CHAPTER III

REVIEW OF RELATED LITERATURE

3.1 Studies related to Orthographic Processing Skills and Reading Achievement

3.2 Studies related to Orthographic Processing Skills and Writing Achievement

3.3 Studies related to Multimedia in Education

3.4 Studies related to Test Anxiety and Home Environment

References
REVIEW OF RELATED LITERATURE

Any worthwhile study in any field of knowledge requires an adequate familiarity and support of the works that has already been done in the same area. A literature review is a body of text that aims to the critical points of current knowledge, including substantive finding and theoretical and methodological contributions to a particular topic. It acts as a link between the research proposed and the studies already done in this area. It throws light on the differences of opinions, contradicting findings and the explanations for the same. A brief summary of the writings of recognized authorities and of previous researches provide evidence that the research is familiar with what is already known and what is still unknown and untested. Review of related literature helps the researcher to develop an insight into the present study and scrutinize the problem with precision and accuracy.

Thus the findings, conclusions and recommendations of the studies reviewed create an insight in the researcher to develop the study in a different perspective. Past researches help to sharpen and define understanding of existing problem. A brief account of the relevant studies is given below. The investigator reviewed the related studies as well as scholarly articles and classified the studies under three major headings:-

3.1 Studies related to Orthographic Processing Skills and Reading Achievement

3.2 Studies related to Orthographic Processing Skills and Writing Achievement

3.3 Studies related to Multimedia in Education

3.4 Studies related to Test Anxiety and Home Environment
3.1 Studies related to Orthographic Processing Skills and Reading Skills

Ebert (2013) conducted a study on whether internal (phonological working memory) and external variables (preschool and home learning environment) have different impacts depending on parental native language. It was found that phonological working memory has a strong impact on all children's initial vocabulary. The study also revealed that the effects of preschool and home learning environment are comparatively less influential.

Danielle and Diane (2012) in their study ‘Examining the Relationship between Adolescents’ Orthographic Knowledge and Overall Reading Ability’ found that Orthographic development (as measured by spelling ability) would serve as a link between constrained and unconstrained reading skills in adolescents.

According to Michal, Amalia and Tami (2012) in the study ‘Reading different Orthographic structures in the shallow-pointed Hebrew script: a cross-grade study in elementary school’ examined the development of reading, in Hebrew script. Rate and accuracy for four different pointed orthographic structures: letter-diacritic mark combinations, legal pseudowords, illegal pseudowords, and real words, were collected. Results found linear development for all structure types with respect to reading rate which support the need for both universal as well as Orthography-specific models of reading development.

Georgiou et al. (2012) in their study examined the longitudinal predictors of non word decoding, reading fluency, and spelling in three languages that vary in Orthographic depth. The results showed that the model for non word decoding in Greek was similar to that of Finnish language (both have consistent grapheme-to-phoneme mappings) while the model for spelling in Greek was similar to that of
English (both have some inconsistent Phoneme-to-Grapheme mappings) Letter knowledge dominated the prediction in each language. This revealed the predictable role of Orthographic consistency on literacy acquisition.

Deacon, Benere and Castles (2012) found that there is an increasing evidence of relationship between orthographic processing skills (the ability to form, store and access word representations) and reading ability. The results suggest that, children acquire orthographic processing skills through their reading and that this ability as characterized by the most common tasks used to date, does not play an independent role in supporting reading acquisition.

Zhang, Catherine, Xiuli, Anita, Hua, and Cathy (2012) examined the association of three levels of meaning acquisition word (vocabulary) morpheme (morphological awareness) and semantic radical (orthography semantic awareness) to early Chinese reading comprehension and found they were uniquely associated with concurrent and subsequent reading comprehension.

Commisionaries, Duncan and Casalis (2011) conducted a study which explores the nature of Orthographic Processing Skills among French-speaking children, who are learning English at school as a second language (L2). Two aspects of orthographic processing skills are thought to form a convergent construct in monolingual beginning readers: word-specific knowledge (e.g."rain-rane") and sensitivity to sub-lexical regularities. Word-specific orthographic knowledge in L2 correlates with L1 reading speed and results reveal direct cross-language transfer for this component of Orthographic Processing Skill.

Negrete (2010) in the study ‘Oral Reading and Orthographic Development of Transitional Readers and within Word Pattern Spellers in Grades 2-5’ concluded that
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regardless of grade level, students who were within word pattern spellers produced similar reading scores according to rate, accuracy, and word recognition in isolation.

Zeigler et.al. (2010) in their study ‘Orthographic depth and its impact on universal predictors of reading: A cross language investigation’. They found that phonological awareness was the chief factor associated with reading performance.

Winskel, Radach, and Luksaneeyanawic (2009) investigated reading and spelling developments in Thai children. A lexicality effect was found for both reading and spelling. Beginning readers appear to predominantly use a larger lexico–syllabic grain size to read Thai.

Ventura, Kolinsky, Pattamadilok, and Morais (2008) in their study ‘The Developmental Turnpoint of Orthographic Consistency Effects in Speech Recognition’ found fourth-graders showed evidence of a widespread influence of orthography in their spoken word recognition system.

Levy (2006) in their study explored the development of children’s early understanding of visual and Orthographic aspects of print and how this is related to early reading acquisition. The data show systematic development in understanding of print conventions and English Orthography and spelling. Regression analyses indicated the print knowledge was related to early reading skills.

In the study ‘Effects of Consistency and Age of Acquisition on Reading and Spelling among Developing readers’ done by Weekes, Castles and Davies (2006) found that the effect for Orthography and phonology consistency and reading was larger for younger children than for older children.

Holland, McIntosh, and Huffman (2004) concluded in their study that Utilizing Rapid Automatized naming(RAN) as a predictor of both phonological and
orthographic processing was found to provide a better-fitting model than when RAN was used to predict either the Phonological or Orthographic factor alone.

Bowman and Treiman (2004) in their study ‘Stepping Stones to Reading’ found how young children use their knowledge of alphabet in their initial attempt to read and spell and hence teachers can base their instruction on the skills children already possess and build on it.

Senechal and Fevre (2002) found that children’s exposure to books was related to the development of vocabulary, listening and comprehension skill, and that these language skills were directly related to children’s reading in grade three. Fluent reading has its roots in different aspects of children’s early experiences.

Cunningham, Perry, Stanovich, and Share, (2002) in their study ‘Orthographic Learning during Reading: Examining the Role of Self-Teaching’ assessed the degree of Orthographic learning in homophonic choice, spelling, and target naming tasks with second graders and found that processing of target homophones was superior to that of their homophonic controls. A substantial correlation between Orthographic learning and number of target homophones correctly decoded during story reading was consistent with the self-teaching hypothesis.

Narges and Monique (2001) in the study ‘Orthographic and phonological processing skills in reading and spelling in Persian / English bilinguals’, compared whether Phonological and Orthographic processing skills contribute to reading and spelling, for two alphabetic languages which differ drastically and found Phonological and Orthographic processing skills each predicted unique variance in word reading in English and in Persian.
Nassaji & Geva (1999) investigated the role of phonological and Orthographic Processing Skills in second-language reading English-as-second language: three types of ESL reading variables were used: reading and comprehension, silent reading rate, and ability to recognize individual words. Efficiency in phonological and Orthographic Processing contributed significantly to individual differences on the measures.

Varnhagen, Boechler and Steffler, (1999) concluded in their study that beginners make best-guess decisions to spell ambiguous vowels based solely on phonological information; and as they acquire more sound-letter correspondence knowledge, children start to use Orthographic regularities in their knowledge to spell new words by analogy.

Bowey and Hansen (1998) found that children were able to use orthographic information from beginning, middle, and end of clue words to identify unfamiliar words, with clue word presentation enhancing the reading of beginning-same and end-same target words more than middle-same target words.

Holmes (1996) made a study on the role of Orthographic Processing Skill in adults' reading proficiency. The result indicated that Orthographic Skill played a significant independent role in fluent reading aloud, of connected text. The importance of studying the various aspects of Orthographic processing capability and their contribution to the process of attaining adequate literacy competence was stressed.

Leslie and Thimke, (1992) in their study found boys performed significantly better than girls on oral verbal fluency and girls outperformed boys on written Orthographic fluency. Girls consistently outperformed boys on number of words and number of clauses produced in narrative and expository composition.
Barker, Torgesen and Wagner, (1992) studied the unique contribution of Orthographic Processing Skills to individual differences on five types of reading measures. The role of orthographic skills in each of these measures was examined and the result was that Orthographic skills contributed significantly to each type of reading, but their role in reading of text was stronger than for isolated words.

Cunningham and Stanovich (1990) in their study ‘Assessing Print Exposure and Orthographic Processing Skill in Children: A Quick Measure of Reading Experience’ found that Orthographic Processing Ability can account for variance in word recognition skill after the variance due to phonological processing has been partialed out.

According to Adams (1990) skilful reading depends critically on the deep and thorough acquisition of spellings and spelling-sound relationships and instruction designed to develop children's sensitivity to spellings and their relations to pronunciations should be of paramount importance in the development of reading skills.

Wilde (1990) concluded that most students need more than mere exposure to written language through reading and the chance to practice it, through writing.

Stanovich and West (1989) investigated whether Orthographic Processing Abilities – the abilities’ to form, store and access Orthographic representation can account for additional variance in word recognition and spelling skill. The results of the studies were supportive of the idea there were individual differences in reading and spelling cost by variation in Orthographic Processing Skills. Orthographic Processing Skills were linked to print exposure and should be environmentally mediated.
Wagner (1988) studied the relationship between the development of phonological processing abilities and the acquisition of reading skills and found relatively independent causal roles in the acquisition of word analysis skills for the phonological processing abilities.

3.2 Studies related to Orthographic Processing Skills and Writing Skills

Gary et al. (2013) studied the relationship between writing motivation, writing activity, writing performance, and the student characteristics of grade, gender, and teacher judgment of writing ability. Girls and older students wrote qualitatively better fictional stories, as did students with higher levels of writing ability based on teacher judgment. With respect to writing activity, more frequent writing in and out of school was reported by girls, better writers, and younger students. In a path analysis, grade and gender directly influenced writing activity, while gender, teacher judgment of writing ability, and writing activity directly influenced some aspects of writing motivation.

Kaur, and Embi (2011) who in their study ‘The Relationship between Language Learning Strategies and Gender among Primary School Students’ found that that there was significant difference in the overall use of strategies between boys and girls. Girls tend to use overall language learning strategies more often than boys in learning English language.

Namik and Gozde (2011) conducted a study to find the effect of the cluster method on the creative writing skill of Sixth grade students and found that the group which used the cluster method in creative writing studies was more successful than control group on academic success in writing skill.

Notarnicola (2011) analysed the spelling skills of Italian children as a function of school experience. The writing performance on spelling test was examined based
on the Dual Route Model (DRM) which appeared as a useful theoretical frame work to describe the development of spelling in a relatively regular language as Italian.

Apel and Apel (2011) presented componential model of spoken and written language that can guide literacy educators in their assessment of students written language skills. They concluded that students must be able to consciously use their knowledge of Phonology, Orthography, Morphology, Semantics, Syntax and Pragmatics to successfully read and write.

Carol, (2009) in the study ‘The Role of Orthographic-Motor Integration in the Production of Creative and Well-Structured Written Text for Students in Secondary School’, found there is a strong relationship between orthographic-motor integration related to handwriting and students' ability to produce creative and well-structured written text.

Kim (2009) examined the relative contribution of letter-name knowledge and phonological awareness to literacy skills and the relationship between letter-name knowledge and phonological awareness, using data from Korean-speaking preschoolers. The results revealed that both letter-name knowledge and phonological awareness made unique contributions to literacy skills (i.e., word reading, pseudoword reading, and spelling)

Reese (2009) in her study ‘The effects of a Multi - Linguistic Diagnostic Spelling Intervention on the writing achievement and writing self –perception Beliefs of secondary school students: Phonology, Orthography and Morphology’ found that the treatment students who participated in thirty hours of spelling instruction with writing component were more moderate to statistically significant games in phonological awareness rapid naming, morphology word attack skill and reading comprehension than the control group.
Chieh (2008) studied the effect of capitalizing on Orthography and found children with poorer phonological awareness of Chinese and those with better phonological awareness were taught novel English words in an auditory learning task under exposure conditions and there was marked changes in children which proved beneficial.

Pittman (2007) found that it is important to have knowledge of the linguistic factors that allow students to be successful spellers. Having phonological, morphological and Orthographic knowledge is essential to spell conventionally. The intervention based on phonological, morphological and Orthographic principles produced large effect on students who received spelling instruction.

Brooks, Vaughan, and Berninger (1999) conducted a tutorial directed to improve writing, spelling and composition skills and found reliable improvement in writing and composition. Although writing related fine motor, orthographic, orthographic-motor integration and phonological segmentation skills were not directly taught they improved.

Graham (1999) found that explicit and systematic instruction as well as incidental or natural learning approaches are needed to maximize the development of writing and spelling.

Koda (1999) examined Orthographic sensitivity among adult second language (L2) learners with diverse first language (L1) backgrounds, the finding was L1 alphabetic experience promotes L2 intra word structural sensitivity. ESL (English as Second Language) learners are strongly inclined to use visual familiarity as a primary cue during Orthographic processing; the ability to detect Orthographic constraint violations separates L1 and L2 readers.
Cossu (1995) in the study ‘Acquisition of reading and writing spelling in a transparent Orthography: two nonparallel process’, found that reading and writing spelling are nonparallel process and that developmental asynchrony reflects a partial structural independence of the two systems.

Vaughn (1992) evaluated the efficacy of handwriting, and computer based instruction on the early spelling acquisition of normal achieving and learning disabled elementary students. Results indicated no significant difference between the learning disabled and normal achieving students.

Adams (1990) found that Spelling, or Orthographic knowledge, plays a much greater role in the language arts. The careful examination of words that is part of formal spelling instruction can beneficially affect not only the efficiency and quality of students’ writing experiences but of their reading experiences as well.

Kurth (1983) found that a child’s emerging literacy is based on a growing control of Orthography, wordness, directionality, grapheme phoneme correspondence and syntax and the function of reading and writing is to generate meaning.

William and Gillooly (1973) in their study ‘The Influence of Writing –System Characteristics on Learning to Read’ found Orthography influences the behavioural effects of writing system. English writing was shown to involve a blend of two levels, Phonographic representations and Orthographic representations which is the basis for greater reading speed.

3.3 Studies related to Multimedia in Education

Michael, Melissa, Paige, Emily, & Mira, (2013) in their study ‘Improving teacher candidates knowledge of phonological Awareness: A Multimedia Approach’, found that multimedia instructional tools such as content acquisition podcasts CAP’s benefit undergraduates as they acquire necessary knowledge and skills that
underwrites advanced practices for teaching students in general and special education settings.

Softa (2011) found that the learning environment in the form of language labs rather traditional classrooms affect the student cooperative skills, interpersonal attitudes of the respondents and also the level of motivation in learning English.

Ping (2010) conducted a study on the use of video lesson, modules in teaching methodologies to prepare pre service teachers for supporting the language development of students. It was found that the application of the material had high reliability.

Samy (2010) conducted a study on internet awareness and competence among high school students and teachers. The objective of the study was to find out the extent of awareness and competence of Internet among high school students and high school teachers. The study was based on a sample of eighty six students from Mahiti Sindhu. The study concluded that there was no significant difference between high school boys and girls in terms of awareness and competence to use Internet

Rafeedali (2009) conducted a study on computer-based technology and its pedagogical utility. The objective of the study was to find out the extent of use of computer resources in the teaching-learning process among the higher secondary school teachers. The sample selected for the study was three hundred teachers of higher secondary schools from the Malappuram district of Kerala and found that computer is very helpful device for evaluation but only a small percentage of higher secondary school teachers are using computers for evaluation.

Rajesekar and Vaijapuri (2008) conducted a study on higher secondary teacher’s computer anxiety. The study was to measure the level of teachers’ computer anxiety and found the entire sample of teachers has high level of computer anxiety.
The teachers handling the subjects of the Science group and those who have not attended any computer classes have high level computer anxiety than their counterparts in the Arts group.

Sibichan (2006) found that achievement in English of students improved as a result of the effect of multimedia approach in teaching.

English and Rainwater (2006) studied the instructional effectiveness of using animations to teach thirty two learning objectives in an undergraduate operating systems course. Statistical analysis using a paired t-test indicated inclusion of animations in an undergraduate operating systems course yielded significant overall student achievement gains as measured by pretest and posttest scores.

Craig (2002) studied the effects of agent properties, picture features, and redundancy in animation. Two experiments explored the integration of animated agents into multimedia environments in the context of Mayer’s cognitive theory of multimedia learning. Experiment one was a three (agent properties: agent only, agent with gesture, no agent) x three (picture features: static pictures, sudden onset, animation) design. In experiment two, they explored the effects of printed text, spoken narration, spoken narration with the printed text, in a multimedia environment which included an agent, to investigate effects of redundancy. The findings indicated that Agent properties produced no significant effects. Both sudden onset and animation conditions facilitated performance relative to the static-picture condition. The spoken-narration-only condition outperformed the other two, with no differences between printed text and printed text with spoken narration.

Liao (1998) conducted a study which suggested a correlation between integrating multimedia technology in education and students academic success.
In his study Madankumar (1998) found that media based instructional strategy was more effective in creating environmental theory and application awareness than conventional text book approach among primary school pupils in Kerala.

Das (1998) found computer assisted learning materials was very effective to learn rhymes in different modes.

Mehryara (1998) conducted a survey on the effectiveness of web based interactive multimedia system in tertiary education. The result of survey conducted found that students were enthusiastic towards the multimedia package.

Reddy (1997) studied the effectiveness of multimedia instructional strategy in instructing science to slow learners and the findings revealed that it enabled the slow learners to cope with normal students to a considerable extent.

Hedberg, Brown and Arrighi(1997) developed a multimedia package incorporating high quality visual materials in the form of graphic sound, text, and video for high school students which resulted in active participation of the students in the learning process.

Cates and Gooding (1997) examined the effectiveness of learning options in two researcher-designed interactive multimedia instructional spelling programs, one offering predominantly behaviourist-visual learning options of the type employed by many current commercial spelling instructional programs and one offering predominantly cognitivist-phonological learning options of the type recommended by spelling research. The treatment groups improved their spelling performance significantly. Skill gains were high.

Callaway (1996) found that effectiveness of an interactive multimedia package designed to accommodate a number of cognitive and learning style was much higher
for learning difficult topics, for high school students than the typical classroom methods.

Taylor (1992) had recognized that video was not an ideal medium for presenting detailed material, but was better used for broader, abstract material, possibly with an emotional appeal. An abstract video segment may serve well as the medium for an advance organizer, and, similarly, for a lesson summarization. Taylor also reported that most learning occurred when audio and video were redundant, are synchronized with content, and repeat and reinforce the concepts being presented.

Don (1992) investigated and found that the use of educational media would stimulate teachers’ creativity and inspire continual growth in the effectiveness of teachers professional educators. Multimedia also effected students learning improving learning performance and increasing students motivation to learn.

Ayersman (1990) found that students who were instructed using multimedia showed greater gains in areas of language development than students who learned in traditional environment.

Hooper and Hannafin (1988) found that media that employ both print and video were likely to result in deeper processing than a medium that employs just print.

Nugent (1982) found that the highest learning levels were attained when students were presented information via combined text and pictures (verbal and nonverbal channels) or combined audio and pictures (verbal and nonverbal channels) compared to the same content presented via text alone (verbal channel), audio alone (verbal channel), or pictures alone (nonverbal channel).

Basu (1981) developed a multimedia program and concluded that the strategy enabled learners to reach the level of mastery learning.
Shah (1979) stated that the teachers who were exposed to the treatment of self-instructional multimedia course on effective questioning showed significant improvement in all the skills of teaching.

Studies conducted by Atkinson (1968) showed that computer assisted instruction (CAI), the students performed significantly better in their achievement in reading at Stanford CAI program than their peers in normal classrooms.

3.4 Studies related to Test Anxiety, Home Environment

Pinto, Pessanha and Aguiar (2013) found that Home Environment and preschool quality, were associated with children's language and literacy outcomes.

Nemati (2012) concluded that Test Anxiety was found in foreign language learning. This study investigated on the relationship between age, gender, discipline and foreign language, Test Anxiety specifically. The result of the independent t-test also established that males and females were equally affected by Test Anxiety and that pre-university had the highest level of Test Anxiety.

Villiger, Niggli, Wandeler and Kutzelmann (2012) found the potential of the family in the sustained promotion of reading motivation.

Lawrence, Capotosto, Branum, White and Snow (2012) found an interaction between instruction and home-language status such that English-proficient students from language-minority homes improved more than English-proficient students from English-speaking homes.

Mouna (2009) found that data trends showed that a child from a multilingual Home environment improved at an exceptional rate, while the monolingual child developed at a constant, but more flat rate.

Singaravelu (2009) investigated the relationship between Test Anxiety and academic achievement in mathematics of high school students and found that higher
the Test Anxiety lower was the academic achievement in maths. The students with the average level of Test Anxiety achieved more than with low and high level of Test Anxiety.

Forget (2009) found that home characteristics had direct effects on school readiness and indirect effects through child language. No genetic correlation was found between language and school readiness. These results suggested that home characteristics affect school readiness in part through their effect on early language skills.

Cheri (2007) in the article ‘Impact of Home Environment’ stated that Home Environment had a profound impact on learning. The old saying, "The most important work you do takes place within the walls of your home," applies here.

Dwivedi and Gunthey (2005) conducted a study on the influence of medium of Instruction on level of Anxiety among school students. The result of the study showed that Anxiety level of English medium students was significantly greater than students of Hindi medium.

Chappel (2005) found that students with low Test Anxiety scored significantly higher grade than those student with high Test Anxiety.

Smith (1964) found that an individual’s negative experience will result in higher Test Anxiety leading to lower performance and positive experience leads to lower Test Anxiety and high performance.

Conclusion

Ample evidence could be collected on the researches done in the field of language skills specifically on Reading and Writing skills. While reviewing the related studies the investigator was able to get a bird’s eye view of the various studies done in this area and that has motivated the investigator for further research and exploration in
this area. Review of related literature provided a sound basis and clear vision for formulating the Objectives, Hypotheses and the Methodology to be adopted and also to develop the study in a different perspective.

A number of studies speak of Orthographic Processing Skills and its role in Reading and Writing skills. Deacon, Benere, and Castles (2012) found that there was an increasing evidence of a relationship between Orthographic Processing Skill, or the ability to form, store and access word representations, and reading ability. While Adams (1990), Apel and Apel (2011) found that Spelling, or Orthographic knowledge, played a much greater role in the language arts. The careful examination of words that is part of formal spelling instruction can beneficially affect not only the efficiency and quality of students’ writing experiences but of their reading experiences as well.

Multimedia also effect students learning, improving learning performance and increasing students motivation to learn. Ayersman (1990), Callaway (1996) found that students who were instructed using multimedia showed greater gains in areas of language development than students who learned in traditional environment. Similarly, Sibichan, (2006) found that achievement in English of students at secondary level improved as a result of the effect of instruction used.

It was found that a number of studies regarding Orthographic Processing Skills have been done abroad but very few studies have been conducted in India. All these factors motivated the investigator to carry out the present study which is entitled ‘Effect of a multimedia learning package based on Orthographic Processing Skills on Reading and Writing Achievements in English of Children at Primary Level’.
References


