COMMUNICATING WITH THE MASSES IS A COMPLEX PHENOMENON. AS THE NUMBER OF PEOPLE INVOLVED IN THE COMMUNICATION PROCESS IS EXTREMELY HIGH, COMMUNICATION NEEDS TO BE CARRIED OUT IN HIGHLY SPECIALIZED, PROFESSIONAL AND TECHNICAL LEVELS. ONE OF THE MOST IMPORTANT ASPECTS OF EFFECTIVE COMMUNICATION IN MASS COMMUNICATION IS THE ISSUE OF THE EFFECTIVENESS OF MASS MESSAGES. AMONGST THE VARIETY OF MASS MEDIA FORMS, PRINT MEDIA IS THE OLDEST AND ONE OF THE MOST POPULAR FORMS OF MASS MEDIA THAT DISSEMINATES INFORMATION REGULARLY TO THE PUBLIC. A VARIETY OF PRINTED MASS MEDIA FORMS SUCH AS BOOKS, NEWSPAPERS, MAGAZINES, JOURNALS, ETC. CATER TO THE NEEDS OF ITS READERS FOR SATISFYING THEIR QUEST FOR INFORMATION.


easy is it for readers to follow newspaper stories?” (Gunter, 2000, p. 73). For this purpose, the textual elements that affect comprehension of the written message are studied. “Readability studies are designed to draw inferences from writing style about whether people can understand the message” (Buddenbaum and Novak, 2005, p. 195).

The concept of readability is an important factor in predicting the effectiveness of written messages from the analysis of textual characteristics. “Research eventually established that the two variables commonly used in readability formulae – semantic (meaning) measure such as difficulty of vocabulary and a syntactic (sentence structure) measure such as average sentence length – are the best predictors of textual difficulty” (DuBay, 2004, p. 19, 2007a, p. 42, 2007b, p. 53). Through a series of reviews on readability researches conducted on a chronological timeline since the inception of its concept, the study will explore interesting insights into different aspects of readability researches and its applicability on a wider scale.

This review of literature has been conducted in a thematic manner following chronology within the themes and sub-themes. The emerging themes are:

1. Early readability studies – An exploration of the concept of readability
2. Readability and its practical applicability in various fields
3. The readability factor in print media

The review follows a systematic chronological account of each theme taken independently.

1. Early Readability Studies – An Exploration of the Concept of Readability

This section presents some of the earliest studies on readability during the period – 1880s to the late 1940s. During this phase, issues related to education and literacy at the mass level was a major concern in many societies. Academicians, who were concerned about their reading materials such as publishers, educators and teachers, started applying the concept of readability as a predictor of text efficacy. Gradually, they started developing practical methods to determine textual readability through a series of researches. This period saw the development of valid readability formulae by a
community of scholars, and this step itself proves to be a pioneering achievement for further researches in the field.

The readability studies conducted during this period were the earliest works on the introduction of the concept of ‘readability’ itself. If we date back the earliest readability study, Lucius Adelno Sherman, English Literature Professor at the University of Nebraska, would be given the credit for introducing the concept of readability in written texts in 1880 (DuBay, 2004, 2007a, 2007b). He found that readability of literature texts could be measured from a statistical perspective. Sherman (1893) advocated an “objective approach” to the study of literature by formulating that using “shorter sentences and concrete terms” (as cited in DuBay, 2004, 2007a, 2007b) increase the overall readability of the text.

The 1920s showed a new development of readability researches in the academic discipline. In 1921, psychologist Edward L. Thorndike of Columbia University published *The Teacher’s Word Book* which listed 10,000 words by frequency of use (DuBay, 2004, p. 12, 2007b, p. 4). Thorndike found that frequent words often used in written text are comparatively more familiar than other words and hence easier to understand. “In 1932, he followed up with *A Teacher’s Word Book of 20,000 Words* and in 1944 with Irving Lorge, *A Teacher’s Word Book of 30,000 Words*” (DuBay, 2004, p. 12, 2007a, p. 45, 2007b, p. 4). This concept of vocabulary frequency lists proved to be effective in the field of education as it provided a means to measure the vocabulary and textual difficulty. The idea that vocabulary is an effective measure of textual difficulty was also supported by Chall and Dale (1995) later on.

In general, words people use most often are also the easiest. Johnson (1946) found that “twenty-five percent of the 67,200 words used in the 24 life stories written by university freshmen consisted of these ten words: the, I, and, to, was, my, in, of, a, and it” (as cited in Dubay, 2004, p. 12, 2007a, p. 43, 2007b, p. 4). Thorndike’s technique of measuring textual readability by using the concept of vocabulary frequency proved to be a great help for teachers to evaluate the readability of reading materials for their students and classes. This concept inspired many research studies in the field of readability in the
following years. It was also the basis for the first readability formula for testing textual difficulty.

Lively and Pressey (1923) of Ohio State University conducted a study to develop a technique of measuring the "vocabulary burden" of texts. Their study included school textbooks as sample. "In each count of a thousand words, it measured the number of different words, the number of words not on the Thorndike list of 10,000 words, and the median index number of the words found in the Thorndike list of 10,000 words. They found that the median index number was the best indicator of the vocabulary burden of reading materials: the higher the index number, the easier the vocabulary; the lower the index, the harder the vocabulary" (Dubay, 2004, p. 14, 2007a, p. 47, 2007b, p. 6). This study led to the development of the first readability formula using statistical measures.

Vogel and Washburne (1928) of Winnetka, developed their formula, called the Winnetka formula where investigators "could objectively match the grade level of a text with the reading ability of the reader. The match was not perfect but it was better than subjective judgments. The Winnetka formula, the first one to predict difficulty by grade levels, became the prototype of modern readability formulae" (DuBay, 2004, p. 14, 2007a, p. 48, 2007b, p. 16) where researchers started evaluating the difficulty of the text through objective testing.

In their book, What People Want to Read About, Waples and Tyler (1931) conducted a two year study for determining the reading interests of adult readers. After conducting a comprehensive interview of different categories of people based on their sex and occupation, "they found that the reading of many people is limited because of the lack of suitable material. Readers often like to expand their knowledge, but the reading materials in which they are interested are too difficult" (DuBay, 2004, p. 15, 2007b, p. 27). Their study incorporated the concept of readers' opinion in determining their reading patterns and reading ability. Respondents also expressed their interest in reading specific types and styles of reading materials.

The issue of vocabulary burden in high school was investigated by Patty and Painter (1931). They discovered the sophomore year as the year of highest vocabulary.
burden in high school. They formulated a way of measuring the vocabulary burden of text materials based on a percentage of words taken from the concerned text. Patty and Painter’s method predicted the readability of text materials by using “a combination of frequency as determined by the Thorndike list and vocabulary diversity (the number of different words in a text)” (DuBay, 2004, p. 14, 2007a, p. 31).

Ojemann (1934) attempted to study the qualitative aspects of assessing the readability of parent-education text materials. In this subjective method, “he assigned each passage the grade level of adult readers who were able to answer at least one-half of the multiple-choice questions about the passage. Ojemann was then able to correlate six factors of vocabulary difficulty and eight factors of composition and sentence structure with the difficulty of the criterion passages. He found that the best vocabulary factor was the difficulty of words as stated in the Thorndike word list” (DuBay, 2004, p. 15, 2007a, pp. 48-49, 2007b, p. 27).

One of the most landmark studies in the development of adult readability formulae was done by Tyler and Dale (1934). “They determined the difficulty of the passages with multiple-choice questions based on the texts given to adults of limited reading ability” (DaBay, 2004, p. 16, 2007a, p. 49, 2007b, 28). Their formula provided a way to depict the readability of text materials for adult readers of limited reading ability.

Gray and Leary’s (1935) study focused on the reading comprehension test of reading materials of adult readers of limited reading ability. They found various factors responsible for predicting textual difficulty. These variables are grouped into categories on the basis of their priority of importance. “The authors first identified 228 elements that affect readability and grouped them under these four headings:

i. Content
ii. Style
iii. Format
Lorge (1944) published a method for measuring readability known as Lorge Index in the *Teachers College Record* in an article entitled, "Predicting Readability" by using variables such as sentence length and varying dimensions of word vocabulary (DuBay, 2004, 2007a, 2007b). The formula was extensively popular for the government and military services for determining the textual difficulty of their reading materials during that time. Lorge's readability index provided the framework work for developing two of the most popular readability formulae – Dale-Chall and the Flesch Reading Ease formulae in 1948.

Dale and Chall (1948) proposed their readability formula in two issues of the *Educational Research Bulletin* by using a list of easy or familiar words (as cited in DuBay, 2004, 2007a, 2007b). The original Dale-Chall formula had a list of 763 non-hard or familiar words. However, the New Dale-Chall Formula, revised in 1995 in *Readability Revisited: The New Dale-Chall Readability Formula* expands the list of familiar words to 3000. Using the formula requires the consideration of sentence length and counting the number of "hard" word – those not on the list. Dale-Chall formula was also considered as one of the most highly reliable formulae of the early phase of readability researches.


In *The Art of Readable Writing*, Flesch (1949, p.149, as cited in DuBay, 2004) gave an estimated reading grade level along with the corresponding readability score. The educational reading grade level depicts the educational level in which the reading...
materials are written. Hence, writers could easily predict the suitability of their reading materials for their readers. Flesch conducted several studies regarding the readability of different kinds of reading materials. In one of the studies, Flesch found that majority of the U.S adults (93%) read at the 5th grade level (very easy text) as compared to only 4.5% of the U.S adults reading at college graduate grade level (very difficult text) (DuBay, 2004).

The early readability studies centred on developing easy and simple readability formulae for academicians, publishers, writers and professionals to depict the suitability of their texts for their specified readers. These pioneering studies inculcated the concept of the art of writing for the right audience at the right reading level. This era paved the way for reviewing and analysing the language and the techniques of writing for different forms of public contents written in various disciplines. These efforts have further opened the doors to a wide variety of researches in the field of readability.

2. Readability and its Practical Applicability in Various Fields

The second phase of readability studies which began in the 1950s marked a period of deeper study and showed new developments transforming the study of readability. During this phase, researchers tried to enhance the reliability of readability formulae, its usability and practical applications. Readability formulae came to be extensively applied in various fields of professions such as medical health, journalism, education, legislation, insurance, and business industry to increase their productivity in the market.

"Today, readability formulae can be applied to anything from textbooks to government documents and they are more popular than ever" (Heydari, 2012, p. 425). Applications of readability formulae are found in researches concerning the various fields: (educational system: Kennedy, 1979; Reed, 1988; mass media including newspapers: Lostutter, 1949; Fusaro & Conover, 1983; newsletters: Balachandran, 1997; wire services: Catalano, 1990; brochures: Christ & Pharr, 1980; websites: Baker, Wilson, & Kars, 1997; Graber, Roller, & Kaeble, 1999; manuals: Stahl, Henk, & Eilers, 1995; TV programs: Vancura, 1955; and court actions and legislation: DuBay, 2004).
Readability studies are also one of the most basic concerns for educators, researchers and professionals in various fields. Turksma (1955) strongly feels that readability research deals with the different sectors of written communication in the field of education, science, business, law, etc. “It has, in fact become a means of control for writers and future writers, to be aware of their readers and so effectively to promote the understanding” (p. 127) of their publications. The importance and necessity of research in the field of readability has been felt in almost all forms of printed material. A review of the related literature on readability studies in various fields is presented thematically below.

2.1 Readability Studies in the Field of Education

Education is one such field in which the concept of readability finds a huge potential in the improvisation of the teaching-learning system. Early researches in readability had been resulted from the prediction of text difficulty of textbooks. Hoyman and Mc Taggart (1960) while investigating health textbooks used widely in high schools by using Flesch Reading Ease Formula found varying levels of readability in these books. But an interesting observation is that none of the textbooks made provisions for growth in reading ability. It was suggested that multiple textbook adoptions could be made so that several health text with different grade levels of reading could be used on the basis of homogenous grouping of students of same reading ability using the appropriate reading grade level textbooks.

Davis (1962) found out that the concept of readability is a very important textual variable in developing and analysing the comprehensibility and effectiveness of school textbooks and printed materials. Using of readability formulae while analysing educational texts can eventually find out the suitability of the textbooks on the basis of the varying reading grade levels of students. Teachers and educators can eventually select books for students on the basis of the reading ability and grade level of students. This proves to be a practical way of improving the reading standards of students with different levels of reading skills.
Macdonald-Ross (1978) studied the role of language in texts. The study talks in detail about the four techniques of analysis in texts often carried out by researchers in several studies. They are: (i) Readability measures (ii) Quantitative content analysis (iii) Linguistic analysis (iv) Subject matter analysis. Linguistic analysis is one such area which finds its incorporation in readability researches using quantitative testing. Evaluation of textual readability by using well defined readability formula analyses the linguistic factors such as semantic and syntactic measures. Semantic factor takes into consideration the meaning the text by analysing the vocabulary load – easy (familiar) and hard (unfamiliar) words and average word length. Syntactic factor takes into consideration the average sentence length.

It is a proven fact that readability is an important criterion in preparing school textbooks. Kumar (1981) recommended in his study that textbook writers particularly of mother tongue should examine the readability indices while selecting the textual material for particular levels of students. One interesting aspect of evaluation of text readability is the concept of measuring the “interest level” of a given text. Maddux and Candler (1984) analysed 10 school books on psychological and educational assessment in special education for measuring their readability and interest level. They use the two formulae developed by Flesch for measuring ‘readability’ and ‘human interest’ respectively. Surprisingly, the results revealed that the readability levels of these books were very low. 6 textbooks were written at “difficult college level”, 3 books at “fairly difficult 10-12th grade” and 1 book at “standard 8-9th grade”. Regarding the human interest level, 8 textbooks were written at “dull” level while the remaining 2 books at “mildly interesting” level.

Allinder and Peterson (1992) pointed out that mainstreaming textbooks are on an average difficult to read because they fall into “dull” and “mildly interesting” categories. It is also necessary that school books should be written with high interest level so as to enhance the reading ability of the books for the students. Kinder et al. (1992) evaluated the readability of 8th grade history textbooks and discovered that the textbooks on an average were written with a range of 9th grade to the 3rd year of college. It shows that the
books were rated one or more years above the recommended grade level. Readability is one such factor that is often used to evaluate the efficacy of school textbooks.

Agnihotri and Khanna (1992) evaluated the readability of school textbooks in the Indian context and found that more recent approaches to readability that focus on syntax, conceptual difficulty, and organization are a teacher's best help in selecting materials for students. Kaul et al. (1995) attempted a detail study of assessing the readability of primary level NCERT (National Council of Educational Research and Training) textbooks on a wider scale in India. They evaluated grade 3 textbooks in 3 subjects – Language, Environmental Studies and Mathematics of 6 Indian States – Assam, Haryana, Kerala, Karnataka, Maharashtra and Tamil Nadu using readability indices. Results of the study indicate state and area-wise differences in readability of textbooks. For instance, language textbooks tend to be towards easier side for Maharashtra, Assam, Kerala and Tamil Nadu and relatively difficult for Haryana and Karnataka. Variations in parity in readability level across subjects were also observed.

Evaluation of readability of text among different categories of readers was conducted by Hartley et al. (2004). Readability level of text written in the disciplines of science, social science and arts and humanities for different categories of readers – researchers, students and general public was evaluated using computer-based readability measure (Flesch Reading Ease Formula). It was found that scientific texts use shorter sentences and were easier to read than were their parallel text in other disciplines. Underwood (2010) found the necessity of improvements in terms of readability and reading grade levels for senior high school textbooks approved by the Japanese Ministry of Education, Culture, Sports, Science and Technology (MEXT) for developing better reading proficiency among the students.

2.2 Readability Studies in the Field of Medical Sciences

In the field of medical sciences, readability research is performed widely to evaluate and improve the quality of print materials used in the medical profession. A number of printed documents used in hospitals and medical clinics such as medical information leaflets, patient consent forms medical prescription written by doctors and
nurses are used by many people, such as patients and their relatives. Readability studies are conducted to assess the readability of these public information documents.

According to Doak et al. (1985), “difficult-to-read health information has little utility for enhancing knowledge and can contribute to poor health by acting as a barrier to understanding chronic disease prevention, self-efficacy, compliance with treatment regimens, and how to negotiate complex healthcare delivery systems” (as cited in Calderon & Smith, 2007, p. 20). Mumford (1997) examined the readability of written patient information medical leaflets used in hospitals by applying three readability formulae – FRES, Fog and SMOG tests. The results indicate that the leaflets were written at much higher difficulty level making the patients difficult to comprehend the information.

Wallace et al. (2008) also pointed out that patient information leaflets with medication prescription “was often written at a reading difficulty level higher than the average reading skills of American adults, and the format of most CMI was not optimal for comprehensibility” (p. 420). This means that many patients are finding the medication information hard to understand as they are written in high difficulty level. Even online health information displayed in health organization websites are more difficult to read than those recommended for general public reading (Greywoode et al., 2009). So, it is always recommended that physicians and health information content developers should consider patient’s ability to read and comprehend written information before preparing written health information.

Jhanwar and Bisnoi (2010) conducted a readability study in the field of medical science. They calculated the readability level of the translated informed consent document used in psychiatric clinic in India. They calculated the readability scores of the consent information forms translated from English to Hindi using two popular readability tests – Flesch-Kincaid Grade Level (FKGL) and Flesch Reading Ease Score (FRES) formulae. FKGL gives a grade level of 13.66 and FRES a score of 40.08. The FKGL gives a reading grade level score, the higher the grade level score, the more difficult the text is. The FRES gives a score from 0 to 100, the higher the score, the easier the text is.
Analysing the above results found “that the informed consent forms were too complex to understand by an average adult subject” (p. 7).

2.3 Readability Studies in the Field of Business

Another major area of where readability research has been used to determine their efficacy is the field of business. Different forms of business writings such as auditing reports, financial statements, company brochures, marketing booklets and many other business documents are often evaluated in terms of their readability.

Stead (1977) analysed the opinion information articles of accounting principles board and reveal that majority of the articles were found to be very difficult to read. Accounting and auditing messages contained in annual reports of business corporations are often found to be lowly readable (Barnett and Leoffler, 1979). Moreover the footnotes accompanying the financial statements are also found to be of significantly lower level. In analysing research trends in business documents, Stead (1978) found that readability analysis is one of the important factors. Similarly, Rajek and Cone (1981) listed readability assessment as one of the factors that influence the quality and usefulness of business communication textbooks.

Burton (1991) conducted an empirical investigation regarding the readability of consumer-oriented brochures issued by 5 major U.S banks and 26 daily major newspapers on a comparative basis by applying readability formulae. Results indicated that the bank brochures were very difficult to read. The study found that 62% of U.S adults could not understand the bank brochures. Regarding the daily newspapers, the readability levels were significantly lower depicting that the contents cannot be understood by about 67% of the U.S adults.

Subramanium et al. (1993) conducted a study for testing the correlation between the readability of annual reports of business corporations and the performance of the company. By using writing style as a predictor of textual difficulty, the study compared the readability of the reports written by good performers and bad performers of the company. It was found that the reports written by good performers were found to be more
readable than the reports of bad performers. The reports of the good performers use easier linguistic styles than that of the poor performers. A detailed comparative analysis of the writing style of both the performers revealed that good performers use lesser jargons and difficult words in their reports.

Most business writers consider readability necessary for effective business writing (Faris and Smeltzer, 1997; Lesikar et al., 1999; Courtis, 2004; Sawyer et al., 2008). The concept of readability has become an important construct in business writing. Researchers have provided evidence that there exists a positive correlation among profitability (Subramanian et al., 1993; Courtis, 2004), return on equity (Baker and Kare, 1992), and prediction of corporate failure (Smith and Taffler, 1992, 2000) and readability of a firm’s annual report.

Oliver and Eckman (1998) conducted objective testing to examine readability and quality of research in textiles and apparels in business journals by using readability formula and found that the texts are slightly difficult to read. Business texts are often hard to read because they used many technical terms and jargons making the readers hard to comprehend. A necessity to reduce vocabulary complexity is required to enhance the readability of business text. As observed in many of the earlier studies, highly readable business documents can lead to the company’s growth and profit.

In yet one of the most interesting and innovative research, a comparative study of the evaluation of reading ease between bilingual business annual reports was conducted by Courtis and Hassan (2002). The study examined the “reading ease between the English and Chinese versions of 65 corporate annual reports in Hong Kong and the English and Malay versions of 53 annual reports in Malaysia” (p. 394). For Hong Kong based reports, Flesch and Yang formulae were used and for the Malaysian reports, Flesch and Yunus formulae were used. Results show “that the indigenous language version is easier to read than the English-written counterparts” (p. 394). This indicates the difference in understanding of different languages as the linguistic structure and characteristics of different languages are extremely different.
Regulators, consumer educators, and researchers have suggested that more effort is needed to ensure the readability of business written materials (Warren, 2008) so as to directly help in the firm’s growth and success. After all, producing highly readable business documents will help in increasing the company’s productivity by expanding client services.

2.4 Readability Studies in the Field of Crime, Police and Legislation

Readability formulae can also be used to measure the readability of legal texts, thereby helping the citizens to understand valuable court information. Fry (1989) found the application of readability formulae suitable for legal documents. Weiner et al. (1995) explored the readability of jury instruction documents of murder trials and were found to be less readable with high confusion levels. This indicates the necessity of enhancing the readability and clarity of legal documents. “Court cases and legislation involving government documents and correspondence, criminal rights, product labelling, private contracts, insurance policies, ballot measures, warranties, and warnings are some of the legal applications of the formulae” (DuBay, 2004, p. 55).

In one of the latest comprehensive readability studies in the field of crime, police and law, Howes et al. (2014) analysed the readability of 68 such reports of DNA evidence from 6 of 8 Australian jurisdictions. They conducted content analyses using three categories: content and sequence, language, and format. Written report styles of the police and the courts differed. Reports for police were brief and few links were made between sections in these reports. Reports for courts were less brief and used either legal or scientific styles. According to Flesch Reading Ease scores, reports for police were fairly difficult, and reports for courts, difficult. Difficulty was compounded by the use of specialist terms. The study felt the need to enhance the readability of reports for non-scientists.

The application of readability formulae, as evident from the above reviews shows that readability is a great concern for the general public, especially for the literate audiences. Proper use of the readability formulae improves the efficacy and productivity of the specific field to a great extent. Even for outdoor public instructions which we find
on billboards, hoardings, banners, wall posters, etc., issues of readability are always taken into account. Many of the moral public instructions which we find in public places such as bus stops, railway stations, roadsides, market areas, parks, tourist spots, etc. are written at low reading grade levels. Instructions such as *Do not drink and drive, Better late than never, Obey traffic rules, Smoking is prohibited, Pay taxes in time, Save water, preserve energy* on an average use short sentences and familiar words in order to make it highly readable for the general public who have varying levels of reading skills.

3. **The Readability Factor in Print Media**

Print media messages are the main sources of providing information to the public. This section presents varying aspects of readability studies conducted in various print media forms. Ever since the inception of the concept of readability, researches in print media in terms of increasing comprehensibility, readership and circulation by applying the evaluation of readability measurements have been done in huge magnitudes. Media researchers have inculcated the notion of readability in different types of media reports such as news articles, features, editorials, stories, comments, etc., to know how the efficacy of their texts.

Measuring the readability of pre publication materials would bring up the readership and circulation of a newspaper or magazine to a huge extent. Many reputed newspapers of the world use readability formulae to measure and bring down the reading grade level of their newspapers to increase the readership and circulation of their papers (DuBay, 2004). Different issues of textual difficulty and ways of improving textual readability of print publications are discussed through the following sub themes.

3.1 **Readability, Readership and Circulation**

The idea that readability has certain effects on the readership and circulation of newspapers has been proved in some of the early researches. In one of the earliest readability studies in print media, Murphy (1947) found that reducing the reading grade level of two different texts increased the readership level to 43% and 60% respectively. According to Schramm (1947), “a readable style contributes to the readers’ perseverance,
also called depth or persistence, the tendency to keep reading the text” (as cited in DuBay, 2004, p. 31, 2007a, p. 71).

Feld (1948) categorised news stories on the basis of Flesch reading grade levels with higher grades depicting more difficulty and lower grades, lesser difficulty. “He found readership differences of 20 to 75 percent favouring the low-score versions. Feld’s findings indicated that even a small actual percentage gain for a large-circulation paper greatly increased the number of readers” (DuBay, 2004, p. 31, 2007a, p. 72). In another similar study, Swanson (1948) found that increasing readability of reading material increases the readership level to a certain extent. The study found that better readability increases the amount of text content read by readers as well as the number of readers reading the particular text.

The relationship between readability and circulation of well known English publications was revealed by DuBay (2007a). He obtained the grade-level readability scores of these publications “by applying the original Dale-Chall formula to at least 4,000 words from front-page news stories and feature articles of the publications” (p. 32). Results showed that “magazines with the largest circulations in the world, TV Guide and Readers Digest, are written at the 9th-grade reading level. The newspaper with the largest circulation in the world, the Sun, is written at the 9th-grade reading level” (p. 32). In comparison to many big publications, these highly circulated publications are written at lower reading grade levels.

Further, DuBay (2007a) also pointed out that “popular novelists, including Charles Dickens, Mark Twain, John Grisham, John Clancy, Steven King, Lee Harper, and Dan Brown have written at the 7th-grade level. The biggest sellers in the publishing industry are romance novels, all written at the 7th-grade level and below” (p. 33). One of the reasons behind the success and popularity of these best-selling novels is that they write their texts in a lower reading grade level which is easily understandable by an adult of average reading ability. Flesch (1949) earlier predicted that a readability score of 8th-9th reading grade level is regarded as the standard readability score which means it is
highly acceptable by all people. Hence, readability is an important criterion that affects the circulation and readership of print publications.

3.2 Readability of Editorials

Going in consonance with the present research's theme, this section presents a review of the readability studies conducted in editorials. One of the most pioneering researches in readability studies was conducted by Rudolf Flesch. "In 1949, Flesch published the results of a 10-year study of the editorial content of several magazines. He found that:

- About 45% of the population can read The Saturday Evening Post.
- Nearly 50% of the population can read McCall's, Ladies Home Journal, and Woman's Home Companion.
- Slightly over 50% can read American Magazine.
- 80% of the population can read Modern Screen, Photoplay, and three confession magazines" (DuBay, 2004, p. 22, 2007a, pp. 30-31, 2007b, pp. 97-98).

"Flesch's work had an enormous impact on journalism. Like Robert Gunning, who worked with the United Press, Flesch was a consultant with the Associated Press. Together, they helped to bring down the reading grade level of front-page stories from the 16th to the 11th grade, where they remain today" (DuBay, 2004, p. 22).

Trenchard and Crissy (1952) made an investigation of the difference in the readability of advertisements and editorial copy in 2 popular weekly national magazines, Time and Newsweek. The study applied Flesch formulae for reading ease and human interest in the texts. It was found that "in both magazines, advertising copy was found to be easier to read than editorial copy. With regard to human interest, Time magazine was found to be significantly more interesting than Newsweek both with regard to advertising copy and editorial copy" (p. 161).

Monznette and Rarick (1968) conducted a comparison of readability of editorials and news stories among 10 popular daily newspapers. It was discovered that the editorials
have higher readability than the news stories. Fusaro and Conover (1983) compared the readability levels of news stories and editorials among two tabloids and two broadsheets. They discovered that lead news stories scored higher than lead editorials and that readability differences were minimal within the tabloid and the broadsheet categories themselves. Interestingly, the editorials from all four papers were written at about the same level of difficulty.

In one of the interesting studies on newspaper editorials so far, Hynds (1990), classified newspaper editorials on the basis of subject matter into politics and government, War and Defense, Economic Activity, Crime, Public Moral Problems, Public Health and Welfare, Accident and Disaster, Science and Invention, Education, Popular Amusements, and Human Interest. It was found that editorials based on politics and government came to be the most dominant theme (in 40 years) and accident and disaster theme to be the least popular ones. The study also found the improvement of readability all through the years.

Comparison of different media articles have also been a key research focus by many researchers. A comparative analysis of readability of medical information leaflets, newspaper editorials and articles from popular magazines of New Zealand was conducted by Murphy, Gamble and Sharpe (1994). Their study applied 3 readability tests - Flesch Reading Ease Score, Flesch-Kincaid Grade Level Score Index and Fog Index on the selected texts. It was found that popular magazine articles scored the highest readability, subject information leaflets in the second position and the lowest readability goes to newspaper editorials.

Adhikary (2010) studied the readability of editorials in Nepali broadsheet dailies published from Kathmandu. Of available methods for readability research, the Cloze procedure developed by Taylor (1953) has been employed in the study. The research measures the readability scores of the texts under study, and also identifies the newspaper that the readers have considered publishing most readable editorials. Results indicate that the readability scores of editorials in Nepali broadsheet dailies are fairly low.
3.3 Readability Among Different Print Publications

A review of the readability research in different areas of print publications relating to producing and using printed materials effectively is analysed in this section. Swanson and Fox (1953) were concerned with the value of the use of readability formulae at the adult level. They concluded that formulae can be used to predict differences in comprehension between two versions of the same print material. It is a well-known fact that printed materials are the most accessible and so the most widely used type of material for purposes of instruction for the public (Otto and Flournoy, 1956). With this in mind, the application of readability formulae in order to determine grade placement in printed materials such as books seems to be a positive note for the researchers.

The reading difficulty of a selected number of mass-circulation magazines was assessed by Allias (1956). Since most of the magazines had tenth-grade and eleventh-grade difficulty ratings, he concluded that wage earners were capable of reading beyond their educational age. In her study, Seaton (1975) investigated the readability of some journals of librarianship by using Flesch formula. It was found that the library journals were written in a rather difficult and dull style. It was hence recommended that an easier style might increase readership and might reach the less committed librarians more easily.

Burgoon et al. (1981) felt the need of lowering the reading grade level of newspapers so as to increase their efficacy among its readers. Similarly many researchers are of the opinion that newspaper contents should not be written beyond the reading grade levels of the general population (Fowler, 1978; Smith, 1983). To be on a safer side, newspapers should always be written at a lower reading grade level as general readers have different degrees of reading ability. (Stempel, 1981; Johns and Wheat, 1978) also found that newspapers are often written at the 'very difficult category' on the basis of the Flesch Reading Ease Score chart. Among broadsheets and tabloids, Fusaro and Conover (1983) found broadsheets having higher readability (average college freshman or 13 years of formal education) than that of the tabloids (typical high school sophomore or nine years of schooling).
The study conducted by Partow-Navid (1991) focused on the readability of technical journals used by practitioners and researchers. A comparative survey analysis was conducted to measure the readability of selected MIS (Management Information System) journals by a 3-step procedure as follows: (i) views of practitioners and academic researchers (ii) applying Gunning Fog Index formula (iii) applying Flesch-Kincaid formula. The results indicated that there were not many differences in the readability scores of the three measures in almost all the journals. According to the results, the journal which used shorter sentences was selected as the most readable journal unanimously by all the three measures.

Bodle (1996) compared the readability levels of a sample of student newspapers with a sample of private-sector papers. He found that the private-sector dailies had a higher score than the student newspapers. Jung and Jo (2001) examined the difference in readability of business news in newspapers and online business sites. Online business news were found to be less readable as compared to the business newspaper articles. This is because of the fact that online news contain longer sentences and business jargons than that of the newspapers. This study shows that the comprehensibility of online publications is at stake.

Suresh and Vasanthkumar’s (2002) study focuses on comparing the formats of presentation of articles on different subject matter areas and the readability of articles on an agricultural newspaper and a farm magazine. All the 52 issues of ‘Dinamalar’ newspaper with a total of 139 articles and all the 12 issues of ‘Valarum Velanmai’ magazine with a total of 147 articles of the year 1998 were taken as sample of the study. The readability scores of these articles were calculated by using the Readability Index developed by Oliver (1985). The result indicates that nearly 50% of the articles published in both the periodicals were found to be popular articles written by scientists and extension personnel. Regarding the readability, maximum number of articles, i.e. one third of the articles came under ‘very easy’ category in both the periodicals.

surveys the contents of 2125 stories from 40 American newspapers with a common readability formula, Flesch-Kincaid Index. The survey gave a result that only 25% of these stories could be understood by someone who reads at 8\textsuperscript{th} grade level or lower (Meyer identifies 6-8\textsuperscript{th} grade level as the standard level of newspaper readability). Meyer concluded that many newspapers are too hard to read, as clearly evident from the findings.

Hillbom (2009) compared the readability of a broadsheet and a tabloid newspaper by analysing two aspects – sentence length and sentence complexity among similar political stance articles. Contrary to the hypothesis of the study, it was found that the tabloid articles use longer sentences and more difficult sentence structures indicating lower readability than the articles of broadsheet newspaper. Valentini et al. (2013) found that general newspaper articles were not understandable for people with low education. This suggests that newspapers should be written at an extremely easy level for people with limited reading ability.

3.4 Readability Among Different News Stories

Another trend in readability research in print media is analysing the readability of different news stories and articles. Danielson and Bryan (1964) compared the readability of hard news and soft news and found that hard news stories were less readable than the soft news stories. Raze (1969) conducted a study of American newspaper readability in metropolitan and non-metropolitan newspapers by using readability formula. The results indicated that there was a significant difference between front page readability level of metropolitan and non-metropolitan newspapers. With the exception of the local news, the non-metropolitan means were higher in readability levels for front page newspaper articles than the metropolitan newspaper articles.

Hoskins (1973) found that half of the AP stories and 83\% of the UPI stories were in the ‘difficult’ or ‘very difficult’ levels according to the Flesch Reading Ease Score scale. Owing to the decline in daily newspaper circulation in the U.S. that began in the early 1970s, Stempel (1981) compared the readability of six kinds of content--
international news, national news, local news, editorials, women’s or family living news, and sports in American newspapers. International news was clearly the most difficult and sports and women’s articles were easier than others. Local news was less readable than national wire news. It trailed editorials by a modest margin and sports and women’s news by a wide margin. The study suggests that there is enough reason for newspapers to be concerned about readability in general.

Smith (1984) also found differences in readability among categories of newspaper content, with features and entertainment more readable than national-international or state and local news. This makes a point to infer that human interest articles are more readable than news articles. In another interesting study by Danielson et al. (1992), it was found that news articles were more difficult to read than fictional tales because fiction is not constrained to describe the real, complex world.

Rollins and Lewis (2013) compared the readability scores of newspaper columns written by National Journalism Award recipients for commentaries with articles written by business/economics reporters. They found that the award winning commentary writers write at a slightly higher level than the business/economics writers. This brings us more of the sense that veteran journalist may have started the trend of focusing on the readability factor in producing better readable public materials.

### 3.5 Readability Across Subject Matter

Researches also found varying levels of readability across different subject matter in print publications. Johns and Wheat (1978) investigated the readability of newspapers to determine the difference in the readability of political and sports stories and to determine the difference between wire and non-wire stories. They found that political stories have a higher readability level than sports stories and the average wire-service story has a higher readability level than the average non-wire service story. This result is consistent with the previous researches (Anderson, 1966; Danielson and Bryan, 1964; Razik, 1969; Reiley, 1974). Later, Catalano (1990) proved similar results with a wire-service news analysis.
Fowler and Smith (1982) analysed delayed-reward content (national affairs, science, medicine, business and economy) and immediate-reward content (sports, people, newsmakers and movies) in *Time* and *Newsweek*. In general, delayed-reward items were found to be more difficult to read than immediate-reward items. In terms of readability of news articles across topics, it was found that ‘sports’ articles were the most readable, followed by ‘entertainment’, ‘politics’, ‘science’ and ‘business’ (Ali et al., 2010).

Vatta et al. (2010) focused on the analysis of the subject matter coverage and mode of presentation along with the measurement of readability of articles published in Rajasthan Kheti “Pratap” during the year 2007. Out of total 173 articles published, majority (16.18 %) of them belong to crop production techniques followed by animal health care management (15.61 %), vegetable production (12.72 %), plant protection (11.56 %) and soil health management (10.98 %). Majority of the articles fell under ‘very easy’ to ‘standard’ category of readability.

### 3.6 Readability and Linguistic Structure

In researches involving message analysis, writing style has also been used as a major dimension to measure message efficacy. In their factor analysis of language elements affecting readability, Brinton and Danielson (1958) confirmed the importance of word length and sentence length to readability where the longer the word and sentence length, the more the difficulty level. Klare, Shuford, and Nichols (1957) found that an easier style in technical materials produced higher scores than a difficult style, with regard to words per fixation, words per second, and recall.

Burgoon et al. (1981) depicted style of writing as a predictor of newspaper readership and satisfaction. They used two stylistic approach to evaluate and analyse the efficacy of written message – objectively measuring syntactic elements such as punctuation, number of words and adverbs, sentence length, etc and secondly a subjective approach from the readers about the written sample. Overall, the study found out that readability is one important dimension for readers to evaluate the newspapers.
Owing to the fact that most of the print media forms are very hard to read, many researchers have indicated that newspapers should simplify their linguistic writing styles to appeal to more readers. According to Stapler (1985), “lead paragraphs in news stories in 12 metropolitan dailies were more difficult to read than the next three paragraphs” (as cited in Dalecki et al., 2009, p. 3). This may be attributed to inverted pyramid style of writing where all important information are often overloaded in the starting paragraphs. Porter and Stephens (1989) conducted a readability research employing Flesch’s Reading Ease formula. They found that the hard news stories were written at an average 12th-grade level indicating that the stories employ difficult styles of writing.

The impact of language in news is an important and unavoidable factor in analysing the success of the message. According to Fishkin (1985), “since exposition is generally less readable than narration, the interpretative and explanatory characteristics of modern news stories may come at a cost of readability” (as cited in Dalecki et al., 2009, p. 2). This point justifies the fact that newspaper editorials, which are predominantly presented in the form of analysis, interpretation and explanation, are not easily readable for its readers.

As predicted earlier in classic readability studies, word and sentence structure are found to be important variables used to depict textual readability. Partow-Navid (1991) found that using shorter sentences lead to more readability. Brinton and Danielson (1958) predicted the same findings earlier. “Interestingly, the newspaper’s decreasing readability has been found to be largely due to increases in its vocabulary burden” (Danielson et al., 1992) (as cited in Dalecki et al., 2009, p. 2). Westin (2001) found that the ‘word factor’ and the ‘sentence factor’ are the most common features to have been examined in research to test text complexity.

The presentation and the placement of information in news articles also affect the overall readability of the text. McLellan and Dobinson (2003) found the language structure of news-writing styles in newspapers to be complex. Moreover, they also found that inverted pyramid style of news writing where news information with the highest importance is presented in the lead paragraph often leads to less readable text. This
finding suggests a need to follow chronology in information presentation in news articles. Lighter information should be presented first, followed by the most important ones.

One reason for print media messages losing its readability is acute competition between print media and other forms of media. Perhaps, deadlines and speed lead to negligence of readability factor in the media texts on the part of the journalists (Kovach and Rosenstiel, 2007). With other forms of “media taking on the role of speedily headlining the news, newspapers and news magazines have become more valued for their ability to contextualize and analyze events that have been briefly described elsewhere” (Dalecki et al., 2009, p. 2). The findings suggest that print media messages, which constitute a major segment of providing public information, should be prepared with greater devotion. Journalists should spend more careful time in enhancing the linguistic structures of their written texts so as to make it more readable for its readers.

3.7 Readability Studies Conducted Over Time

Many readability studies have also been conducted over specific time periods to compare the degrees of reading ease before and after a specific time period. Fowler and Smith (1979), using samples from 1904, 1933 and 1965, found that text from magazines had remained constant in readability, but that text from newspapers had fluctuated. For all years studied, magazines were easier to read than newspapers. This indicates the need to focus on enhancing readability of newspapers for its readers. “While non-news stories have gotten progressively more readable over time (Danielson and Lasorsa, 1989; Gitlin, 2003, p. 99; Sherman, 1893), news stories have become less readable (Danielson et al., 1992; Stevenson, 1973)” (as cited in Dalecki et al. 2009, pp. 1-2).

In a regular 10 years interval - 1955, 1965, 1975 and 1985, Hynds (1990) found that editorials based on politics and government came to be the most dominant theme (all through the years) and accident and disaster theme to be the least popular ones. The average number of words per editorial climbed each decade from 318 in 1955 to 448 in 1985. They are making greater use of argumentative devices such as evidence and greater use of writing devices such as argumentation, explanation and descriptions to present them more effectively. It was also found that over the years newspapers have enhanced...
readability by using shorter sentences, more direct quotations, and more numbering to help provide unity and organization.

Readability is one important factor that is associated with the editing process in print media. Roberts et al., (1994) measured the effect of peer review and editorial processes on the readability of original articles. They compared on the measurement of readability of manuscripts before and after the peer review and editorial processes by using Gunning Fog Index and Flesch Reading Ease Score. It was found that both the abstracts and full length articles were “very difficult” to read on the receipt at the editorial offices but their readability improved slightly after peer review and editorial processes.

McLellan and Dobinson (2003) compared today's news-writing styles with those of 15 and 30 years ago. They examined the language structure of a national, a State-based and a regional newspaper over three one-week periods across the three decades. Their findings that the average complexity of language evident in all three newspapers has been consistently above the ideal, sometimes by several years of schooling – deserve the attention of newsrooms, academia and other training bodies. Specifically for written communication, language plays a major role in predicting the success and efficacy of the written text for its readers.

In yet one of the most interesting readability studies, Gazni (2011) examined the readability level of the abstracts of the articles of the world’s five big universities with the highest number of article citations from 2000 to 2009. The research calculated the readability of the abstracts by applying Flesch Index. The study also attempted to discover the differences in the readability scores of the abstracts among different subjects, the changes in the readability scores of the abstracts during the specific time period and the relationship between the readability of the abstracts and their impact factor. “The results revealed that the texts of the abstracts are very difficult to read. No considerable change was observed in the readability scores of the abstracts over the examined years” (p. 273). The results of the study indicate that there is a high necessity to employ readable writing styles for scholarly texts.
Readability, in fact, is a critical factor in the determination of how effective any reading material is (Rameezdeen and Rajapakse, 2007). The readability scores proved to be a useful tool in assessing the overall ease with which written information can be read. Readability studies can in fact, provide valuable information for print media publications. The reviews cited above justify the fact that readability research is an important and valuable aspect in printed matters and publications. It finds a huge application in enhancing the quality, efficacy, productivity and readership of the printed materials.

4. Research Gaps

The review of literature presented provides useful insights in formulating related research gaps in view of the theme and framework of the present study. The following research gaps can be discussed after analysing the above reviews of literature.

1. Very few studies on the readability of newspaper editorials have been conducted so far.

1.1 In the Indian context, studies on the readability of newspaper editorials have not been found in the knowledge of the researcher.

1.2 No study was found using Flesch Reading Ease formula as a measure of predicting the readability of editorials of any Indian newspapers.

1.3 No study was found using the parameters of code, content and treatment (based on David Berlo’s ‘message’ structure) of any written text, specifically newspaper editorials.

2. No study was found relating to readability in terms of length of a given text.

3. No study was found describing the readability of newspaper editorials in terms of writing style, subject theme and tone of presentation taken as a combined measure.
5. Research questions

The research gaps discussed above gave rise to research questions in the context of the need and theme of the present research. The following research questions are formulated for the study:

- RQ1: Can we categorise each newspaper editorial into three component, viz., code, content and treatment based on David Berlo's "message" structure?

- RQ2: Can we find out the suitability of the English language newspapers for its readers on the basis of the readability scores of the newspaper editorials?

- RQ3: Do newspapers with higher circulation have editorials with higher readability level?

- RQ4: Can we identify and find out the readability of the most popular type of newspaper editorial within each category of code, content and treatment?

- RQ5: Can we compare the readability scores of each possible category of editorial with specific combinations of code, content and treatment?

- RQ6: Is there a difference in the readability of longer and shorter newspaper editorials?

The literature review discussed in this chapter provided useful insights in identifying the research gaps and research questions of the study. Keeping in mind the above research gaps and research questions framed for the study, the research design of the study has been prepared. The formulation of the research problem of the study based on firm theoretical background will be discussed in detail in the next chapter.