CHAPTER III

REVIEW OF RELATED LITERATURE AND STUDIES

3.1 RESEARCH STUDIES ON DYSLEXIA

3.2 STUDIES RELATED TO PHONEMIC AWARENESS

3.3 STUDIES RELATED TO VOCABULARY INSTRUCTION

3.4 DISCUSSION ON REVIEW OF RELATED LITERATURE
CHAPTER III

REVIEW OF RELATED LITERATURE AND STUDIES

A literature review is a body of text that targets to estimate the critical points of current literature and research findings as well as theoretical and methodological syllabi of a particular topic. It usually precedes research proposal and the results thereof. Its ultimate goal is to make the reader up to date on the topic and to form the basis for fresher goals such as future research.

The review of literature involves the systematic identification, location and analysis of documents which include periodicals, abstracts, reviews, books and other research reports. The cardinal purpose of reviewing the literature is to determine what has already been done that relates to the thrust area of a study. The reviewing of literature provides the understanding and insight necessary for the development of a logical framework to the problem at hand.

According to Cooper (1988) “a literature review uses as its database, reports of primary or original scholarship itself. The primary reports used in the literature may be verbal, but in the vast majority of cases reports are written documents. The types of scholarship may be empirical, theoretical, critical, analytic or methodological in nature. A literature review also seeks to describe, summarize, evaluate, clarify and integrate the content of primary reports.”

The review of literature functions as a link between the research proposed and the studies already done. It tells the reader about aspects that have already been established or concluded by other authors and also give a chance to the reader to
appreciate the evidence that has already been collected by previous research and thus projects the current research work in the proper prospective.

This step helps to eliminate the duplication of what has already been done in the concerned area. Review of related literature is also important to highlight difference in opinions, contradictory findings or evidence and the different explanations given for their conclusions. In short, review of related literature is a very important aspect of any research both for planning work as well as to show its relevance and significance.

For the present study, a detailed literature survey in relation to multimedia strategy, phonemic awareness, vocabulary instruction and dyslexia have been carried out. The studies reviewed are presented under the following heads:

3.1 RESEARCH STUDIES ON DYSEXIA

Many years of research on reading disability, still have not produced a unified understanding of its causes and possible treatments. A diversity of research on reading disability that resulted from the variety of perspectives from which investigations have been conducted was the major reason thereof. The physicians study brain behaviour relations; psychologists study cognitive processes; socio-linguists study the culture of educational systems and educators study methods of assessment and instruction. This accounts for the diversity of findings and the lack of agreement about the basic issues in the area of reading disability.

Lindamood C. & Lindamood P. (1975) developed the ‘Auditory Discrimination In-depth Programme’ which focused mainly on the phonemic awareness of learners. The programmes focussed on collecting auditory feedback
from students so as to find means to improve the level of phonemic awareness. ADD studies have found that kindergarten and first grade classes who received the programme showed greater ease acquiring both beginning reading skills and continued reading skills in comparison with those who received standard reading curriculum.

Wallach M.A. and Wallach L. (1976) investigated the influence of grapheme-to-phoneme correspondence (GPC) awareness training on reading ability. They identified three skills as the essential prerequisite for basic reading skills; learning to recognize letters and their associated sounds, learning to sound out simple words, and reading simple stories. Training was provided to children in these areas and it was found that the experimental group scored significantly higher in comparative assessment.

Williams (1981) developed a programme called The ABDs of Reading, that aimed at providing explicit training in three reading-related skills, viz., phoneme analysis (A), phoneme blending (B), and decoding (D), where children learned GPCs to enable them to decode words. Out of an initial pool of one hundred and forty six children identified as ‘learning disabled’ by the concerned school authorities, sixty three seemed benefitted by the programme at the initial stages. Following the programme, instructed children were able to decode untrained non words, indicating generalized improvement in their phonemic decoding skills.

Baddeley et al. (1982) in their study compared fifteen dyslexic boys aged nearly thirteen years with fifteen younger children, who were normal achievers of the
same reading age. It was established that the dyslexics took longer than the controls
to read aloud two lists of real words and non-words.

Bradley and Bryant (1985) developed a long-term phonological training
programme. They aimed at teaching children sound categorization skills. Two
experimental groups received two years of training; one solely in sound categorization
during the two years and the other experimental group was taught sound
categorization skills for the first year and expression of those sounds in the second
year. In comparison, children in the control group were trained to group the pictures.
The studies indicated that the training in phonological awareness clearly assisted
reading and spelling ability specifically.

Galaburda et al. (1985) conducted autopsy studies which have revealed that
there are certain abnormalities in the regions of the brain known to be important for
reading in reading disabled individuals. They inferred anatomical differences in the
language centre in a dyslexic brain. A microscopic cortical malformations known as
ectopias and more rarely vascular micro-malformations were also observed. Cortical
malformations appeared as a micro gyrus also suggested to in certain cases.

Behrmann (1987) developed one of the first treatments for acquired surface
dyslexia as a short-term programme to retrain the reading and writing of homophone
pairs by a 53-year-old woman, CCM. Over six weeks, eight new homophone pairs
were trained at each of the weekly sessions. Testing at two weeks post-therapy
indicated a significant improvement in discriminating between the test homophones,
as well as increased spelling accuracy on a set of untrained irregular words, indicating
some generalisation.
Scott and Byng (1989) also retrained an acquired surface dyslexic, JB, in recognition and comprehension of homophones. They created a computer programme to train 68 homophone pairs using cloze tasks. JB was required to select the missing word of a sentence from six presented choices, including both words of the homophone pair, words that were visually related to the homophone pair, and pseudo homophones. The entire programme was completed by JB 29 times over a period of approximately 10 weeks. Following post-tests, JB showed significant improvement in recognition and comprehension of both the trained and untrained homophones, indicating the effectiveness of the training, and some generalisation. However, unlike Behrmann’s (1987) remediation, there was no generalisation in spelling of untreated irregular words.

De Partz, Seron and van der Linden (1992) extended the mnemonic approach in their treatment programme for a French acquired surface dysgraphic and dyslexic patient, LP. To support LP in relearning the reading and spelling of ambiguous words, De Partz et al. adopted a visual imagery strategy, where each target word was written on a card and a relevant drawing associated with the misspelt part of the word was given. LP initially learned to write five new words each session for three months. Sessions were conducted three times a week. After the three months LP showed a significant improvement in the trained words. There was also some improvement in untrained words. De Partz et al. also found that LP was able to create his own embedded drawings, indicating the programme may be of long-term functional use.

Galaburda et al. (1994) measured cross-sectional neuronal areas in the medial geniculate nuclei (MGNs) of five dyslexic and seven control brains from post autopsy
specimens. According to them, abnormal auditory processing in people with dyslexia suggests that accompanying anatomical abnormalities might be present in their auditory system. Their findings are consistent with reported behavioural findings of a left hemisphere-based phonological defect in dyslexic individuals.

Seymour and Bunce (1994) developed a phonological treatment program based on the dual-route model of reading for DK, an eight-year old boy with developmental phonological dyslexia and dysgraphia. The treatment focused on training word and non word reading and spelling, through the teaching of grapheme-to-phoneme correspondences (GPCs). Each word or non word was broken up into three components; the initial consonant (IC), the vowel (V) and the terminal consonant (TC). Each component was colour-coded onto coloured cards and employed for activities and for reassembling to create different words. DK received weekly one-hour training sessions over a period of approximately 15 months. The treatment programmes resulted in significant improvement in DK’s reading and spelling of untrained non words, indicating generalisation of skills.

Weekes and Coltheart (1996) replicated Behrmann’s therapy technique to assist NW, an acquired surface dyslexic and dysgraphic in improving his spelling of irregular words. Again, spelling of the treated words improved significantly more than the untreated words, indicating a specific treatment effect. However, Weekes and Coltheart found no generalisation at all to untreated items.

Torgesen, Wagner and Rashotte (1997) in their research, compared the effectiveness of two phonological programmes following a long term intervention. The two training programmes differed in their time allocated to specific reading
activities, with the PASP programme focusing the majority of its time on phonological training, while the EP programme focused primarily on reading text. Each child received four 20-minute one-on-one sessions each week for two and a half years. At completion results indicated that children who received intervention showed an overall improvement in reading comprehension.

Oakland et al. (1998) undertook a study titled ‘An evaluation of the dyslexia training program: A multisensory method for promoting reading in students with reading disabilities’. The development of reading and spelling skills in dyslexic children often remains distorted despite years of instruction. Three qualities that facilitate reading development in dyslexic children as mentioned in this study are the provision of a highly structured phonetic-instruction training program, drill to compensate for short-term verbal memory deficits, and multisensory methods to augment non language mental representations. The Dyslexia Training Program, a remedial reading program derived from Orton-Gillingham methods, encompasses the above given qualities. Following their two-year program, students displaying dyslexia showed significantly higher reading recognition and comprehension compared with a control group. The two groups did not differ in spelling. Also the degree of advancement in reading demonstrated by students who received the Dyslexia Training Program by videotape and by those who had it directly from tutors did not differ significantly.

Wydell & Butterworth (1999) conducted an interesting study and suggested that orthography can influence the dyslexic. They observed that any language where orthography-to-phonology mapping is transparent or even opaque or any language
whose orthographic unit representing sound is coarse will not produce a high incidence of developmental phonological dyslexia.

O’Shaughnessy and Swanson (2000) in their study earmarked forty five reading disabled children and put them in small groups for 30 minutes a day, three times a week for six weeks. They were given intense reading training as per designed format. A control group received maths training for the same period of time. Results indicated that children in reading programmes achieved significant gains in learning phonological awareness and word identification skills, in comparison to the control group. The studies suggested different paths to reading remediation, which can be effectively applied to small groups within the public school setting.

Joseph (2000) in another comparative study compared the effectiveness of two contemporary techniques for training phonics; word box instruction, which involves children identifying the individual phonemes within a word and dividing them into ‘boxes’, and word sort instruction, where words are sorted into categories based on common phonemes or on common spelling patterns. Both the word box trained group and the word sort trained group performed significantly better than the control group on phonemic segmentation and word identification tests and phoneme blending and pseudo word naming compared to the control group. The performance of word sort group was superior to the control group on spelling performance also.

Ellis, Ralph, Morris and Hunter (2000) employed frequent presentation strategies to train irregular word reading to BS, an acquired surface dyslexic. They realised that BS would learn to re-associate the words and correct pronunciation through repeated exposure. Over two weeks BS was presented with differently
ordered table of words, matched with audio readings of the lists. He read each of the lists, practising any words that he had read incorrectly. At the completion of training, BS showed an obvious advancement in reading the trained irregular words, though this improvement did not generalise to untrained items. Improvement that BS obtained was maintained over a three-month period.

O’Connor and Padeliadu (2000) conducted a comparison of two short-term programmes. They trained 12 first-grade remedial readers to read regularly spelled 3-letter words using either a sound-blending programme or a whole-word reading programme. The sound blending programme involved the children being taught to blend the first two letter sounds of the word and then to add the final consonant. In comparison the whole-word approach focused on the instructor reading 3-letter-words from flash cards with the child repeating the words. The results indicated that both groups had made remarkable progress on reading the instructed material. Not much difference was found between the two treatment programs. But delayed posttests showed that the phonological blending treatment was more effective for retention of the reading skills and did result in generalization of the skills to uninstructed words.

Stein et al. (2001) reached a cardinal conclusion from one of their studies that the magno cellular system remains impaired in dyslexics to make it difficult for them to learn a reliable representation of letters, word segments and whole words.

Temple et al. (2001) implied that dyslexia may be characterized in childhood by disruptions in the neural bases of both phonological and orthographic processes important for reading. Research studies in the field continued to prove helpful in the emergence of wider perspectives and newer insights.
Paulesu et al. (2001) conducted studies of dyslexia in the alphabetic writing system and found out differences in task-related signal change in the left temporo-parietal and occipito-temporal cortices.

Connelly, Johnston and Thompson (2001) investigated whether six-year-old beginning readers would differ in reading ability and comprehension when taught to read by either a phonics approach or a ‘book experience’ non-phonics approach. Rather than focusing exclusively on reading delayed children, this study involved a general sample of children, with a range of reading abilities. Children received the classroom-reading programme for approximately one hour per day over a four-month period. Although the two groups made equal gains in word recognition, the phonics-taught children had higher reading comprehension, made more attempts at reading unknown words, and made more contextually appropriate errors.

Brunsdon, Hannah, Nickels and Coltheart (2002) executed a treatment programme with a young boy, DT, with mixed dyslexia. He experienced multiple difficulties within the reading system. The treatment program was based on previous remediation programs designed for acquired phonological dyslexia and focused on improving phonological skills, through training that included GPC awareness and phoneme blending. Following four-and-a-half months of treatment, DT’s non word reading improved significantly, and a significant improvement in his general reading ability was also observed. The treatment program improvements generalised to untrained non word reading and regular word reading. Brunsdon et al. concluded that the study provided evidence for the effectiveness of cognitive neuropsychological
rehabilitation models of reading in treating the severe, and largely unstudied, group of children with ‘mixed’ dyslexia.

Talcott et al. (2002) suggested that both visual motion sensitivity and auditory sensitivity to frequency differences can be considered as predictors of children's literacy, orthographic and phonological skills.

Ramus et al. (2003) have recognized that dyslexia is a neurological disorder with a possible genetic origin, as it occurs most often in families, from the anatomical and brain imagery studies.

Turkeltaub et al. (2003) reported to have carried out a cross-sectional functional magnetic resonance imaging (fMRI) study using subjects whose ages ranged from 6 to 22 years and found that learning to read is associated with two patterns of change in brain activity: increased activity in left-hemisphere middle temporal and inferior frontal gyrus and decreased activity in right inferior temporal cortical areas.

Collins and Rourke (2003) had observed increasing evidence supporting a genetic origin of dyslexia. Defective or delayed brain maturation is cited as one of the major features of dyslexia in the current models.

Eden et al. (2004) studied non alphabetic scripts, where reading places less demands on phonemic processing and the integration of visual-orthographic information, and found that dyslexia is associated with under activity of the left middle frontal gyrus.
Lyytinen, Erskine, Aro and Richardson (2007) found that whatever be the biological cause, dyslexia is a matter of reduced phonological awareness which is the ability to analyze and link the units of spoken and written languages.

Shaul and Breznitz (2007) measured information transfer between the left and right hemispheres among dyslexics and regular readers when performing various lexical decision tasks. They observed that among dyslexics, information arrived in the right hemisphere first, and was then transferred approximately 9–12 ms later to the left hemisphere. Among regular readers, the information arrived in the left hemisphere first and was transferred to the right approximately 4–6 ms later.

Siok et al. (2008) from their studies concluded that Dyslexia affects different structural parts of children's brains depending on the language which the children read.

Heim et al. (2008) conducted an extensive study to identify the cognitive subtypes of dyslexia in comparison with a non dyslexic control group. Out of six hundred and forty two children screened for reading ability forty nine dyslexics and forty eight controls were tested for phonological awareness, auditory discrimination, motion detection, visual attention, and rhythm imitation. The results indicated that dyslexia may stem from distinct cognitive impairments and hence the prevention and remediation programmes should specifically target towards the individual child's deficit pattern.

Balido-Dean and Lesley-Anne’s (2010) ‘Dyslexia: An analysis of dyslexic students at the elementary level’ is a study that researches the success rate of dyslexic students at the third, fourth and fifth grade levels on the reading portion of the TAKS
test in a school district in south central Texas. The purpose of the study was to determine if the dyslexic students in the district in south central Texas were being best served with the Basic Language Skills program. The Basic Language Skills program that the district in south central Texas implemented was working for the dyslexic students.

Krishnan (2012) conducted a study titled ‘Development of a multimedia package for students at primary level with dyslexia’ which revealed that the reading miscues of upper primary school students with dyslexia can be minimized and thereby their performance in reading can be increased with the implementation of the multimedia package. The study also threw light on the fact that the multimedia package is effective in enhancing the reading skills and also for prolonged retention among dyslexics.

Krafnick (2013) presents three studies addressing the questions related to the causality of the anatomical differences and how the brain changes with a reading intervention, in his dissertation titled ‘Functional and structural brain imaging studies of developmental dyslexia’. First study showed differences in the right precentral gyrus compared to both control groups. In the second study, a reading intervention was given to a group of dyslexic children as well as either a developmental (no intervention group) or active (math intervention group) control. The final study used a subset of the subjects in the intervention programme to study changes in the brain following the intervention. All these studies provide insight into the dyslexic brain, and how reading experience through intervention has an effect on both brain function and structure.
3.2 STUDIES RELATED TO PHONEMIC AWARENESS

McGinnis (2000) investigated the phonemic awareness training by a classroom teacher and its relationship to first graders' phonemic awareness, spelling acquisition, and word recognition skills. The sample taken consisted of thirty five first grade children from a suburban school district in Pennsylvania. Twenty children participated in the phonemic awareness training for twenty minutes a day for fourteen weeks. The results of this research brought to light the importance of phonemic awareness training.

Allain (2001) compared two preschool four-year-old groups (n = 46), in a study titled ‘Effectiveness of a phonemic awareness intervention with four and five year olds’. The study addressed the need to incorporate explicit phonemic instruction in the daily schedule. It also looked at the question of transference of gain in phonemic awareness knowledge to other academic and readiness skills. The study yielded significant findings in the results of phonemic awareness gain scores from pretests to posttests. The results suggest that phonemic awareness instruction may not be required as explicit, daily instruction by all English speaking developmental 4-year-olds who are not at-risk for reading failure by experience or economic status.

Sandak (2001) conducted a research work with the title ‘Investigating the causal relationships among speech (and non-speech auditory) perception, phonemic awareness, and reading skill’ and indicated that deficits in phonemic awareness in reading impaired children may arise from a more basic deficit in speech perception. There was no evidence for direct causal links between any of the auditory perception measures and reading ability, and only very limited unique associations were
observed between auditory perception and phonemic awareness. The results suggest that for the general population of children, phonemic awareness is the best predictor of subsequent reading success.

Moore (2001) explored the effects of musical pitch training on reading skills and phonemic awareness of kindergarten students and found out the interrelationships among musical pitch discrimination, reading skills, and phonemic awareness. The theoretical base for the study was the belief that skills needed for musical pitch discrimination, reading, and phonemic awareness are closely connected, and that knowledge and skills acquired in one realm might get transferred to the others. It was concluded that the training in musical pitch discrimination used in the study had no effect on measures of musical pitch discrimination, reading skills, or phonemic awareness.

Walsh (2001) in the study titled ‘The role of phonemic awareness in reading acquisition’ had undertaken to find out how reading skills are acquired related to early literacy development. The study examined the process of development of instructional materials, activities and professional documents on phonemic awareness. Several implications for the teaching of phonemic awareness are presented by the researcher including the importance of activation of all senses, the use of imaginative and creative aids and activities, the use of exemplary models of teaching, the increased use of music in instruction, additional professional development for teachers and the initiation of an intervention to be implemented early in the pre-school years.

Eltrich (2002) attempted to study the effects of a phonemic awareness program on kindergartners and scrutinized the use of formal phonemic awareness, curriculum
program which would directly teach phonemic awareness skills and result in successful decoders in first grade. The results of the study revealed that teaching phonemic awareness skills directly would enable children to decode on a level similar to their peers who were not targeted for reading difficulties. This study showed that the teaching of phonemic awareness skills resulted in short-term gains for all groups participating in the intervention program.

Mohler (2002) conducted a study titled ‘The effect of direct instruction in phonemic awareness, multisensory phonics, and fluency on the basic reading skills of low-ability seventh grade students’ which examined the effects of a program of direct instruction in multisensory phonics, fluency and phonemic awareness on word recognition, phonemic awareness, spelling, comprehension and oral reading fluency on twenty five high risk, low-ability seventh grade students. These students were given direct instruction in these three areas over the course of a year. Almost forty three minutes per day were devoted to this instruction. The study arrived at the three recommendations: (1) to help improve the reading skills of low ability middle school students, the curriculum should include phonics instruction, phonemic awareness and fluency training that may produce gains in the decoding skills of these high-risk students; (2) in order to help future teachers pre-service preparation in the teaching of reading should incorporate work in the basic phonics approaches; and (3) the diagnosis of a child's phonemic awareness should be an integral part of the learning assessments in the elementary grades.

Slattery (2003) in the study titled ‘The impact of a computer-based training system on strengthening phonemic awareness and increasing reading ability level’
was targeted at ascertaining the impact of the Fast For Word program in enhancing phonemic awareness and increasing reading ability level in students reading below grade level in grades three, four, and five. The Fast For Word program was designed to be used for one-hundred minutes a day, five days a week, for approximately six weeks. In order to accommodate this time requirement, the program was instituted as an after-school program. The results show that some students who participated in the Fast For Word program did increase their phonemic awareness level and their reading ability level. However, some did not benefit at all and some students showed only slight gains. The study recommended the Fast For Word program as a viable option, when used as a supplement to the usual classroom instruction, to improve language and reading skills.

de los Santos Lopez (2003) studied the effect of phonemic awareness instruction on the reading development and spelling development of Mexican-American first-grade students. The independent variable for the study was phonemic awareness instruction and the dependent variables were phonemic awareness skills, grapho-phonemic skills and spelling development. The sample consisted of seventy-six Mexican American first grade students, thirty-eight in the experimental group and thirty-eight in the control group. The analysis of data indicated that the reading development and spelling development of Mexican American first grade students who received phonemic awareness instruction was significantly higher than that of the Mexican American first grade students who did not receive phonemic awareness instruction.
Runge (2003) studied the dimensionality of phonemic awareness among children at the end of kindergarten and observed that phonemic awareness is an understanding that spoken language comprises of individual sounds termed phonemes. A multitude of measures has been developed to assess phonemic awareness. A sample of one hundred and sixty one kindergarten children from a rural Pennsylvania school district completed a comprehensive battery of twenty three pre-literacy tasks. It was found that the largest factor is the ability to analyze and manipulate phonemes. The second factor was identified as the ability to recognize and create rhyming words.

MacCoubrey (2003) titled the study as ‘A phonemic awareness intervention for at-risk second language readers’ and evaluated the cross-linguistic effects of a second language (L2) phonemic awareness (PA) intervention in blending and segmentation with letter-sound association instruction on PA, letter-sound knowledge, and reading scores in English and French. From a sample of 106 French Immersion kindergarteners, 46 students with poor English PA skills and letter knowledge were selected as at-risk and assigned to one of two groups. The treatment group received instruction in French phoneme blending and segmentation. Control group participated in oral French language activities. After the 12 week intervention, the treatment group was showing obvious improvement than the control group on phoneme blending and elision in both English and French and in English reading scores. However, no major differences were observed on French word reading and letter-sound correspondence at posttest.
Booker (2003) studied the effects of intensive instruction on phonemic awareness achievement of middle school students with learning disabilities. The study used twenty eight students (from grade sixth to eight) from separate Special Day Classes (SDC). Each student was given a pre and post assessment of phonemic awareness (PA) and received eight weeks of intensive PA instruction. Results showed significant change in student ability to segment sounds. It was suggested that students with LD who struggle with phonemic awareness at the middle school level can increase the possibilities for reading success with intensive instruction in PA.

Kelly (2004) titled his study as ‘The effect of a phonemic awareness curriculum on the acquisition of early reading skills’ and explains how the addition of a phonemic-awareness curriculum to regular kindergarten and first-grade students effected the acquisition of early reading skills as demonstrated by the DIBELS assessment tool. This pre test- post test quasi-experimental design utilized ANCOVA for the statistical measure. The researcher is convinced that the amount of time the students were exposed to the intervention was the limiting factor, resulting in only 2 of 6 subtests showing significant effects.

Gifford (2004) studied the effects of phonemic awareness training on first-grade students with learning disabilities and summarized that the phonemic awareness is the ability to identify individual sounds in words as well as the ability to break a word down into smaller parts. This research indicated that students who have phonemic awareness training increase their chances for reading and spelling success. The action research conducted in this study focuses on the effectiveness of the Lindamood Phonemic Sequencing Program (LiPS) on the reading and spelling ability
of students with learning disabilities in the first grade. It was revealed that the students who received the LiPS training increased their reading and spelling ability.

Selway (2004) sought to analyze the effects of an early reading intervention program on phonemic awareness and reading achievement in kindergarten and first grade. The early reading intervention in this study used music and movement activities to promote the development of phonemic awareness. Fifty students participated in this study. Twenty-six students experienced the phonemic awareness intervention throughout their entire kindergarten school year. Twenty-four students experienced no intervention in kindergarten. There were no significant differences in the two study groups.

Carroll (2005) in a study examined various effects of explicitly teaching and promoting phonemic awareness. Forty-two senior kindergarten students participated in the study. A pretest of phonemic awareness was administered to all participants. A One-way Analysis of Variance (ANOVA) revealed significant differences between groups and pretest and posttest scores. One-way ANOVAs revealed no significant differences between the test scores of male and female participants, between a participant's birth quarter and their test scores, and the scores of those whose first language was English and those whose was not.

Nuspl (2006) found out the effect of teaching phonemic awareness to preschoolers with and without prior syllable instruction and demonstrated that preschool children can be taught phonemic awareness in a short time through pre-phonic activities. Fifteen preschool children participated in this study and were randomly assigned to one of two conditions. Teaching young children directly at the
phoneme level instead of including pre-phonemic activities was supported by the study results.

Abshire (2006) attempted to explore the implicit versus explicit methods of teaching phonemic awareness instruction to kindergarten students to find out whether there was a difference between two methods of phonemic awareness instruction. Two groups of kindergarten students were selected. One group received an implicit method of phonemic awareness instruction. A second group received an explicit model of phonemic awareness instruction. The study sought to analyze the impact of phonemic awareness instruction on reading achievement. It was found that an explicit method of phonemic awareness instruction appears to provide greater academic achievement over an implicit method.

Longmire (2007) made a ten week study into the impact of teachers' instructional practices in teaching phonemic awareness to kindergarten and first grade students and it came up with some interesting findings. The study concluded that the teachers' ability to impact phonemic awareness instruction is indirectly a result of their desire to be adequately prepared to deliver phonemic awareness instruction and it does have a positive impact on students.

Beddes (2008) conducted a study titled ‘An investigation of teaching methods for phonemic awareness: First phoneme skill versus multiple phoneme skills’. It was to determine if preschool children taught multiple phonemic awareness skills simultaneously would result in phonemic awareness skills comparable to children taught first phonemes alone. Twenty-four preschool children participated in this study. One group was taught multiple phonemic skills simultaneously for four weeks.
The other group was taught first phonemes alone, also for four weeks. The result suggested that it was more effective to teach the preschoolers multiple phonemic skills simultaneously, rather than teaching in the conventional manner of focusing on only one phoneme skill at a time.

Asfendis (2008) examined the effects of an early literacy intervention program implemented in a suburban New York school district. Archival data collected by the district on three separate grade cohorts starting with a kindergarten class in 2004 and ending with a kindergarten class in 2006 were examined. The program consisted of providing targeted assistance in phonemic awareness to kindergarten and later first and second grade students who were deemed at risk for later reading failure. The study suggested that early intervention in phonemic awareness increases skills of phonemic awareness in students.

Kirby (2008) investigated whether or not an explicit phonemic awareness program could be used to increase the reading performance of kindergarten children based on their fall and winter scores on the Dynamic Indicator of Basic Early Literacy Skills (DIBELS) and Test of Phonological Awareness Skills (TOPAS). Due to the lack of statistically significant difference in the fall and winter data, the null hypothesis, stating there is no statistically significant difference between the reading performance of kindergarten children who receive explicit developmentally appropriate phonemic awareness activities and those who do not, was accepted.

Wilkerson (2008) explored the effect of teaching phonemic awareness skills with and without prior syllable awareness instruction. It was found that the children who received multiple phoneme-only instruction showed similar levels of phonemic
Review of Related Literature and Studies

awareness compared to the children who received syllable awareness instruction prior to multiple phoneme instruction.

Di Maio-McCracken (2009) in the study titled ‘Hug, bug, and rug rhyme! An intervention on phonemic awareness using sound blending, segmenting, and rhyming’ focused on examining ways in which providing a specific set of phonemic awareness activities such as sound blending, segmenting, and rhyming help kindergarten students in understanding an early component to reading. This study explored the effectiveness of phonemic awareness lessons focused on sound blending, segmenting, and rhyming to teach early literacy skills. Results showed significant improvement in phonemic awareness among the KG students over the course of the study.

Ayar (2009) explored the possibilities of using phonemic awareness strategies to increase fluency and attempted to answer the question how does the use of Elkonin boxes as a phonemic awareness strategy improve blending and fluency scores of first grade English learners. The study utilized the effectiveness of several phonemic awareness strategies including Elkonin boxes, blending, and repeated reading on fluency scores. Results showed that a progression of opportunities that included teacher modelling, students joining with the teacher and then the students' independent practice of blending through repeated reading seemed to positively influence fluency scores.

Warren (2009) studied the effect of training parents in teaching phonemic awareness for the early reading of struggling readers. She did research the difference in parental training in phonemic awareness on the achievements of their children who had been identified as struggling readers. Subjects were children from ten
kindergarten and first grade classrooms. An experimental group and a control group attended ten week training. The study supported the hypothesis that parental training and implementation of phonemic awareness instruction for their children does not affect the phonemic awareness of those children. Nullman (2009) examined the effectiveness of explicit individualized phonemic awareness instruction by a speech-language pathologist to preschool children with phonological speech disorders. The study investigated the effects of an explicit individualized phonemic awareness intervention administered by a speech-language pathologist to four pre kindergarten children with phonological speech sound disorders. The research design chosen for this study was a single subject multiple probe design. The study suggests that the speech-language pathologists should evaluate phonological awareness in children before they enter kindergarten, and should allocate time during speech therapy to enhance phonological awareness and letter knowledge to support the development of both skills concurrently. It is also mentioned by the researcher that as this study examined the effects of three phonemic awareness skills to four prekindergarten children with phonological speech sound deficits, the results may not be generalized beyond this particular population.

Rubinson (2010) in the study ‘A correlational study of the relationships between music aptitude and phonemic awareness of kindergarten children’, took cognizance of the fact that more than one third of American children cannot read at a basic level by fourth grade and those numbers are even higher for African American, Hispanic and poor White students. The purpose of this quantitative, non-experimental study was to investigate the relationships between music aptitude and the emergent
reading achievement of 62 kindergarten students. The results of this study indicate that music aptitude is strongly associated with phonological awareness and early reading development of kindergarten children.

Magagna-McBee (2010) in the study titled ‘The use of handheld devices for improved phonemic awareness in a traditional kindergarten classroom’ concluded that effective teaching strategies which improve the development of phonemic awareness are important to ensure students as fluent readers by third grade. This study found out the effectiveness of Bee-Bot handheld devices in kindergarten classrooms to develop phonemic awareness. It is recommended that handheld devices used to augment phonemic awareness in kindergarten may provide an activity method to enhance social skills with the help of technology integration.

Boyer (2010) conducted a study titled ‘phonemic awareness instruction: Effects of letter manipulation and articulation training on learning to read and spell’. This study investigated the effect of two types of phonemic awareness instruction on learning to read and spell words. English speaking preschoolers were taught to segment words into phonemes using either letters or letters combined with articulation pictures. Participants possessed letter name knowledge but were non readers prior to training. The three groups were compared in their ability to segment words into phonemes, to learn to read a set of words over trials, to decode non words, to invent word spellings and to repeat non words. Binomial logistic regressions and ANCOVAs were computed to assess the effects of training. Results demonstrated that trained children outperformed controls in phoneme segmentation, spelling, word learning, and non word decoding and non word repetition.
Walter (2010) studied the effects of intervention in phonemic awareness on the reading achievement of English language learners in kindergarten. She realised that students entering school with little knowledge of English do not have the required foundation to develop reading skills. This places the English Learners at a disadvantage that they struggle to overcome. The results indicated that the measures of phonemic awareness are predictive of end of kindergarten early reading skills for English Language Learners. It also emphasized that an English language arts intervention focusing on phonemic awareness has a positive effect on the early reading skills of English Language Learners.

Wilkowski (2012) in her study titled ‘An evaluation of a pilot early intervention phonemic awareness program’ evaluated the impact of an emergent literacy intervention program implemented in a suburban New York school district. The archival data collected by the district during the 2010-2011 school year was examined for the study. The sample consisted of 171 general education kindergarten students from two of five elementary schools in this northern Westchester County district. The results indicated that early intervention improved students' ability to identify letter names and sounds. The results also suggested that the intervention program increased the achievement of girls compared to boys in the intervention group.

Newland (2013) undertook a study titled ‘Music and phonemic awareness: The kindergarten connection’ where he attempted an experimental quantitative research study in the area of music instruction specific to phonemes, rhymes and rhythms in kindergarten students. This study offers significance and transferability to
other settings because of the necessity of successfully teaching reading skills for students of all backgrounds. The research questions addressed included the increase in growth of scores on STAR reading assessment due to the main effect group, the interaction effect due to the type of instruction, the interaction effect between the type of instruction and age, the interaction effect between the type of instruction and gender and the interaction effect between the type of instruction, age and gender. The study revealed that students in the experimental group scored higher than those in the control group. The music instruction also seemed to be more significant for six-year-olds than for those who were five.

Fukuda (2013) through the study ‘Evaluation of a Phonological Awareness Intervention for Kindergarten and First Grade Students’ examined the effects of a phonological awareness intervention for at-risk kindergarten and first grade students. The intervention programme comprised of five phonological awareness activities and one vocabulary activity which were conducted three times per week for 30 minutes. The average rates of improvement between the kindergarten intervention and control groups were not significantly different for a measure of phonemic awareness. It was observed that the average rates of improvement between the first grade intervention and control groups were significantly different for phonics. These results suggest that this intervention can be effective in increasing the reading fluency skills of first graders.
3.3 STUDIES RELATED TO VOCABULARY INSTRUCTION

Marmolejo (1990) titled his study as ‘The effects of vocabulary instruction with poor readers: A meta-analysis’. Substantial evidence revealed that poor readers have difficulty learning from context. Hence their needs with regard to vocabulary instruction might be different from that of competent readers. The goal of this study was to address that possibility by performing a meta-analysis of vocabulary instructional studies undertaken with poor readers. These studies were divided into two categories, studies where the vocabulary instruction was explicit and direct and studies where students were expected to learn new word meanings incidentally from reading. Three approaches to vocabulary instruction within the direct instruction category were identified, viz. studies teaching definitions only; studies teaching definitions supported by context clues; and studies using a semantic-based technique. The combination of effect sizes from this third group of studies, the semantic-based studies, was the only combination yielding a significant mean effect size.

Pilgrim (2000) carried out a study of vocabulary instruction with fourth-grade students participating in an individualized reading program. The purpose was to determine the effects of one approach to vocabulary instruction on the reading and writing vocabulary of fourth grade students in an individualized reading program. The twelve week study exposed one fourth grade classroom to vocabulary instruction in a Reading Workshop setting. Results from vocabulary tests show that the vocabulary instruction was effective in helping Group A learn vocabulary. Different types of exposures to words and the use of vocabulary in context influenced student performance on tests. Results from qualitative data suggest that students attend to
vocabulary words in print. Students used vocabulary in language, especially in writing and speaking.

Sénéchal and LeFevre (2001) followed 168 children from kindergarten through third grade to determine the effects of home literacy on later reading achievement. The results indicated that skill-based home literacy experiences, emergent literacy abilities, and phonological awareness contributed to success in learning to read, while oral vocabulary contributed only indirectly through its effect on phonological awareness.

Silverman (2005) conducted an investigation titled ‘Teaching words to young children: Investigating the effectiveness of early vocabulary instruction during read-alouds’. There were altogether three studies undertaken by the investigator for the purpose. Through the use of longitudinal design, the impact of classroom context and child language background on children's learning of taught words and general vocabulary growth were tested. This research brought to light three important findings to the research base on vocabulary instruction. First is that analytic and multidimensional instructional methods are better than standard practice instruction for promoting children's short-term and long-term knowledge of words. Second, the effects of a research-based vocabulary intervention bring to light different results based on classroom-context related factors such as the classroom language program, classroom management, and fidelity to the curriculum. Third, curricula based on analytic and multidimensional vocabulary instruction methods may help ELLS catch up to their non-ELL peers in vocabulary.
Kim, Dae-Sang (2006) studied the effects of text, graphic aids and audio in multimedia based instruction on the achievement of students in vocabulary learning. English as Foreign Language (EFL) learners often adopt various strategies to memorize vocabulary words in the second language. The primary goal of this research was to study the effects of six methods of multimedia instruction in a Web-based self-instruction program. A total of 172 tenth-grade students in five classes participated in the study. Each group consisted of 22-43 students in non-English-teacher classes. The results suggested that when visual text was presented with graphics, students were motivated to learning and achievement in L2 vocabulary learning on the given vocabulary test. Results also showed that there were no significant differences among the six methods of multimedia instruction with respect to the time to complete instruction and attitude toward multimedia instruction.

Maynard (2007) titled the study as ‘teaching vocabulary to first grade students at risk of reading difficulties through repeated shared storybook reading: A comparison of rich and basic instruction to incidental exposure’. The objective of this study was to evaluate the effectiveness of rich and basic instruction to incidental exposure of target words for first-grade students with reading difficulties within the context of repeated shared storybook reading. In this study, basic instruction, rich instruction, and incidental exposure were taken and compared during repeated storybook reading. Participants included 224 first-grade students from three elementary schools that serve large numbers of students at risk for experiencing reading difficulties. Findings revealed that rich instruction was superior to both basic and incidental exposure across all taught measures. There were much larger
Review of Related Literature and Studies

differences in effectiveness between rich and incidental and basic and incidental than there were between rich and basic instruction. It was found that both basic and rich can be beneficial to struggling first graders.

Pittman (2008) compared explicit and implicit vocabulary instruction on the acquisition of English vocabulary and reading comprehension in English language learners. The goal of this study was to ascertain the effects of explicit vocabulary instruction on the performance of ELL students in grades four through twelve. The results of this study indicated that not only did explicit vocabulary instruction have a significant effect on the vocabulary acquisition of ELL students, but also indicated that explicit vocabulary instruction has a positive effect on the overall performance of students. The results indicated that there was no significant difference in the two methods. This study has important implications for the classroom and makes a strong case for explicit vocabulary instruction.

Sobolak (2008) investigated the effects of amount of vocabulary instruction for low-socioeconomic students. The goal of this study was to determine the necessary amount of instruction for students from low socioeconomic backgrounds to make vocabulary gains. This study examined whether additional robust vocabulary instruction was beneficial for students. The results of the study showed that additional vocabulary instruction was beneficial for all students. This study also revealed that there was a significant negative correlation between students' standardized vocabulary test scores and amount of instruction and there was also a significant negative correlation between students' posttest scores and amount of instruction.
Silverman and Hines (2009) undertook a study titled ‘using multimedia to promote vocabulary learning: supporting English language learners in inclusive classrooms’. Eighty-five children from pre-school through kindergarten were taken as the sample for the study. Multimedia and non-multimedia were the two intervention conditions used in this study. In both these conditions, teachers taught an intervention lesson forty five minutes per day for three days a week over the course of twelve weeks. The study vehemently supported the effectiveness of multimedia intervention for vocabulary instruction. It was found that, compared to ELL children, who only experienced read aloud, ELL children who were provided with multimedia content learned more words than their ELL peers. It was also revealed that non-ELL children learned the vocabulary words at the same rate whether or not they watched the video or only experienced read-alouds.

Iman (2009) studied the influence of direct vocabulary instruction in reading proficiency in kindergarten and first grade. The aim of this study was to identify the instructional strategies in vocabulary development used by kindergarten and first grade teachers and compare those with the strategies mentioned in the language arts textbook publishers Houghton Mifflin and Open Court. A second purpose was to determine the effective strategies stated in literature and research and compare those with the language arts textbook publishers Houghton Mifflin and Open Court. The findings of the study indicated that the instructional strategies for vocabulary development used by kindergarten and first grade teachers proved better and effective than the strategies in both reading series.
Corbett (2009) in a quantitative research study investigated the effect of vocabulary instruction on the reading achievement of at risk third-grade students. The Georgia Criterion Referenced Competency Test (CRCT) was used as both pre and posttests. The participants were given The Criterion Referenced Competency Test (CRCT) as a pre-test in second grade and as a posttest for students in the third grade. The experimental group was taught using a vocabulary program developed by Dr. Alvin Granowsky. But the participants in the control group did not receive any vocabulary instruction. The study revealed that there was no significant difference in the reading achievement of students who received daily vocabulary instructions and students who did not.

Gallingane (2009) found out the effects of read-aloud strategies on young children's vocabulary learning. The objective of the study was to evaluate the effectiveness of a structured framework for preschool vocabulary instruction. The results proved evidence of positive learning outcomes supporting the instructional intervention. It also offered teachers a structure for storybook read-aloud sessions that addresses goals of an emergent literacy curriculum. The lack of differential effects shows that the approach may be a key to increasing the rate of vocabulary learning. It would take more time to teach targeted words for four days instead of two, but knowledge of more words leads to increased incidental learning of words making the extra instructional time beneficial to long-term word learning and achievement.

Frederick (2010) conducted a study using digital game-based learning to support vocabulary instruction for developmental reading students. The aim of the study was to develop a blended learning design to integrate instructional design and
blending design practices to improve learning for vocabulary acquisition of developmental readers. A mixed-method approach was employed and instructional events for vocabulary lessons were designed and developed using the framework of established models. Pretests and posttests measured achievement in vocabulary gains using three methods of practice viz., paper-based worksheet, video-style digital game and text-based digital game. Results indicated that students found digital games a motivating instructional method for vocabulary acquisition.

Lee (2011) investigated the effects of breadth and depth of vocabulary instruction on word learning and reading comprehension of elementary students. The purpose of this study was to find out the difference between breadth and depth of vocabulary instructional methods on word knowledge and reading comprehension of students studying in the fourth-grade. The sample for the study consisted of twenty two fourth-grade students who were taught sixteen and eight words in a breadth condition and depth condition respectively. Both vocabulary instructional activities were based on Robust Vocabulary Instruction. The findings revealed an advantage of the breadth over the depth method. At the same time when the instructional effects were measured by sentence comprehension containing target words, the depth approach was found to be more effective than the breadth approach.

Wright (2011) conducted a study titled ‘What Classroom Observations Reveal about Oral Vocabulary Instruction in Kindergarten’. The purpose of this dissertation study was to examine how vocabulary instruction is enacted in naturalistic classroom settings in kindergarten. Four days of instruction was observed in 55 classrooms in different socio-economic communities. Teachers dealing with economically-
advantaged children provided a greater number of word explanations and were more likely to explain sophisticated words than those serving economically disadvantaged children. These results suggest that the current methods of teaching vocabulary may be creating rather than enhancing vocabulary gaps by socioeconomic status.

Watson (2011) conducted a quantitative experimental study with a pre test-post test comparison design to explore the degree to which the implementation of explicit, planned vocabulary instruction using Tier 2 words influenced the reading comprehension of first grade at-risk readers. Participants were first grade students who were identified "at risk" through the Developmental Reading Assessment 2. These students were given an additional 20 minutes a day for reading intervention using a direct approach to vocabulary instruction. Students who were not given an intervention had vocabulary instruction in the classroom. The results revealed that students in both the intervention group and no intervention group had made improvement on the DRA2.

Benson (2013) investigated the impact of small group direct vocabulary instruction on the vocabulary development of kindergarten children living in poverty. The purpose of this study was to find out the extent to which tri-weekly evidence-based vocabulary lessons implemented throughout the regular school day would increase kindergarten students' expressive and receptive vocabulary development. Analysis showed that students who received the vocabulary intervention made significantly greater growth in both expressive and receptive vocabulary development than the others who did not receive the same. More precisely, the students from
poverty who received the intervention made significantly greater vocabulary development than the students from poverty who did not receive the intervention.

Martinovic (2013) through the study, ‘Focusing on Vocabulary Instruction: Will it Advance Reading Comprehension?’ examines the role of vocabulary instruction in developing strong reading comprehension skills. Eight 7th grade students, four of whom were classified and the other four not classified were chosen for this study. Prior to reading the new text, all students received explicit vocabulary instruction, which gave emphasis to the new vocabulary they were to encounter within the text. The students were led through a variety of activities, including the use of graphic organizers such as semantic maps and Venn diagrams, for a better understanding of the new words. Results of this study also indicated that both group of students can benefit from the systematic and organized introduction of vocabulary prior to reading the new words within a text. It is suggested that by introducing students to vocabulary that they will meet within a given text, prior to the reading task, the teacher enables the students to better understand that which is being read.

3.4 DISCUSSION ON REVIEW OF RELATED LITERATURE

The studies conducted by de los Santos Lopez (2003), McGinnis (2000), Nuspl (2006) indicated that training in phonemic awareness helped to develop reading skill. Pittman (2008) revealed that explicit vocabulary instruction has a significant effect not only on the vocabulary acquisition of students, but also on the overall performance in the classroom. The research studies undertaken by Kim, Dae-Sang (2006) and Rebecca Silverman and Sara Hines supported the use of multimedia in enhancing vocabulary instruction.

Slattery (2003) designed The Fast For Word program to be used for one-hundred minutes a day, five days a week, for approximately six weeks. The results showed that some students who participated in the Fast For Word program did increase their phonemic awareness level and likewise, did increase their reading ability level. However, some did not benefit at all and some students yielded only slight gains.

Corbett (2009) carried out a study where participants in the experimental group were instructed using Vocabulary Works, a vocabulary program authored by Dr. Alvin Granowsky. However, participants in the control group did not receive any vocabulary instruction at all. After conducting the study it was found that there was no significant difference in the reading achievement of students who received daily vocabulary instruction and students who did not.

It was of interest to the researcher that there is the possibility of students not benefitting from the intervention programme. It was of concern to the researcher that the intervention designed for augmenting phonemic awareness and vocabulary may
not bring about the anticipated, expected result. But the researcher did not encounter any such situation while conducting the present study.

By reviewing the literature related to multimedia, the investigator could gain much insight into the planning, design and conduct of the present study. The review of the above given studies gave the researcher ample information about the concept of dyslexia. It also helped to understand the importance of different types of specially made intervention programmes for dyslexic children and how they proved effective in comparison with traditional classroom instruction. The researcher was able to get a clear idea about the variables to be selected for the research from the studies referred to here on phonemic awareness and vocabulary instruction. The detailed perusal of these studies was instrumental in framing the title of the study, formulating the hypotheses and objectives and also in deciding the intervention procedure to be adopted for the present study.
CHAPTER IV

METHODOLOGY

4.1 METHOD ADOPTED
4.2 RESEARCH DESIGN
4.3 SAMPLE FOR THE STUDY
4.4 VARIABLES SELECTED FOR THE STUDY
4.5 TOOLS, TECHNIQUES AND MATERIALS USED FOR THE STUDY
4.6 PROCEDURE ADOPTED
4.7 STATISTICAL TECHNIQUES USED