slow learners subsequent to the Integrated Intervention. However, there was no significant improvement in the overall intrinsic motivation. The Integrated Intervention consisted of graphic organizers and mnemonics as active problem focused coping strategies, this would have helped the slow learners to alter their ability beliefs and made them expend more effort as both these strategies were comparatively easy to learn and apply. Mindfulness Meditation would have facilitated emotional coping, thereby reducing subjective feelings of pressure and tension.

Conclusions

From the foregoing discussions and findings it can be concluded that

- The Integrated Intervention strategy in addition to conventional classroom teaching was effective in improving the academic performance scores in Biology (Science) and History (Social Science) of slow learning students in grade 8 and 9.
- The Integrated Intervention strategy was effective in facilitating improvements in Academic Self-Efficacy and in certain dimensions of Self-Perception such as Scholastic Competence and Global Self-worth of slow learning students in grade 8 and 9.
- Towards Socio-emotional adjustment, the Integrated Intervention led to a significant reduction in Anxious Fearful and Hyper-Active Distractible dimensions, while improving Pro-social Behavior of the respondents in grade 8 and 9.
- Regarding Temperament of the respondents, the Integrated Intervention brought about improvements in Sociability and Attentivity dimensions.
- The Integrated Intervention strategy was effective in improving certain key dimensions of intrinsic motivation such as Perceived Competence and Effort / Importance. It also facilitated a significant reduction in the subjective experiences of Felt Pressure and Tension of slow learners in grade 8 and 9.

The major conclusions from this investigation have to be carried out with caution. Sheer presentation of a graphic organizer to the students or providing students with mnemonic instruments without sufficient practice, explanation, discussion and review is less likely to replicate the results. Ensuring active participation from both teachers and

students in constructing the graphic organizers is imperative to replicate the results of investigation with regard to improvements in psychological indices as well as academic performance. Mnemonic instruments have to be creatively incorporated making it easy and relevant to students' needs. Teachers' attitudes towards the new teaching methodology and their incorporation of the methodology into day-to-day teaching activities have to be positive.

Limitations

In order to enable proper interpretation of the results and to kindle the quest for future research, the limitations of this study has been listed below:

- The sample size was medium (*N=120*); a larger sample size would have increased the generalizability of the results.
- The data were collected only during one term of a full academic year.
- The data utilized in this study are cross-sectional, where only the ability has been controlled for; therefore conclusions regarding causal relationships have to be drawn with considerable caution.
- The data were gathered using purposive sampling from four schools in Coimbatore district of Tamil Nadu.
- The mean score change was self-reported by the subjects subsequent to the intervention.
- The study did not employ observational methods to investigate motivational climate and student behaviour in the regular classroom.

Implications:

The major implications of this study shall be found in the effectiveness of the Integrated Intervention towards facilitating slow learners' better coping with their day-to-day school activities by enhancing their academic as well as adaptive behavioral responses. The successful implementation of Integrated Intervention comprising of Graphic Organizers, Mnemonics Methods, Mindful Meditation, and Relaxation Techniques in a systematic manner as a part of or as an additive to regular classroom teaching has significant implications for students, teachers and policy makers.

- The Integrated Intervention strategy can be employed as a part of instruction facilitating improvements in academic achievement for slow learning students as well as for their better performing peers.
- Implication of this advantage is that it does away with any remote chance of discrimination amongst the students, which goes a long way in enhancing the self-confidence of slow learners.
- The incorporation of the Integrated Intervention strategies in day-to-day teaching and learning activities can be done with a minimum of time, energy and cost. The simplicity of the strategy, ease of use, and strong theoretical foundations makes it all the more appealing.
- As graphic organizer tend to organize information from linear to non-linear forms involving multiple senses in encoding information, the slow learner will have multiple cues for retrieving the learned information very quickly.

- A notable observation made as part of the study is that graphic organizers not only facilitate academic performance, but also contributes extensively to certain key psychological variables relating to the self-efficacy levels of an individual.
- The ability of the strategy in improving certain psychological factors over and above academic achievement contributes to the existing pool of empirical research studies.
- A two or three day workshop can be organized exclusively for the teachers to prepare a set of graphic organizers for each lesson in simple and effective manner.
- The concerned class teacher or subject teacher must customize the Integrated Intervention to the slow learners as additional supportive pedagogical techniques.
- *'Knowledge is power'* and it is more so true in the given scenario of advances in Information and Communication Technologies (ICT). While the graphic organizers help in the way the information is being processed, various Mnemonic techniques imparted during intervention program help in better storage and retrieval of the information. These Mnemonic techniques shall be well made a part of the curriculum itself so that all students would be benefitted irrespective of the initiative of the teachers'.
- Although the training in Jacobson's Progressive Muscle Relaxation techniques and Mindfulness Meditation are meant for maintaining calm and relaxed state, and enhancing concentration respectively, they also facilitate enhancing emotional resilience and taking clear perspective of the events.
- Most of the modern pedagogical methodologies such as Smart Class rooms make use of expensive paraphernalia like projectors, tablets, custom designed software etc. As most of the Government and Government Aided Schools which have the

limited resources in both urban and rural areas, cost factors will be a major hindrance in implementing new methodologies.

- Since it is estimated that around 6 – 8% of the school students happened to be slow learners in any class room, targeting at the slow learners must be planned just at the beginning of the academic year to get the desirable results.
- The present de-facto process of promoting to higher grades without developing their competencies poses an additional risk of failing and dropping out from school at 10^{th} grade. Hence, creating a well-defined system of developing a session plan incorporating the Integrated Intervention in the class proceedings is essential for earlier identification and promotion.
- Students who have high self-efficacy beliefs are likely to have high confidence in their abilities to successfully perform their academic tasks and set mastery goals. Hence, the concerned stake holders must evolve suitable strategies to cultivate self-efficacy beliefs among the slow learners.
- Once the slow learners perceive that they are performing well or becoming more skillful, the self-generated interest in learning activities is likely to be triggered faster. The intervention programs have to be organized periodically to sustain the pace.
- It is well known that mindfulness training may increase student's ability to selectively focus their attention on their academic activities during their class room proceedings. Consequently, their response to the queries raised by the teachers/peer group members may also increase quite significantly.
- Earlier identification of students who require academic support and adapting teaching methodologies to suit the varied needs of students make it imperative

that new systems and techniques should evolve from the shortcomings of existing ones. The onus is on the teachers who have to be sensitized about the responsiveness of their responsibilities.

- The positive impact of Pygmalion effect is already well entrenched in our minds. The Teachers' Mentoring Program provided for in this study also reiterates the significance of positive outlook held by them. Moreover, positive outlook about the students has to go hand in hand with the study material, in terms of understanding, conceptual clarity, comprehension and their strategy towards applying it for children of varied abilities.
- Once the class teachers acquired the techniques of conveying positive expectations and the nature of extending psychological support, the slow learners are rather more comfortable in facing any demands of learning new academic and interpersonal skills than being fearful and anxious about their studies.
- All the above can be achieved only if they are aptly incorporated in the Teacher Training Process. This implies the imminent need to focus on developing teachers' awareness, attitude and competencies to deal with children who are differently abled in their regular classroom.
- Careful monitoring of the child's learning styles and the encouragement of a broad range of learning strategies remain important characteristics of effective teaching for all children. This highlights the need to concentrate on the teacher-taught ratio in India which is abysmally poor hovering around 1:50.
- The study is more relevant in the modern scenario where inclusive classrooms are encouraged either because of ethical concerns or because of economic constraints.

Suggestions for future research

Apart from strengthening existing evidences and revealing new dimensions, this study has also opened up new vistas for future research and investigation which are listed as follows:

- The effectiveness of the Integrated Intervention can be investigated with the active participation of teachers and parents and their responses to changes in slow learner behavior can be further probed.
- The effects of the Integrated Intervention on various other psychological indices can be further investigated. Specifically its effectiveness upon slow learners' social adjustment and emotional adjustment shall be probed separately and more intensively.
- The effects of the Integrated Intervention can be further explored with learning disabled children and others with varied abilities.
- A longitudinal study can be envisaged further to explore the effectiveness of the Integrated Intervention in bringing out teaching-learning efficacy, changes in motivational climates, changes in self-concepts, changes in attitudes for higher education, rate of school dropout and the rate of sustained academic performance.
- The effectiveness of the Integrated Intervention when implemented at elementary classes, higher secondary classes and college classrooms, their efficacy among normal to high ability students can be investigated.
- As a part of the investigation, most of the graphic organizers were presented as advance organizers; the effectiveness of graphic organizers when used as post organizers can be investigated.
- The effectiveness of graphic organizers on mathematics and other languages can be further explored.