Vocabulary Acquisition to Long-Term Memory through Word Association Strategy

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Abstract
Word association test technique and memory storage issue has an intrinsic and central relationship from the last decade. Subsequent is the study of the relationship between the two and their effect upon vocabulary learning. The reviewed data consists of word association methodology in relation to mental lexicon and its applications. All these functions supports us for using word association tests upon language skills subjects, using some theoretical materials of chain theory, network theory, concept maps etc. The changed pattern of associations at different timings and the evaluation of the degree of storage of maximum number of lexical items in long term memory using WATs are shown.
Keywords: word association theory, lexical networks theory, chain theory, words association in mental lexicon.

1. Introduction

The utilization of association theory for the invasion of second language vocabulary to mental lexicon is still diminished in our pedagogical system. The vocabulary intrusion significance (Richards, 1976; Meara, 1980) is concerned more suitable with the application of association theory by using word association test (Read, 1998; Nation, 2001; Jung, 1917, 1926 & 1943). There are also some past researches in this regard which are marked for their work like; Paul Meara (2009), Read (1998), Paul Nation (1990) and Richards, (1976) etc. All of them have worked in the field of vocabulary learning with the aid of word association tests. The entailment of memory storage along with word association technique (Richards, 1991; Henning, 1973; Khairi, 1993; Buzan & Buzan, 1993) is quite up-to-the-minute now-a-days in pedagogy. It passes on the facts of the training process of second language acquisition inside our mind along with association theory (Meara, 1983). The phenomenon of words association test involves a large amount of memory storage having clusters of words in the form of networks (Kent and Rosanoff, 1910; Paul Meara, 2009) or chains (Lewandowsky & Murdock, 1989).

The origins of word association theory are commenced with the word association theory given by John Broadus Watson (1878–1958), an American Psychologist, the theory's two key claims are; the relationship of sounds and words recognition and the second is relationship of words with their associated meaning. Extending the concepts of Watson (1878-1958), another personality use the notion of association, the word association theory of Staats (1961) says that a whole sentence is a result of association of words which is when broken down in to pieces generates different word classes. This point reveals the fact is either the textual or spoken unit is small or big, the main focus is upon vocabulary items. When there is a concept of associations, there is an immediate concept of association of words only. But the weak point for these originates in the field of Psycholinguistics is that these are more inclined towards behaviorism and lesser towards cognitive studies. To bring this concept to the concerning field is the work of Carl Gustav Jung (1917/1926/1943) implementing word association theory for the sake of judging the mental capabilities of storing language using the initial simplest form of word association test.

The concerned problem is to what extent the word association test technique is successful in making students enable to have a full store of connected words inside their long-term memory in mind which becomes quite impossible to eradicate from their mental lexicon.

The worth of the phenomenon of word association tests is seen by Psychologists (Galton, 1880; Kent and Rosanoff, 1910; Russell, 1970) that word association tests or this theory's implication have a specialized influence upon human mental system. It is capable of processing verbal activities in our mind, a lot of activities like; a fluent spoken, a retarded spoken, a lack of words store for mental lexicon, an excess store of mental lexicon, the utterance of appropriate words at appropriate conditions and may be much more than this. All most all personalities in the field of Psychology are aware of this precious thing's value. The need is to make Linguistics' personalities to be aware of this beneficial thing, some people have done a great work in this respect (Meara, 2009; Nation, 2001). Word association test is that tool of researching upon mental lexicon of second

language vocabulary learners which can be in future the only one instrument that is capable of enhancing word storage and retention ability inside mental lexicon.

This piece of study identifies a number of major issues related to vocabulary intrusion procedure and in relation to this procedure what problems students of second language acquisition have to face. Earlier methodologies which were purely based on behaviorism as structuralism & grammar translation method these both are somewhat similar as they both concern with behaviorism, such methods were totally unaware of the cognitive abilities of the learners, in other words these are the causes for the arousal of cognition theory by Noam Chomsky, 1959 upon innateness of learners. With the arousal of this theory many aspects of language began to see through the eye of cognition but one aspect which remained untouched for many years was of vocabulary acquisition for second language learners. That's why after the significance upon second language vocabulary acquisition very firstly this study includes different strategies which are using for this purpose in which direct vocabulary intrusion & indirect vocabulary intrusion (Beck, McKeon and Kucan, 2002) are included. Moreover, to memorize bilingual word list (Schmitt, 2000), definitional and contextual knowledge of words (Stahl, 1999) so on. Focusing upon problems of the learners that is mainly of retention and endurance of vocabulary inside mental lexicon long lastly. All these strategies are looked like more inclined towards structuralism however here we need some task-based thing which must be less consumptive but durable. After looking around in pedagogy we find no other way instead of word association strategy. Thus, in the study we are going to perform a word association test which will be designed in order to get words in association depending upon each student's mental understanding. It will be a couple of two days for the accomplishment of the process; one test on one day and the retest on the next. The first day test will be designed in accordance with the Joahn Read's (1998) word association test and the second on the other hand will be the tests consisted of tables to be fulfilled by learners with those association words that they have saved in their memory during last day's word association test. The key concepts which are going to be followed; the network theory or graph theory used by Paul Meara (2009), chain theory discussed by Lewandowsky & Murdock (1989) and prototype theory by Eleanor Rosch (1970s) and other related concepts to strive for the objective that to what extent this implication of association theory will be successful in a highly formal second language learning class.

The word association strategy will be an independent variable because this is the cause in the result of which we are expecting a number of positive effects like increase in retention of second language vocabulary, increase in endurance level, interest level, and achievement level of learners. All of them which are under the effects of that sole cause are put in the category of dependent variables; the reason is they all depend upon the implication of word association strategy. The sum of all these variables will make us confident about our findings because all of them collectively make a positive feedback, this positive feedback will be the major strength of the study.

1.1 Significance of the Study

The obtained results will contribute to a marked change in the way of learning second language vocabulary. Before the implication of association theory the learning vocabulary is seen from the behavioral point of view however after the implication of association theory an awareness, among people belonging to the pedagogy, will appear which will incline towards cognitive perspectives of second language vocabulary acquisition, the major effect through the field of psycholinguistics. The cramming will be suppressed and rejected considering upon mental lexicon organization. The outcomes of the research will compel other psycholinguists to ponder upon the difference between naturally organized networks of vocabulary items and artificially instructed lexical organization both for L1 & L2. Furthermore, it will open a way to extend the issue by considering networks of phrases inside mind, networks of clauses and so on, this will be a way to broaden the issue but researchers can narrowed down it too through taking interest in different word classes. The mental networking of nouns, verbs, adjectives, adverbs and also conjunctions, prepositions can also be the separate problem areas for further research.

It will be a call for the field of education to alter their mode of instruction for second language acquisition learners so that they become competent with the native speakers of the target language. Obviously, there is a great need of bringing a change in the passage of methodology in various programs for second language learners. The major problem of second language education which lies in the fact that our second language learned students cannot compete with the foreigners staying here in Pakistan. But results are proving for the evidence that this study can be a fruitful source in mastering over second language vocabulary long lastly. Hopefully the study will compel the policy makers to alter their policy decisions about learning methodology for SLA vocabulary learning. A considerable increase in the fluency and proficiency rate in memory regarding second language vocabulary will occur after the adoption of association technique. The implementation of the technique to get desirable results will not very difficult for any institution in Pakistan, the need is just to develop a habit to see the learner through the development in its cognition level. The positive increase in mental level can make them proficient and competent internationally.

Specific terms used are usually found in this area, so not naïve for people relating to Psycholinguistics or applied linguistics. The term "stimulus word" is concerned as a thing that can evoke a response internally or externally or something that has an effect or an impact upon the receiver or receptor. Another one is "response" defined as a reaction of a receptor to a specific stimulus. The main stream term, word association, defines that the connection and production of words in response to a stimulus word in a simultaneous manner just look like a game in psycholinguistic evaluation. Word association test is a term used for a written material to produce a connection of words in response to stimulus words. Regarding major types of word associations are syntagmatic relations; the links between linguistics elements that coexist at a same time linearly in a text or speech e.g. vowel harmony, adjacent morphemes are the examples, the second major term for word association type is paradigmatic relations; a relationship among linguistic elements that can substitute for each other in a given context. The psychological terms like mental lexicon; a store of words inside a person's mind, long-term memory; long last storage of information in memory, the recall; the type of memory retrieval involves being able to access the information are also the key concepts of research. Two more terms are used for recall one is free recall; uncontrolled way of producing associations among words and unlike free recall is cued recall; controlled way of producing associations and recognition; the knowledge or perception that someone or something present being previously encountered. Among variables are;

Retention: the action of absorbing and continuing to hold a substance inside memory.

Endurance: the capacity of something to last and withstand in any case.

Attention: the dealing with something with special care and interest.

Motivation: a promoting cause for doing something in a particular way.

1.2 Limitations

The limitations of the study are found in the selection of stimulus words, word association test construction and more apparently in the WAT2 on behave of learners. The choice of stimulus words is done considering upon learner's previous knowledge of vocabulary and highly difficult words are not used. That's the reason, various word classes have to ignore for the convenience level of learners. The construction of word association test (WAT1) (Read, 1998) is also limited because there is a range of WATs to apply, the judgment of networks of lexical items inside mental lexicon is very hard on the basis of only four response words for single stimulus word. The network inside memory is very complex to be judged and vocabulary depth is infinitive (Meara, 2009), that's why the choice of type of WAT and number of stimulus words are seemed to be limited. As far as WAT2 is concerned, it seemed that there is a bit of restlessness among students during the attempting of WAT2 because this test carries only the stimulus words and no options are there, learners have to use their memory status to associate words with each stimulus word but the condition is that they have to associate only those words which they have taken in to their memory from WAT1. Because of the limitation of responses students are limited to response and hence feel difficulty in attempting it. However, it is good to see that responses are admirable to a great extent.

2. Literature Review

2.1 Why vocabulary knowledge is important?

Having sufficient vocabulary knowledge is a core feature of reading and speaking skills. The importance of vocabulary knowledge can be widely seen in the works of (Read, 1988; Laufer, 1989 & 1998; Nation, 1990; Meara, 1996).

In support of vocabulary knowledge Thornbury says,

"If you spend most of your time studying grammar, your English will not improve very much. You will see most improvement if you learn more word and expressions. You can say very little with grammar, but you can say almost anything with words!"(2002, p.13)

Vocabulary knowledge has some main components regarding reading skills which are developed in vocabulary learner; these are sound patterns in words, comprehension, fluency and word study. Also in speaking skills, vocabulary knowledge blesses learners with the abilities of expression and communication. Vocabulary knowledge actually bridges a gap among learners; the learners who face difficulties in comprehending a text also those who can comprehend any kind of text with a great ease. The high correlation between word knowledge and reading comprehension indicates that if students do not make their vocabulary knowledge efficient then reading comprehension will be affected (Chall & Jacobs, 2003). It is assumed that learners should add 2000 to 3000 new words in their vocabulary (Beck, McKeon and Kucan, 2002). In a classroom situation, different students come with different vocabularies depending upon their environment where the exposure of vocabulary varies differently from home to home and community to community. For this reason there is made a distinction among students as;

- Students with limited or no knowledge of target language
- Students who do not read after lectures

- Student having reading and learning disabilities
- Students who do not know about vocabulary knowledge at all

Meaningful differences are fore-grounded by Hart & Risley (1995), as they proposed that different students' level varies depending upon students come from welfare class, working class and professional class. All have different vocabulary sets as above mentioned. An instructor has to face all above kind of learners and thus should prepare for handling them. In vocabulary learning, learners must have access to the meanings of words that teacher or other substitutes e.g., other adults, books, films, etc., use to guide them into contemplating known concepts in different ways (Baker, Simmons & Kame'enui, 1998). This leads us to search for different ways to teach vocabulary effectively. At another place, it is said that the importance of vocabulary knowledge to school success, in general, and reading comprehension, in particular, is widely documented (Becker, 1977; Anderson & Nagy, 1991). However, L1 students entered with a command of 2,000 to 6,000 words, but in L2 intrusion case mostly immersion of students begins at point zero. Children who enter with limited vocabulary knowledge grow much more discrepant over time from their peers who have rich vocabulary knowledge (Baker, Simmons & Kame'enui, 1997).

2.2 Vocabulary Learning Strategies:

Nation (2008) agrees that the first 2,000 most frequent words should be taught to learners as an important initial step in instruction. The National Reading Panel (2000) devised two main processes for vocabulary intrusion; Direct Vocabulary intrusion and Indirect Vocabulary intrusion, we can say these two terms as the major one. Direct intrusion is one including the teaching of specific words. Estimation is that an institution can teach 400 words per year (Beck, McKeon and Kucan, 2002). The second one is indirect intrusion in which students are exposed to a lot of material other than institutional one and let them to read it. A popular vocabulary learning strategy for many L2 learners is the memorization of bilingual word lists (Schmitt, 2000). Helping students to develop an appreciation for words and experience enjoyment and satisfaction in their use also given by indirect method (Baumann, Kame'enui & Ash, 2003). A multi-component approach given by Graves (2000) includes four steps; wide reading, individual word teaching, words learning & words consciousness. Similarly, Stahl (1999) uses three stages; words with definitional and contextual information, active word learning, multiple & meaningful information of words. The TRA (Teacher Reading Academy, 2002) practices five developmental stages i.e. exposure to wide reading, high quality oral language, word consciousness (awareness of words), and direct word meaning and teaching of word learning strategies. Students should face more and more reading text so that their comprehension increases and they become able to face new words (Texas Reading Initiative 2002). Reading aloud technique (Stahl, Richek and Vandevier, 1991) suggests that reading literature or stories can be good source of gaining vocabulary and reading aloud is good especially for those having reading disabilities. Multiple exposures of words (Stahl, 2004 and Hirsch, 2003) mean use of words regarding different contexts hence, context helps to remember the meaning of a word in a particular situation. Teachers should focus on words that are important to the text, useful to know in many situations and that are uncommon in everyday language but recurrent in publications (Juel & Deffes, 2004). Another technique is teaching in word parts, helps in remembering words with different root words, prefixes and suffixes such as 'cat' is a root word and its links can be 'catalogue' and 'category', similarly a suffix '-able' is helpful to locate 'respectable', 'incredible' etc. To remember morphemes is also a ways to increase vocabulary intrusion, especially free morphemes as they can stand alone e.g. airplane (Blachowicz & Fisher, 2004). Contextual clues technique benefits the learners to understand and memorize the meaning of unknown words. "Click and clunk strategy" (Vaughn et al, 2001) including word to see with a clunk, then without clunk having some sense of the word and lastly word with a clue; these three stages enables a learner to get the meaning of an unfamiliar word an hence keep it inside the memory. Paribakht and Wesche (1996) uses Gass (1988) framework for vocabulary intrusion in which firstly, vocabulary's current knowledge is linked with past learning, then comprehend the word with the help of previous knowledge, then link its use in different contexts and lastly after getting the word use it confidently as an output. Swain and Carroll's (1987) descriptive presentation of vocabulary instruction is mark-able too. Firstly, they talk about "planned & unplanned instruction" on instructor's behalf, secondly, "systematic instruction" for gradually increasing input, thirdly, "written or oral input" , fourthly, "building on prior knowledge in L1 and L2" means to create an association between similar meanings in L1 & L2 and lastly, "focus on meaning/ focus on formal features of word". The VLT (vocabulary list test) used by Nation (1983 & 1990), yes/no vocabulary test by Meara and Buxton (1987); Meara and Jones (1990), and word frequency lists prepared by Thorndike and Lorge (1944), Kucera and Francis (1967) and West (1953), all these testing techniques serves a lot to increase vocabulary intrusion of second language learners. Waring, 1997; Horst et al. 1998; Cobb and Horst, 1999; Nurweni and Read, 1999; Pérez Basanta, 2005; also Moktar et al., 2010, all have used VLT technique for checking receptive vocabulary size. While the discussion goes on about vocabulary acquisition the question raises that how do memory work? (Thornbury, 2002) Regarding vocabulary knowledge Thornbury, (2002) has divided memory in to three sections of i.e. Short-term store (words store for a while only), Working memory (to

consider a word for an enough time), Long-term Store (permanent storage of words). Features for teaching vocabulary given by Richards (1976) point towards a new direction of vocabulary acquisition methodology; these are as bellow:

- General frequency of use, syntactic and situational limitations of word's usage,
- Underlying form and the forms that can be derived from that word,
- The network of semantic features and,
- Different associated meanings with the item.

The first two points have rooted in the past studies already. But the last two points make us conscious about that what actually they call for a technique or methodology of vocabulary learning. The network of semantic features and the associated meanings draws the attention for the currently introduced methodology of "Word Association Technique". This technique combines the vocabulary learning and memorization in the light of Psycholinguistics having linguistic and cognitive features together.

2.3 Word Association:

In the very beginning the term 'association' used in the field of Psycholinguistics to describe the connections between ideas, concepts or words stored in the human mind. It is believed that the arrival of anything in the mind calls for the existence of another entity in mind (Sinopalnikova, 2003). Similarly, words are stored in mind having associations with each other which is called "Word Association". Word association is a technique in which words are associated with each other in a way that influences the learning and remembering of words (Richards et al, 1985). Word associations prove the familiarity effect that the responses are faster to familiar words and if a word has been presented before, it takes a shorter time to respond to that word (Miller, 1996). Three types of associations on the basis of "preliminary drafting of items": (a) paradigmatic (The two words are synonyms or at least similar in meaning, perhaps with one being more general than the other); (b) syntagmatic (The two words are collocates that often occur together in a sentence); (c) The associate represents one aspect, or component, of the meaning of the stimulus word and is likely to form part of its dictionary definition) (Read, 1993). The elicitation of word associations is a relatively simple procedure, which is one of the attractions of Schmitt (1998). An association theory, according to Kess (1992), looks for latent relationships, the covert links that words have with other words, images and thoughts thus, word association system is like a spider-web in which words in the mental network are related to other words. After analyzing the data from 1,000 men and women, the claim is that there is uniformity in the organization of associations and people shared stable networks of connections among words (Kent and Rosanoff, 1910).They used 100 probe words and read one word at a time to a person who was to give the first word that came into his/her mind. The statement about "free word association" that the responses to free association questions give adequate information about the psychological structure of vocabulary in an individual, also depicts the syntactic and semantic relationship among words (Richards, 1991). Associative responses of adults which are investigated by using four types of semantic relations (super ordinate, coordinate and subordinate terms, attributive terms, part-whole relations and functional terms) which are found to be salient in the lexical organization of most speakers of English (Miller, 1996). A large number of the commonest responses in paradigmatic word associations can be obtained from minimal-contrast rule (Clark, 1970). "The minimal contrast rule has priority if the stimulus has a full antonym; it is always more frequently given as a response than is a partial synonym" (Clark, 1970). The storage of words inside memory with the help of associations is a well-known methodology as Henning (1973) states that low-proficiency language learners encode words in their memory according to acoustic similarities rather than by association of meaning whereas learners at a high level encode vocabulary according to meanings. Henning (1973) emphasizes upon word associations through sound similarities rather than word associations through meaning. "Stored words come to mind according to associative bonds and learning may be facilitated when such bonds are established" is a claim of Richards (1991). The storage of vocabulary knowledge in semantically related networks shows that the appearance of one word inside the memory opens a way towards a network of words linked to that word (Khairi, 1993). Meara(2009) uses graph theory to present the mental lexicon as a system of points connected together by lines hence, Meara's work has a core issue of word association networks.

2.4 Types of Word Associations:

Different types of word associations have been of great interest to psychologists as indicators of individual differences (Jenkins, 1960).Human beings response to different types of stimuli differently. These stimulus-response actions form associations. The response classifications mainly include a) Syntagmatic associations, b) paradigmatic associations and c) clang associations. Syntagmatic associations are identified if the responses formed a syntactical string with the prompt word, meaning both words were from different grammatical form classes e.g. ball to catch; run to fast; paper to edit. Paradigmatic associations were recognized if the response and prompt word were from the same form class e.g. bus to train; black to white; house to apartment. Clang associations were considered to be void of any clear meaningful link, and were based on similarities in

phonology or orthography e.g. phone to foam; knife to knight). Ervin, 1961; Palmero, 1971; Emerson & Gekoski, 1976 found that as age increases human beings produce more paradigmatic associations as compare to syntagmatic and clang associations, this phenomenon is referred as paradigmatic-syntagmatic shift. The proficiency of second language learners is increased by paradigmatic associations (Politzer, 1978). Negating the concept of Paradigmatic-syntagmatic shift Nissen & Henriksen (2006) say that S-P shift fails to account for the efficient users of syntagmatic and clang associations. The elucidation of S-P shift, "shift from semantically meaningless responses to semantically meaningful responses" (Wolter, 2003, p.63) is better to make understand this notion in actual. Later on studies based upon the comparison between native speaker and non-native speakers associations revealed that native speakers and non-native speakers associations are similar in the proportions of paradigmatic, syntagmatic, and clang responses produced (Wolter, 2001; Fitzpatrick, 2006; Zareva, 2007). Different studies in this field distribute types of associations differently as this led Emerson and Gekoski (1976) to divide paradigmatic responses into either "Interactive" i.e. same word class but related sequentially or "Categorical" i.e. same word class with no sequential link. Bandera et al. (1991) reclassified paradigmatic associations as "hierarchical categorical relations", and syntagmatic associations as "propositional relations", which included responses that shared the same word class as prompt word yet were related in a sequence. In addition to all these concepts Fitzpatrick (2006) proposes meaning-based associations; containing six subcategories, and position-based associations; with five sub-categories. Clang responses in form-based associations; divided into four subcategories, and responses which are unclassified, placed into one of two subcategories under erratic associations. The S-P shift is considered in another statement, "the syntagmatic-paradigmatic shift was not an organizational characteristic of the whole mental lexicon, but rather a developmental feature of every individual word, indicating increased word knowledge" (Namei, 2004, p. 382). Namei (2004, p. 263) proved that phonologically-based organization is a primary acquisition feature of every individual word. After checking 40 advanced Chinese English learners' word associations, it is found that most of the learner's responses are phonological (Zhang, 2004). In Soderman(2001) noted about syntagmatic-paradigmatic shifts that "the progression for individual words could be viewed as moving from a state in which phonological and other non-semantic connections are dominant to a state where syntagmatic or paradigmatic connections take precedence" (p. 65-66).

"Multi-word item" is an umbrella term, it refers to phrases or groups of words that function as single lexical items this concept is given by Coulthard et al.(2000) and can be thought of as "extreme cases of fixed collocations" this name for Coulthard's (2000) technique is formerly thought by Moon(1997). McCarthy (1990) used this technique as his own methodology and worked that for NS, the mental lexicon decodes multi-word items as 'chunks' whereas L2 learners, who often find idioms difficult, are most likely breaking them down and analyzing each word individually. The study upon phonological and orthographical associations is also very important in this study. Atchison (2003), describes the tendency for people to remember the beginning and end of words more easily than the middle. McCarthy also use to talk about words with similar uncommon spellings which may also be linked or stored together, such as the silent 'k' in 'knife', 'know' and 'knight' etc.

2.5 Word Association Strategies:

A teacher stimulates with a symbol of core vocabulary word and learners have to answer to which symbols this symbol is connected. These connections form a language so language develops through word associations. This technique, in earlier days is directly connected with Carl Gastav Jung (1917, 1926, and 1943) at Burghölzli Psychiatric Clinic of the University of Zurich. His word association test includes about 100 stimulus words. These words are uttered singly before the learners and they have to answer as quickly as possible with word first come in to their mind. His variables are the reaction time, rate and types of verbal responses and learner's behavior, they are recorded and analyzed. Jung tells in his study that the technique word association test (WAT) is from associationism school of psychology. His work reflects less cognitive aspects of Word Association Test but his emphasis is much of the emotional aspects of word associations for instance; he finds that words for which learners have unusual responses are connected with specific themes having different emotional impact. He has added varying conscious and unconscious responses towards different words. He used the theories of repression by Freud to make the reader understandable about autonomous nature of word clusters, and the way they are responsible for conscious and unconscious responses. One can find a very unique application of WAT by Jung as he used it in families, he prove that different family members have psychological subgroups. Meyer et al. (1975) experimented upon learners; first he asked them to pronounce a string of associated words then to pronounce a string of non-associated words. He observed that the pronunciation of associated words is faster than non-associated words. Palermo wrote a book titled as "word association norms" in which he discussed an objective measurement of personality through free association. He also took word associations to a wide range of young children to adult language. He wrote about associative language norms at college level also described the associative habits of language. Word association testing developed   Jung (1917, 1926 and 1943) to explore complexes in the personal unconscious. Jung came to recognize the existence of groups of thoughts, feelings,

memories, and perceptions, organized around a central theme, that he termed psychological complexes. This discovery was related to his research into word association, a technique whereby words presented to patients elicit other word responses that reflect related concepts in the patients' psyche, thus providing clues to their unique psychological make-up. A technique in which words presented to patients to elicit other word responses that reflect related concepts in the patients' psyche, thus providing clues to their unique psychological make-up (Schultz and Schultz, 2000) is very common word association strategy. The first word association test was by Sir Francis Galton (1880) in which subjects are asked to respond to a stimulus word with the first word that comes to their mind. It is initially used as a psychological tool to study the state of sub-consciousness of mind, and also recently used by psycholinguists to explore the mental lexicon. The resulting word association chain from the start of first word coming to the mind is thought to lead to the way the words are stored and linked in the mental lexicon.

Spiteri (2002) proposed a theoretical framework through which word association tests can determine user-derived descriptors (terms that are most commonly associated with a given concept by the majority of respondents) and hierarchies (the most commonly-associated attributes, properties, characteristics, parts, etc., of a given concept as identified by the majority of respondents)for Information Retrieval (IR) thesauri for learners. Paul Meara (2009) in his book "Connected Words (word associations & second language vocabulary acquisition)" is highly influenced by the field of Psycholinguistics. He considers that vocabulary is a network which can be connected through word associations. His views about dynamic nature of second language learners' vocabularies and their improvement in word association tasks are truly revolutionary. The book has relationships among associations with productive vocabulary and receptive vs. productive vocabulary. He has facilitated with tools for measuring productive vocabulary which is gained through associations. He named that tool as Lex30, an instrument used in productive vocabulary assessment. He studied lexical organization as a network. This concept explores how word association data can be used to examine the development of vocabulary depth. The network theory of word associations leads us towards "Graph Theory" in the field of Psycholinguistics. This showed mental lexicon as a system of points connected together by lines. Thus, one can easily differentiate that second language mantel lexicon is not structured as first language lexicon. Word association techniques are helpful in determining the gap between the two. Meera published two papers in 1978 and 1983, titled as "classic word association studies" in which he discusses about vocabulary depth, according to Meera (2009) vocabulary depth should be assessed by the properties of a network of words rather than focusing upon individual words. With Meera's (2009) contributions we have introduced with a tool, named 'V-links' to measure lexical organization for English. This is an initiative to use the computational skills and software in Psycholinguistics. With the use of such skills Meera (2009) devised "word associates format" in pedagogical situations in which a stimulus word is given along with a group of its associated words. In that group, some words relate to the stimulus words and some are not. Their task is to identify related words; those who have deeper knowledge can pick more related words. "Individual words are not represented in long-term memory as isolated entities but as part of a network of related words" (Bruza et al. (2009). "An analysis of the responses to a prompt word may give useful information about how words might be linked together in a person's mind" (Atchison, 1987, p. 23).

2.6 The law of Mental Association by Contiguity:
The phenomenon of word association is actually a matter of mental association. This is a step ahead from network theory. In network theory, we graphically represent words as a network in a concrete form (Meara 2009). Now, there is a discussion about cognitive basis of word associations. Words when experienced together tend to become associated in the imagination so that when any one of them is thought of, the others are likely to be thought of also, in the same order of sequence or coexistence as before. This statement we may name 'the law of mental association by contiguity'. In this law, the association strength of two words is the relative frequency of co-occurrence of these words. Association strength also causes a source of selection of words during speaking. It means that mental lexicon is actually linked intrinsically. Each word which is going to be stored also has some linked words stored with its context. When one word is recalled, it brought its linked words also. Association experiments are conducted and frequencies of particular response words in the answer of stimulus words are observed through tables enlisted with all words. These tables are referred as 'association norms'. It's a great law of thought, as well as of memory in which ideas that have in the mind together in close association tend to unite together in a way that one is recalled after the other. For instance, at the utterance of fifth word something of fourth word still remains. Association of contiguity has two dimensions; one is contiguity in time and contiguity in space. Contiguity in time includes tendency of recalling the expression as they first received following to the second and third expression and so on, this helps the child to repeat learned words again and again with the proficiency as they learn it for the first time. Memory of words, or groups of words, depends upon this form of contiguous association. While contiguity in space covers those words which are recollected and remember with the specification of position. We can remember things connected with their particular position, it can be easily

recalled. Thus, words can be easily learnt by heart through the application of contiguity in space and time.

2.7 Depth of Word Knowledge:
The way of describing depth of word knowledge is suggested as network knowledge (Henriksen, 1999). In his point of view, the greater the vocabulary size of a learner, the more there is a need for new words to be incorporated into an already existing network of words for which there is a need to be restructured. Thus, depth of word knowledge is the ability to relate to semantically linked words. When a word is entering to the mental lexicon, it leads to the restructuring of whole link of words. New association chain forms. Hulstijn's work (2001) laid importance upon creative tasks which required learners to speak new lexical items and associate words in depth. He thought that such type of tasks is better than all others. Thus, 'task quality' is important not 'quantity of exposure' for accomplishing learning situation. Richards, (1976) & Nation, (1990) contributed in word associations as including the connections that learners have in their minds, are an important part of word knowledge. They also discussed about the effect of mantel lexicon of learners upon the vocabulary acquisition in terms of stored connections.

2.8 Word Association in "Word Pairing":
 "Association norms for word pairs" (Rapp, 2004), this methodology includes a whole process in which we see the collection of the words of German nouns from 31 learners in pairs, after compiling them; selection of 10 common German nouns. Then their arrangement in 90 possible pairs and recording of the answers of subjects upon their presentation is gained. All the subjects are asked to come up with the first word spontaneously which comes into their mind, the association responses of other individuals are collected. This is his first observation. In second observation instead of giving individual pair stimulus, gave learners or subjects a stimulus pair of words. Now learners have to associate one pair with another pair of words. In this process, these associations are less uniform but have more variations. One can have a quantitative analysis and observe that how much percentage of the students gave same answer to a particular stimulus word. This theme can also be used in current methodology as we can compare all the students and their mental approach for vocabulary can also be judged. Rapp's work makes us to approach towards a corpus study to check word co-occurrences for each word in a corpus. In case of Rapp's work, we can see that firstly, the number of occurrences of plus and minus six words of all close neighbors of a word within the range of a selected amount of text is taken. But every second word in the sample corpus was a function word thus, excluding all function words it is taken plus and minus 12 words in a selected corpus text. Thus, selected size of text determined the rate of occurrences of associations.

        Meera (2009) also calls to use computers in the field of language research, in his 'connected words', his uses of three software applications as a part of his work for word associations. The names of these three manuals are 1) a manual for Lex30, 2) a manual for V-links, 3) a manual for WA-Shorter. It is a small utility program that sorts and counts word association data and presents it in a standard format. His services for vocabulary study also include a link through which readers can find the latest versions of all three programs online. In order to get reliable estimates of the co-occurrences of words, large text corpora have to be used. Kruse, Pankhurst and Sharwood Smith (1987) they conduct a computer-controlled word association test at the end they said that it is not a good measure of L2 proficiency. The objection upon their work is important because they used only small number of words and also a small number of learners that's why their results were tentative.
In 1987, Hanks noted that

> "On the one hand, *bank* co-occurs with words and expression such as money, notes, loan, account, investment, clerk, official, manager, robbery, vaults, working in a, its actions, First National, of England, and so forth. On the other hand, we find bank co-occurring with river, swim, boat, east (and of course West and South, which have acquired special meanings of their own), on top of the, and of the Rhine."(p. 127)

2.9 Word Association and Word Familiarity:
The degree of vocabulary familiarity (Wolter 2001), confirming Söderman's (2001, p.65-66) finding that the so-called syntagmatic-paradigmatic shift was indeed a response change from phonological to semantic and that "the progression for individual words could be viewed as moving from a state in which phonological and other non-semantic connections are dominant to a state where syntagmatic or paradigmatic connections take precedence". The second language mental lexicon is more unstable than that of L1 mental lexicon and that the unfamiliar words induced clangs or no association in students' mind (Bai, 2005, p. 30). The traditional word association tests mostly use familiar high-frequency words as stimulus (Kent-Rosanoff, 2004) having some drawbacks in it as it is failed in the representation of whole mental lexicon. Zareva(2007) takes about 'word familiarity', says that word familiarity influences both native speaker and non-native speaker associations. He provides a new direction in word association method to check the extent of familiarity with words. It varies from individual to individual and of far differences about familiarity can be found NS and NNS. Usually it is said that native

speakers have more word familiarity hence, more frequent utterance rate but the case is not same overall. Many learners under training being proficient in word familiarity having similar frequency rate comparing with native speakers. Hanks, (1987) saying 'On the one hand, bank co-occurs with words and expression such as money, notes, loan, account, investment, clerk, official, manager, robbery, vaults, working in a, its actions, First National, of England, and so forth. On the other hand, we find bank co-occurring with river, swim, boat, east (and of course West and South, which have acquired special meanings of their own), on top of the, and of the Rhine.' Hanks wants to describe that contextual concept can be easily understood through the word association technique as he uses the word 'bank' with two different concepts regarding their contextual situations. Contextual situations lead us towards the word familiarity. The conceptualization of word association methodology has rooted in word familiarity phenomenon stored in mental lexicon. According to Meyer et al. (1975, p. 98), "Some results and implications are summarized from reaction-time experiments in which subjects either (a) classified successive strings of letters as words and non-words, or (b) pronounced the strings. Both types of response to words (e.g. BUTTER) were consistently faster when preceded by associated words (e.g. BREAD) faster when preceded by associated words (e.g. BREAD) rather than unassociated words (e.g. NURSE)".

2.10 Word Association and Semantic Mapping:
The results of word association tests show that L2 vocabulary knowledge has obvious influence on the learners' use of semantic information (Li, 2004). Using semantic understanding of foreign language words in native language can be an easy way to answer association cues (Sentence Generation Condition of Bower & Winzens, 1970). The new words have associations with their pre-existing semantic systems (Beck, McKeon & Omanson, 1987). Several semantic processing strategies in ESL learners, such as semantic field in which learners manipulate synonyms along with the target words in meaningful sentences shows evidences for semantic mapping, Crow & Quigley (1985). The keyword semantic condition (Brown and Perry, 1991) in which learners are asked to develop interactive images from words including definitions and a keyword. Semantic mapping proves to be a benefited strategy takes the learners to the stage of proficiency, it involves diagram making for showing relationships among new words and learner's pre-existing semantic concepts. Semantic mapping has the effect of making relationships in a text through conscious and deep understanding of a text which creates associative networks of words (Stahl & Vancil, 1986). Their diagram strategy elaborates that how ideas fit together. All this activity has a large part of memory abilities like grouping, using imagery, associating and elaborating for the comprehension of new vocabulary (Oxford, 1990, p. 62). In another work learners are asked to write on a topic and a semantic map on that topic is assigned to them, they have to use all the new target vocabulary items in the correct sense of meaning (Nation, 2001). The semantic processing technique lies on the semantic association between the new word and its definition (Brown and Perry, 1991). Organization of words inside mental lexicon is not in an alphabetical order but according to the semantic fields of each word (Meara, 1984).

2.11 Word Association and Meaning:
The above headline leads us towards the relation of word meaning and word association which elucidates that our mental lexicon form an association pattern between the words having identical meanings or any similarity thus, when a stimulus word is uttered the listener replied according to that association which is inside the mind. A better understanding of the internal structure of the mental lexicon gives much help to understand the nature of the L2 learners' lexical development, having an efficient and effective mental lexicon can improve vocabulary acquisition. The associations are usually determined by means of word association tests (WATs) where subjects are asked to respond with the first words that come to their mind when they hear particular stimuli. "A person's mental store of words, their meaning and associations" (Richards and Schmidt, 2002) shows that they emphasize upon these three things while studying in the vocabulary area.

2.12 Word Association and Memory:
We remember things through association. Each and every chunk of information in our memory is connected to other related chunks. If any kind of words have very little or no association inside memory it becomes very difficult to remember them. Thus, memory works to interlink the concepts, ideas and relationship among objects. A vocabulary learning strategy is find out having purposeful benefits in this regard that students have to face two stages the one is, when a word is encountered for the first time and the second is when it is stored inside the memory using semantic help (Schmitt, 1997). To memorize vocabulary items by making paired mnemonic associations in emphasized by Cohen and Aphek (1981). Sanaoui (1995) talks about the retaining of vocabulary items inside memory and found that the students with structured learning (syllabus) do not have such storage rate that the students with unstructured vocabulary (media, resources other than curriculum) have.
 "Words cannot be heaped up randomly in mind"

(Atchison, 1987, p.5)

Gairns and Redman (1986), the vocabulary learned is retained in the long-term memory where there is a direct mother-tongue equivalent but Carter (1987) claims that this strategy is of worth as there is very often difficulty in translation. The keyword method (Atkinson, 1975) helps learners to remember a new word by choosing a keyword acoustically similar to the new word, having a meaning of its own independent of the new word's meaning. The semantic processing technique (Brown & Perry, 1991) is also best for the retention of new words in memory as words entered along with their semantic structures can be remembered for longer.

Clarks' (1970) description of word associations:

> "Whenever two words occur together or in close proximity, an 'associative' link is formed between them in the mind of the hearer, and the more frequently they occur together the stronger the association". (p. 271)

2.13 Mental Lexicon:

William Marslen-Wilson (1986) claims that mental lexicon is a central link in language processing. With the previous knowledge about mental lexicon that mental lexicon is a form of mental dictionary having all the learned and memorized words resided in two categories 1) Short-term store and 2) Long-term store. As Fay and Cutler (1977) implicates on native speakers' mental lexicon which is based on the production and the comprehension of speech. The portion of production is concerned with storage through sounds, for instance banana, bear, and bath etc. The second portion deals with storage through meaning with semantic resemblance, like banana, pear, apple etc. There are other organizations of words also depending upon age, word frequencies, last sounds of words etc. thus, all these organizations can be used for making association answers. The hierarchical network (Collins & Quillian, 1969) which implies that words have a taxonomic distribution, so as words are linked together in the same way. According to "multiple-lexicon model" (Monsell, 1985; Fromkin, 1987; Emmorey-Fromkin, 1988; Caroll, 1992), the mental lexicon has a multiple-lexicon view consisting of phonological lexicon, semantic lexicon, morphological and syntactic one.

2.14 Prototype theory:

A theory in cognitive science given by (Eleanor Rosch, 1970s) comprises of two themes that the principle of cognitive economy deals with association process in human mind, human mind does not store stimuli from their environment individually but it makes a group of all similar stimuli in one category. Thus, these stimuli can be retained through associations. The second theme is principle of perceived word structure uses the example of co-occurrence of wings only with feathers; hence words are always categorized under such kind of co-relational structures. All such co-relations are made under similar attributes (Rosch et al. 1976). Another function of mind regarding association technique implies that human mind has two major categories of 1) basic-level words/objects and 2) sub-ordinate level words/objects, the former are quick answers to stimulus words and the later one is the alternative them. The third kind of category is, super-ordinate level (Ungerer & Schmid 1996) in which the associations are with functional attributes also possess 'collecting function' for example a word 'ideology' has a functional attribute and the learner can link a word having functional co-relation with it, so the best associative word for 'ideology' is 'creed'. The resemblance in results in word association test markedly relates with the organization of words inside mental lexicon (Atchison, 1987). Thus, according to the above fact a stimulus always has responses in accordance with semantic field of that stimulus word (Atchison, 1987).

2.15 Stimulus-Sampling Theory:

The very frequent associations like doctor-nurse, king-queen, tom-jerry, it is not necessary that in all situations and contexts the associations will remain the same that's why associations are always formed according to the situational and temporal requirements of words. Helped with a theory given by William Kaye Estes (1919) titled "Stimulus Sampling Theory" which basis upon a conventional idea of stimulus-response relationship but with the connections of memory and recall. If we have a stimulus word then the first correct recalled response can be called as A1, other than this, all are considered as incorrect/alternative A2. A specific set of stimuli applied on a student and the collection of responses gained from one student makes an association. The stimuli set (S) changes after each termination of one association. William Kaye Estes(1919) named this gradual change as learning, here memory acts a role of mediating factor when student responses to first stimuli, the A1 is actually elicit of student's memories of previous experiences. Thus, the combination or interaction of current stimuli and memory results in to behavior. The contribution of variables; reinforcement and punishment is also countable in a sense that these two determine that how to foreground the material learned before to use in stimulus-response association and also how the both factors are involved in the performance and learning. The "scanning model of decision making" deals with the memory ability of students to scan the most suitable response in accordance with the situation from recalling hence, produces a valuable outcome.

2.16 The Recall:

The discussion upon recalling ability of mind approaches us towards two concepts; these are; free recall and cued recall. Thomson and Tulving (1970) tried to explain the cued recall through Encoding Specificity Principle. According to that principle, cues are specified with to-be-remembered (TBR) information. This model goes from weaker word associations towards stronger word associations. The principle leads us to apply a process involving three conditions upon students for vocabulary association technique. The first one is named as 'weak-cue condition' in which a cued word is weakly associated by the students like, if 'egg-boil' here 'egg' is a cued word which is weakly associated by the student with a word 'boil'. Then the instructor repeats that weakly associated word in the test again. Secondly, 'strong-cue condition' in which students becomes able to answer with a fresh and strongly associated word that is 'yolk' which is strongly an associated with 'egg'. Thirdly, 'a baseline condition' in this condition student recalls words as much as possible in association with the cued word. The Law of Recency also supports this research to a greater extent in a way that it establishes pillars under word association concept. It ascribed with the fact that recent happenings can be recalled more easily than those which are far in the past. It affects by using different time scales, memory tasks, stimulus materials and immediate free recall conditions. A model given by Davelaar et al. (2005) put forward a model of free recall in which an activation based short term store of recall generates a recency in immediate free recall context. While a context having variation from time to time calls for long-term recency. Hence, this model helps to know that if the context is immediate the recency will be short-term while if it is time controlled then the recency can be long-term. But the question is which setting will be more favorable for much learning and memorization of knowledge in association technique? The free recall of vocabulary reflects the mind map of lexis and their organization.

2.17 The Associative Memory Model:

The associative memory model theorizes that associations are strengthened in long-term memory between items that are simultaneously active in short-term memory thus; a contiguity effect arises because items from nearby positions in the list are likely to be co-active in short-term memory. Our study relates to this model in such a way that it will help an instructor in a class to understand the simultaneously linked words in each students mind. It will tell us about the recent learning of the student and the scope of new vocabulary stretches in his/her mind. It is interesting to relate the lexical makeup in memory to our study because it directly approaches to the association between different lexical items in mental lexicon. This association is according to a systematic mapping arranged in the human mind through which a learner responds to any stimulus word. A cognitive map drawn by Edward Tolman (1948) is of great worth in this regard. A cognitive mapping is actually a form of memory for instance; retaining the sequence of streets in the directions to your house is memory now if you are seeing these streets in your mind's eye and speak it as it is, called cognitive mapping. Same is the situation in associating different lexical items in memory; there is a proper lexical map in human mind, called mental lexicon. In our study, where respondent have to associate a quick answer in a word which he/she feels match to the cued/ stimulus word, the respondent's answer might be just according to that cognitive map which is in his/her mind. "People remember the beginnings and ends of words better than middles" (Atchison, 1994), is a statement from "bathtub effect" deals with the memory for words.

2.18 Network Theory:

Word association networks in the areas of linguistics and psychology are studied for decades (Nelson et al. 1998). According to Barriere and St-Jacques (2005) the visual presentations that displays word associations like a semantic map enhances knowledge of vocabulary. The detection of cognate words through natural language processing which is the networking of mental lexicon is elucidated (Inkpen et al. 2005). Priss & Old (2004) prepared databases for Formal Concept Analysis to lexical databases which are potentially useful for word association networks. The word-net by Miller (1990) is used by Priss & Old (2004) for word associations' networks. In a word-net, more than 118,000 word forms and more than 90,000 word senses with 166,000 pairs of words are included thus, provide a large network of associations. Knuth (1998) designed Soundex algorithum for phonological associations' network representation. Up till now we have come across two types of graphical or network display of lexis; 1) Semantic similarity (like, word-Net), 2) Phonological similarity (like, Soundex algorithm). The most interesting use of mathematical graph theory is by Paul Meara (2009) in which it is stated that inside human mind vocabulary has a lexical organization as a network. Word association networks have a system of nodes connected together by lines hence, vocabulary depth becomes clearly defined. Vocabulary size, most temptingly, defined as a network of connections between words (Meara, 2009). Another core statement by Meara (2009) is that words inside mental lexicon are in a chaos structure that they are not organized in a simple continuous way but in a haphazard way and in a state of continuous change from time to time.

2.19 Word Association Test:

In the field of Psychology, the word association test is a well-known method in which many insights of an individual are revealed. Brain has the ability to form associations and performs learning is studied by many people (James, 1890; Bain, 1894; Bradley, 1922; Pavlov, 1927). A simplest word association test is that the individual is subjected to a series of random words (stimulus words) may be orally or in writing and he asked to respond with the first word comes to his mind. Regarding memory, some in the history concerned with association inside memory (Hinton & Anderson, 1989; Willshaw, 1989; Maki, 2007). While the basic word association technique in found in the work (Galton, 1880; Colgan & McGuinness, 1998; Dollinger et al., 1991). Similar type of testing, with little differences, is our focus to apply in a class room context to memorize vocabulary so that it becomes a part of student's long term memory (LTM). The very first is "Jungian word association test" (1917), in which the instructor uses a list of words which he named as 'inducer words'. The selection of these inducer words is random. The individuals have to develop an association with each inductive word in a short time interval which will be the very first word comes to his mind. The use of mind map, its construction and analysis as WAT is by (Deese, 1966; Mervis & Rosh, 1981; Smith & Heise, 1992; Halford, 1993; Dicarlo, 2006). One form is to ask the individuals to have a look at the display on class room's white-board or on computer screens where a list of words is presented this is called visual representations (Novak & Gowin, 1984). The utilization of concept maps (DiCarlo, 2008; Smith & Heise, 1992; Buzan & Buzan, 1996), relationship maps (Case, 1985, 1992; Halford, 1993; Pascual-Leone, 1987) intelligence mapping is elucidated by (Kostova, 1998, 2000). The recalling technique has also used by some science teachers to teach scientific vocabulary (Novak & Govin, 1984). The very first one is "Jungian word association test" (1917), in which the instructor uses a list of words which he named as 'inducer words'. The selection of these inducer words is random. The individuals have to develop an association with each inductive word in a short time interval which will be the very first word comes to his mind. Any type of word association test is designed with similar basic principles as word lists, stimulus-response pattern using of any kind of testing tool like, questionnaires, tables with columns, MCQs or sentence completions. Sometimes participants have to answer just one time or a single word (Dollinger et al., 1991). The use of proverbs completions (Jordan, 2008), response to multiple stimuli (Spiteri, 2002) and conceptual guess (Colgan & McGuinness, 1998) are all included in the category of WATs. The application of the phenomena for mental and behavioral networks (Knowlton, 1999) lies under the cognitive sciences' concept of connectionism. The concept maps provide a source of systematic display, hierarchal structures, meaningful relationships, interconnected words (DiCarlo, 2006; Novak & Govin, 1984; Kostova, 1998, 2008). The aim for controlled oral word association is actually in evaluating the immediate release of words starting from a given letter in a controlled amount of time. In short, the test is conducted by instructing the individuals to produce as many words as they can in 1 minute. Either the individuals are given with a full initial word and asked to associate it with any word or one thing is that the individuals are given a letter from the alphabets and asked to utter from the same letter. For example the individuals are said to produce the fruits with letter 'M' or may be produce fruits names within one minute. The fore-grounded idea which is obtained from this approach is, actually lies in the fact that the concept based cues activate verbal associations more than that of without conceptual cues. It follows that while conducting a word association test how much is the role of conceptual cues? And what will be the effect of these cues? No doubt it puts forward for positive feedback by enhancing fluency rate but point to ponder is that either it also enhancing memorization of vocabulary or not? The researches like Randal (1980), den Dulk (1985) and Kruse et al. (1987) which are all cited in Wolter (2002) have used comparisons of proficiency and responses in WATs. in opposing the above concept Wolter (2002) states that word associations in students of second language learning associations are not just linked to proficiency. Read (1993) deals with the learning of semantic relationship in word association tests. Marianne Lykke Nielsen and Peter Ingwersen (1999), in their research upon Word Association methodology, gave six basic problems during immediate response. According to them, "Information retrieval is an iterative process consisting of six main tasks which are strongly connected and in practice are carried out interactively; perception of a work task or interest/problem situation, analyzing and conceptualizing the information need, locating and choosing the appropriate sources and access points, searching, evaluating the search result. The Free Word Association Test (Sinopalnikova, 2003) having a word list and simply asked the students to answer with the first word coming to their mind. Bahar and Hansell (2000) are in favor of the fact that word association test is the only way to deal with the cognitive structure investigation. Therefore, with the help of current study one can be better understand that what is the pattern of memory storage to response for a specific lexis? How mental lexicon has stored associations inside? How cognition is best for take in vocabulary for life time? In which set of words a lexical item become stored inside?

3. Design:

3.1 Participants:

The sampling procedure is stratified one that a population of linguistics department which is divided into

different classes depending upon the subjects. Our concern is to deal with the language skills class. Hence, from the target population of linguistics department, in a class of language skills learning all types of skills regarding writing, reading, listening and speaking including great exposure for vocabulary knowledge. The numbers of participants are 30 and number of stimulus words given to them are 29 but the responses vary from participant to participant. Before the use of instrumental motivation (Gardner & Lambert, 1972) among the students a need-based analysis is qualitatively done from the students, and it is brought to information that students want some methodology or way of learning which become helpful in overcoming vocabulary memorization so that students not from native language be confident in using vocabulary. This kind of motivation is somewhat very important inside learners to have ful enjoyment with their way of instruction.

3.2 Materials:

The modern chain theory's (Lewandowsky & Murdock, 1989) point of view follows that each item has associated abstract features which are aided for making associations, second key concept is of network connections with words may be in cyclic order or in linear chain order formed as a result of retrieval process (Metcalfe & Murdock, 1981). In this study, the aspect of forward and backward associations of chain theory is significantly in use.

There is a word association test with 8 multiple choices requiring 4 answers from one row (Read, 1998). The reason for using Read's (1998) test is that it directly calculates the hierarchy of lexical items stored in the mind in response to a stimulus word. In a way that, all the choices are which are given in the MCQs are highly associated with each other and the concern lies more towards the depth and pattern of storage to show the significance of association theory in pedagogy as well.

The retest is consisted of a table require to fill, create a shape of word association norms (Hanks, 1987). Hence, the research tool is mainly the test-retest technique because test-retest reliability measures the psychological test assessment showing consistency of results over time to time. Test-retest reliability is measured at two different points of time. In case of formal situations and time limited tasks, controlled associations (Sumerall SW, Timmons PL, James AL & Ewing MJ, 1997) are preferred.

Associations' storage has measured using a test having 30 stimulus words with two sets of associations. Each set has four associations. Participants are required to choose four total associations out two sets. The condition is that, they have to mark that word first which has click to their mind (Galton, 1880; Carl Gastav Jung, 1917, 1926 and 1943) very firstly. In result, the use of associations of four words makes the stimulus word as a part of their cognition, a step for taking word into long-term memory.

After conducting this test, another test is conducted carrying a table with the list of previously asked vocabulary items excluding the options, just giving three or four wide spaces to write the associations regarding each lexical item. Time is limited. Our investigation lies in the direction of the studies of associative memory (Maki, 2007) and associative learning (Smith & Heise, 1992; Dicarlo, 2006; BouJaoude & Attieh, 2007).

The use of concept mapping is of key issues of our research and judged at individual level (Smith & Heise, 1992; Mervis & Rosh, 1981). The visual representation of concepts maps is helpful in gaining quick results of memory storage (Novak & Govin, 1984; Buzan & Buzan, 1993; Kostova, 1998, 2000).The concept map can be radial, spatial, with increasing concentric circles from groups of words, coming out from a central key word or words as a structure by means of subordination (Buzan & Buzan, 1993). The association theory technique mainly concerned with retrieval process of memory so participants retrieved the concepts from the previously studied information and not from a given list of words (BouJaoude & Attieh, 2008).

3.3 Evaluation Materials:

The statistical procedure can have two paths one is through the use of Microsoft Excel and another one is the statistical software named SPSS. Both are applicable for the graphical representation of chart pattern as well as of curved pattern of the whole study process and to approach the final results successfully.

3.4 Procedure:

At the initial stage, participants are informed about the content of the test and their task. The task is in the form of word association test with language skills class students. The data collection is done through the whole process of governing a test. Students are asked to respond to each stimulus word with four closest associations. The total numbers of stimulus words are 29 and the responses vary from participant to participant. Each participant is given with a paper sheet having all the stimulus words and all the 8 options out of which they have to choose 4 words with maximum association. A condition has applied on them that they have to mark that word as '1' which has come to their mind very firstly and the word which comes to their mind secondly, regarded as '2' and vice versa. This will helpful for concept map construction. Thus, the concept map is in two different types of orders the one can be a descending order from the most associative to lesser ones or can be in a cyclic order for the same positions of all associations of a word. For instance, for lexical item 'linguistics' the most

associative four choices in a participant's mind can be as following:
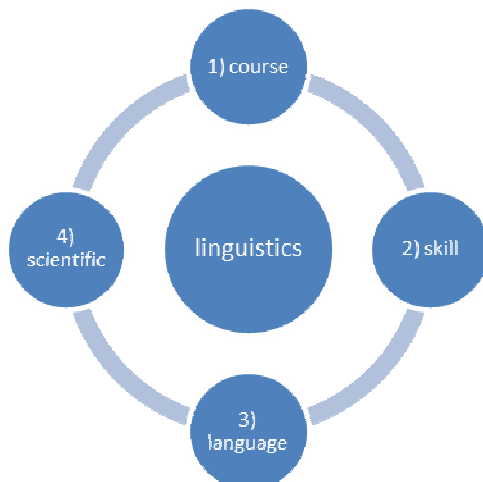
The descending order of concept map can be like this;
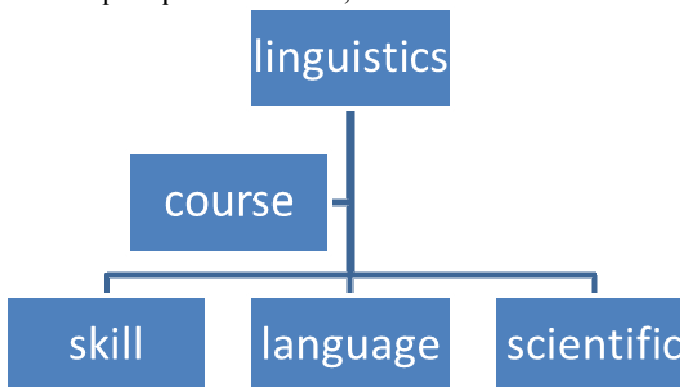
All stimulus words are required to be answered with 4 associations. At the time of delivering the test, time is noted down and participants are bond to attempt the test in that span time. The time limit for this test is limited to 30 minutes. After getting completed the test, the paper sheets are collected from all the participants. Then there is a gap of one day for the other lecture of that class of language skills, the very next day in the same class the participants are given with another test say a retest. This retest carries the same vocabulary items from the previous test but this time the pattern of test is changed. In this part the paper sheet is consisted of a table with four columns. All the 29 stimulus words are in first column's rows and the other three columns are empty. The participants are required to fill the empty columns using their concept maps which they have constructed from the last day MCQs test. The purpose of this retest is to judge the rate of storage of a lexical item along with its associations. Greater the number of associations, greater is the rate of storage of a lexical item inside memory hence, greater the chances of becoming that stimulus word a part of participant's long term memory. In this step, the student is free to give the response to all the stimulus words but keeping in mind the knowledge previous test. The time boundary is of 30min again. Another relieve to the participants is that there is no any condition for giving four or three or two responses. It's up to the participants that to what extent a participant has become successful in making a word's associations as a part of his/her memory. For instance; for word 'linguistics', the most strong associations in memory are as follows;

linguistics	Course	skill	language

There are different possibilities for answers like may be another student is able to remember just two associations with it or the sequence of responses also vary like another student's response row may have different sequence of words;

linguistics	Language	scientific	course

These are due to the different concept maps inside different minds and hence, almost vary in all students. After the completion of time limit (30min) paper sheets are collected from all the participants.

The first test which is a word association test in which the pattern of storage of associations of a word is clearly evident is used to measure the sequence of lexical items from individual to individual. It is seen that the

words which are frequently taught and used in language class have almost similar responses for example; words like linguistics, deviation, foreground, response and equivalence. While words with less frequent usage has various associations showing different concepts depending upon their knowledge about those words like productive, intention, diversity etc. In this way, there are different concepts maps can be viewed varying from individual to individual.

Following are the concept maps of different students with same word.

Stimulus word: 'variable'

Responses:

Participant 1): Fluctuation ⟶ dynamic ⟶ changing ⟶ variant

Participant 2): Quantity ⟶ dynamic ⟶ variant ⟶ changing

Participant 3): Fluctuation ⟶ quantity ⟶ inconsistent ⟶ variant

The above pattern of responses shows that how differently a word has stored inside memory. This is mainly due to the uneven sequence of comprehension or conceptualization about one vocabulary item. It foregrounds a major characteristic of association theory technique that with the help of this methodology one can get a large size set of vocabulary items getting from all the participants using their mind maps. The patterns show a kind of brain storming conditions which results in to different sets of lexis.

The matter is to think logically, use your search engine of brain and create associations.

Collecting data from the second test reveals extremely varying results in which participants have to response freely using their previous test knowledge, this time the responses have variations more than the last test. This test is actually a depiction of the extent of the gain of knowledge from word association test. This test can be a proof for the benefits of word association tests.

4. Results & Interpretations:

The amount of word storage gained from the first test is revealed in second test exhibiting the storage depth also. The total number of stimuli as already known is 29. All the responses in second test are divided in to three main groups;

4.1 Maximum rate of responses:

This group includes all the responses with maximum associations. In the retest the maximum number of associations is considered to be a max of three associations. For instance;

Complete	1) Perfect	2) entire	3) full

This group is a representation of highest storage of vocabulary items through the use of word association test. In other words, this amount of storage can be referred to as a part of participant's long term memory. The average rate of maximum association is 9.83. The total percentage proves to be 32%.

4.2 Medium rate of response:

This group contains the answers with medium rate of associations. A response in the retest with two answers is regarded as medium rate of response. For example;

expression	Show	Appearance	

It shows that the participant is become successful in storing a word's association to a reasonable extent. This is the rate of storage to long term memory. The average of this amount is 6.26 and the total percentage is 20%.

4.3 Minimum rate of response:

This category shows that how many responses are with minimum association. In retest this showed the evidence of;

diversity	Difference		

All such type of responses is in this group. The average is 7.1 and total percentage is of 23%.

4.4 No response:

This group has the number of responses with no answers. The average rate is 4.4 and percentage is 16.8%.

The graphical representation of all these groups is given bellow:

Horizontal axis: four groups of responses
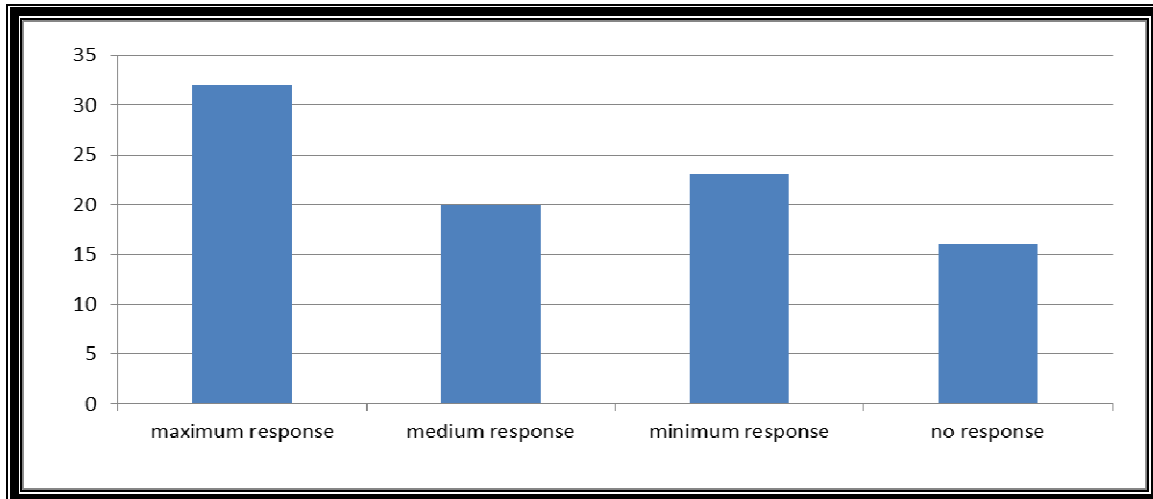**Vertical axis:** the percentage of the four groups individually

Chart1: distribution of word association responses in percentage.

This graph shows that the resultant of word association technique leads us towards the positive direction with the maximum amount of gaining word knowledge with long term storage. A marked difference is evident having taught with association methodology. There are many factors which have aided this process of storage, enlisted as variables. The flow of the process can be visualized through a deviation curve.
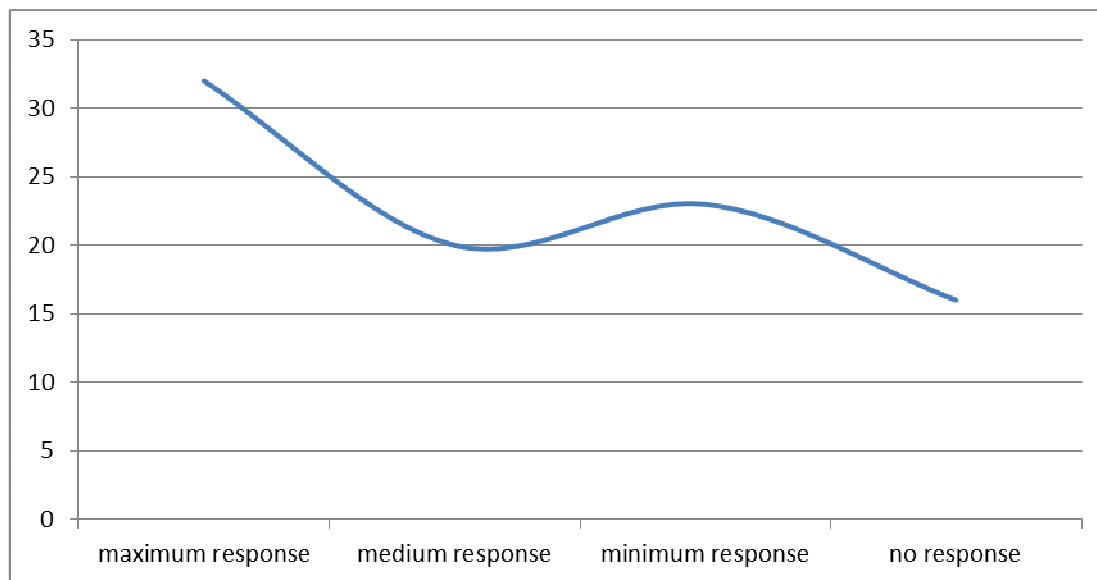

Chart2: curve diagram for response rate representation

The curve shows the clear flow of the output. It is at its peak at the rate of maximum association response (maximum storage) then going a bit lower at medium response just up to the difference of 3% and then it suddenly went upwards at the rate of 23% moreover at the end of the curve a considerable decrease of no response.

There is a cause and effect relationship of word association strategy with various factors. The word association strategy is an independent variable being a cause for the factors to affect. The variable factors which are dependent variables as the effect of word association strategy aiding to the study, can be focused, as looking back to the process are attention, responsibility, motivation, endurance and interest.

The factor of attention is obvious one being a dependent variable. Interestingly, there is a directly proportional relationship of attention and word association strategy;

Attention ∞ word association strategy

Attention is always regarded as the description of cognitive states as an activity of clearness on perceptual basis (Solley and Murphy, 1960) and stimulation consciousness. The chain of responses are actually a kind of attention, may be in abstract form which can be like a chain inside our mind or in the form of sound patterns uttering by participants or in written form to draw the chain of responses. Thus, all these response types are the lively form of attention factor. It means without the succession of this factor the rate of knowledge gained per class or lecture will be zero. Convincingly, appearing as a behavior among students it depicts more in word association test process. Greater the rate of attention, greater is the chance of learning and memorizing vocabulary knowledge. Participants are unconsciously being attracted towards this kind of strategy for learning. The aspect of attention, usually in a traditional educational strategy is consistently shifted and divided into central and marginal things, in this way students remain partly conscious about the learning but misses something as well. Due to the selective habit of attention, the participant's response to various stimuli of the environment is selective. In case of association theory application, the quick process of questioning and responding makes student to be selective just towards the words. Greater the attention, greater is the learning so, greater the rate of achievement of the students with the independent change in strategy for teaching vocabulary. The achievement of the students is estimated from the rate of storage of vocabulary items through association tests per day on vocabulary knowledge;

$$\frac{\textit{rate of achievement}}{\textit{per lecture for memorization through WATs}}$$

The above formula presents the amount of achievement gained by the students with the use of association tests for the storage. Greater the storage of vocabulary items, greater is the rate of achievement at the end. These circumstances lead our study towards the positive direction of feedback. The results collection from 30 students' class is the evidence for the positive feedback. In contrast to traditional methodology of teaching vocabulary in which more is the part for cramming making words only the part of short term memory.
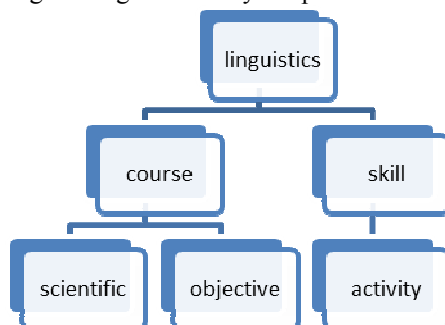
Retention can be another very important variable for this study because word associations form hierarchical associations (Anderson & Matessa, 1997; Anderson, Bothell, Lebiere, & Matessa, 1998; Johnson, 1972; Lee & Estes, 1977; Murdock, 1995a, 1997), as in bellow; retrieval from context (Bower, 1972; Howard & Kahana, 2002), associations formation under chain theory (Lewandowsky & Murdock, 1989) having forward and backward connections and associations through episodic memory are all the grounds for retaining all the previous knowledge. The consistent retrieval of background knowledge keeps the factor of retention fresher in the learning process. Hence, the factor of retention has a linear relationship with association technique.
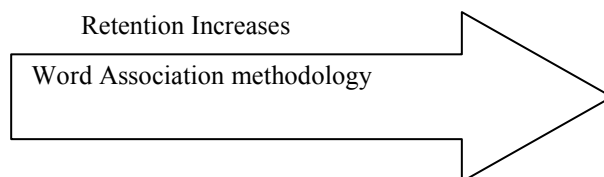
Participant motivation logically has to do with participants' longing to play a part in the learning process. Any kind of pedagogy has to face the drawback of less student motivation at a certain point of the process. But words association process shows a kind of unconscious motivation evident from the behaviors of the participants while performing their WATs. One reason for this can be the kind of strategy in the form of WATs which is in itself an

activity. The motivation to associate a word with the stimulus word is unconsciously an eager to learn. It includes two factors one is the amount of effort which participants do to learning or participation and second is the degree to which they take pleasure in learning (Brown, 1998; Schiefele, 1991).

Interest can be referred as a force of motivation that pushes us to appear in any stimulated activity. As the interest increases, the level of learned material increases as well. Interest has direct relation with attention and achievement. Greater the interest level, greater is the attention to that activity hence, enhances the amount of achievement having good grades. The whole situation can be created successfully by applying certain circumstances like setting of proper aims, establishing learning environment and appropriate use of WATs. All of the above factors collectively form a constructive behavior and activist cognitive state.

Endurance is the last dynamic issue in the study which is more concerned with mind than behavior. It has its relationship with retention, the retention of all previous concepts about vocabulary items, keeps the perfect balance of information about association, in other words the chain of ideas retains at its balanced condition. The learning through word association technique makes the factor of endurance at its stable stipulation.

5. Discussion:

This study elucidates, very firstly, the information about the importance of second language vocabulary acquisition (Rupley, Logan & Nichols, 1998/99) in pedagogy which is said to be a neglected part of educational system. The influence of second language vocabulary acquisition lies in reading skills, words comprehension (Chall & Jacobs, 2003), speaking skills with fluency rate, abilities of expression and communication. A concern to the second language vocabulary acquisition leads us towards a question that why there is a need for a novel & systematic methodology for second language vocabulary acquisition. The answer lies in the fact that different kinds of fallacies, in different types of students showing meaningful differences in learning (Hart & Risley, 1995) and also in need to acquire second language vocabulary, shows us the way to think critically in this area of education, to get more number of personalities having foreign language vocabulary proficiency.

One aspect in this respect which is found to be the most up-dated one to overcome the vocabulary acquisition shortcomings is word association methodology. In addition to this methodology many strategies have employed and prove to be unsuccessful to grasp a sufficient amount of vocabulary set. The implementation of word association theory seems to be a successful operation for enhancing the level of vocabulary set with a considerable depth of vocabulary knowledge in mind. As Richards et al, (1985), defines word association methodology as a technique in which words are associated with each other in a way that influences the learning and remembering of words, is a sort of theoretical definition of the term. According to Kent & Rosanoff (1910), the shared networks of connections among words provide a fruitful collection of words with strong storage in memory. With historical evidences and theoretical perspectives this reading endows with another stretch of the research along with words association theory, this stretch is memorization; the term actually can be defined having connections with association theory as the phenomenon in which one is able enough to remember or recall the things or words in a sequence of relationship as they are stored inside mental lexicon (Sinopalnikova, 2003; Kess, 1992).

Different theoretical perspectives are studied to go ahead with word association methodology; the initial grasp is the work of Carl Jung (1917, 1926 & 1943) attempted a word association test with the cognitive aspects of learning. Meyer et al. (1975) experimented upon learners to pronounce associated words in pattern and rapidly, he also compared pronounce of associated words with non-associated words. Schultz and Schultz (2000) struggled on psychological setup for associating words and uttering them quickly. Another very common test which has been taken by Sir Francis Galton (1880) in which you have to response in favor of a stimulus word. Similarly, Paul Meara (2009) performed on network of vocabulary inside human lexicon. He followed the graph theory which deals with the network of words inside over mind, and says that greater the networking of words, greater is the vocabulary depth of a learner. The law of mental association by contiguity reveals that words come in our thought or imagination has a connection with an associative word in the same line of imagination, it calls for the phenomenon of co-existence of words and association strength. Contiguity of association in time is for recalling expressions while contiguity of association in space is for the recollected words regarding certain position. Henriksen (1999) & Hulstijn (2001) dealt with the depth of word knowledge having the ability to relate semantically associated lexis. Richards, (1976) & Nation, (1990) concerned with the word knowledge that the connections are in the mind. Rapp (2004) is most famous for his performance in the area of word association and word pairing. Zareva (2007) talks about word familiarity saying that word familiarity have a deep influence on both native speaker and non-native speaker. Hanks (1987), also deals with the co-occurrences of words usually in our daily life. Word association mostly caused due to the semantic relation of words (Sentence Generation Condition of Bower & Winzens, 1970, & Beck, McKeon & Omanson, 1987). Richards and Schmidt, 2002 confirmed in their studies that they took more emphasis upon three things while dealing with vocabulary knowledge; the words, the meaning and the associations. The memorization of

vocabulary items is due to the paired mnemonic associations (Cohen and Aphek, 1981). They also talk about the retention of vocabulary items inside long-term memory (Gairns and Redman, 1986; Brown & Perry, 1991; Carter, 1987). The prototype theory (Eleanor Rosch, 1970s) provides a strong theoretical evidence and support to apply the technique practically as it basis on two themes; 1.Association process inside mind, and 2.Lexical co-occurrence. By William Kaye Estes (1919) titled "Stimulus Sampling Theory" is consisted of stimulus-response process in word associations and also association of ideas. It is also directed towards recalling ability of mind. As concern with recalling ability work of Thomson and Tulving (1970) is worth considering because they explained both stronger and weaker word associations in relation to recall. The law of Recency argues that most recent associations take first place while doing free recall. Thus, the most recent storage items have a separate importance for all words. Another theoretical view named "stimulus sampling theory (William Kaye Estes, 1919) provides us with the situational and contextual grounds for word associations. It says that words are always associated according to their contextual and temporal requirements. The associative cognitive model is a concept used in a study of Edward Tolman (1948) in which the activation of the recent words in the short-term memory and long-term memory involves while the cognitive mapping works in word associations in a way that the most activated words comes to pronounce firstly, means the retention of words is in a sequence not in haphazard way. The most famous theory for word association tests is the network theory which deals with the utterances and cognitive mapping both at a time. It is the most interesting phenomenon used by Inkpen et al. 2005; Priss & Old, 2004; Miller, 1990. After having a glance of all theoretical perspectives, one can have an understanding of the concept and area of the study that we are concerned for the word association technique utilization in pedagogy i.e. language class, and to deal with the effect of that technique upon the memory retention ability for vocabulary of learners.

The inclined aim for the research is asked in the questions for research, from which the first one gives us the investigation of the possibility for the implementation of association theory to the language class. This question relates to the maintenance of method within a typical classroom situation as well as to the acceptability of the technique by learners. For the direct implication of word association theory the tool is John Read's (1998) word association test. In our point of view it seems most relevant for applying upon language learners. The feedback is really positive and learning rate is also enhancing throughout the process. Another test is also arranged in the same class after the gap of 1 day, that test regards for my own needs and is not derived from any previous works on word association technique. In this test students have to recall the previous test associations and write down at least three out of four which we have gained in the previous test. This task totally depends upon their memory storage. Greater the storage, greater is the number of associations. The next query which lies inside a research question is about the predictable increase in learning rate so that association theory technique can be preferred over traditional methodology of learning vocabulary. The results of word association test, which is applied on the language learners are obvious for argument, they shows that the results can be classified in four groups the very first group which is of maximum number of responses is with 32 percent while the group of medium response has percentage of 20% then minimum response rate is of 23% while no response percentage is 16% among the whole class. Keep in mind the fact that this is the result of very first implication of word association test over language students. The results are good to a great extent because maximum number of students have gained vocabulary inside their memory storage through word association test.

The evidences gained from this research study provide us a gateway for the direct implication of word association test in a typical and highly formal language study classroom for the sake of accomplishment over the knowledge of vocabulary learning. Its considerable part in pedagogy is to deal with the confidence of using it in formal classroom setting having positive feedback and expected results. Furthermore, the fact that the amount of maximum response can be able to increase to greater level even to 100% also, with consistent word association tests implication upon the same learners. Their memory storage for vocabulary will perfectly increase to a marked level. A cause and effect relationship can be clearly seen in the process. The application of word association technique shows that the response getting from the students and their attention both are directly proportional to each other with the stimulus of word association technique the attention increases and response rate also increases with the same extent. Similarly, retention ability of more and more vocabulary also increases along with method of association. Due to the enhancement of retention ability, the endurance level achieves its heights. Significantly, this strong cause and effect relation in the study makes this issue more powerful to be considered.

The relative analysis of the study is done with the research study of Paul Meara (2009) on the topic of word association and second language vocabulary acquisition, straight forwardly linked to our study. Since it includes all the three major ones; word association, memory storage and second language acquisition. Meara (2009) worked with association theory for the findings of vocabulary depth, rate of productive vocabulary and the check of vocabulary organization. These terms are linked to this research directly along with the association technique in a way that the implication of same network theory in this study reveals the associations as to show the vocabulary depth and vocabulary organization inside the mental lexicon. Paul Meara, more especially is

critical to the Psycholinguistics field, that's the reason of his work's importance in pedagogy. His definition of vocabulary as a network concerns to our findings of network chains of different associated words gained by the students. Likely, as this study gives a chain or network's chain concept about the associations, Paul Meara (2009) also gives the lexical organization as network. Thus, he uses these networks to determine the vocabulary depth; similar is the case in the study that the use of vocabulary net or associations is to determine the depth of storage of the words inside the long term memory. The results of his study have their effects ia a long run in Psycholinguistics that approaches others to do to go ahead in it. We have provided with a visual representation of vocabulary depth which tells us that when we made learners to learn vocabulary items through association methodology then a kind of network is developed in their memory and on the basis of these networks they remember vocabulary.

A master level thesis by Christopher Patrick Wharton; University of Birmingham, exactly on the topic of changing associations: The effect of direct vocabulary intrusion on the word associations of Japanese college students. His methodology starts with the word association test which has 20 stimulus words while in this study we have used 30 stimulus words. The WATs are also conducted twice once a position-based test and second time a meaning-based test. The number of responses is calculated on quantitative basis similar with the present study. First thing to take in to account is the total amount of increase in number of response from one WAT to the other among the two consecutive WATs, the similar conceptual basis of results, as in this study a WAT is conducted having MCQs to answer with four most associative words and the next WAT is taken after the period of one day in the next class to check the rate of storage in the memory. This two set of WATs are performed periodically and the results of one set of WATs can be measured with the results of second set of WATs that how much increase has happened in the rate of storage of vocabulary inside memory with the use of associative methodology. For the visual presentation, Wharton showed a graph for the comparison of the number of responses over each test, in the same way this study reveals the number of responses with the help of graph and the increase in the rate of association through WAT is depicted through a line curve graph. His study conceptually summarizes that after five weeks of consistent intrusion of vocabulary through association method there is inconsiderable decrease in the responses, the responses for the taught words through association are increased while the responses for the untaught words are decreased.

Considering to the previous studies the findings of this study are up to the mark as expected before the experiment. The percentage of maximum responses (32%) with associative vocabulary is greater in amount as compared to other responses; minimum response (20), medium response (23%) and no response (6.4%) rates. All the vocabulary items which are used for stimulus are already taught words. The reason for the question that why we have choose already taught words to check association method is that this WAT is at very first class for association method application that's why we have started with the known vocabulary items. This is the first step of development, and at the very first step we have got a very positive feedback and growth among students. The level of difficulty will increase after each set of WAT (WAT1+WAT2). The problem with which Psycholinguists were dealing is actually that students have full-fledged knowledge about many lexical items; they also have lot of information about the synonyms and antonyms as well. But unfortunately, they are unable to recall them according to the need of their usage, in accordance with the context and position; associative method is the solution for that problem. This thing is the main reason for choosing simple and known vocabulary items at initial stage. Association technique enables them to have words stored in association and with the help of this association these words can be easily recalled when there is need to recall them also put the chains of words in the storage of long-term memory long lastly.

This attribute of association method is the essence of this study to have an influence on pedagogy. The motive for learning vocabulary is always in a deficiency in pedagogy, it needs full consideration for making learners proficient in this regard. The contribution of this system to the field of education and to the field of knowledge is significant because in future it seems to be the only source of having accomplished command over vocabulary knowledge. The use of association theory is the solution for word knowledge, a check of vocabulary depth, a check of mental organization for words, to judge the knowledge of different classes of words etc. Finally; there is great need to enhance this sort of methodology in teaching second language vocabulary. Further researches can be made upon the alignment of critical words inside memory i.e. 'a lot of', you can say, words which have more than one group of words but creating single meaning. Such types of words inside mind are still unconcerned. Furthermore, a research can be made upon the alignment of phrases then clauses and so on with the use of the same association theory.

6. Conclusion
A reverse of the whole objective for the research study is crucial to state here, in concluding it. The purpose of research is to prove that association theory is competent to be the best methodology for the intrusion of second language vocabulary in to the learner's long-term memory store. Following this ambition, the methodology used named word association test which is repeatedly experimented by various linguists and Psycholinguists for their

knowledge and language treatment purposes (Paul Meara, 2009; Paul Nation, 2001; Miller, 1991). The use of semantic networking (Miller, 1991) and network theory (2009) and chain theory by Lewandowsky & Murdock, 1989 remained the key features for analysis and findings. An instrumental importance carrying WAT by John Read (1998) is the key tool for conducting WAT in the methodology process.

The findings are up to the mark as expected the rate of maximum number of responses through WAT is highest than minimum and medium rate of responses and the fruitful thing is that it is the result of very first application of association theory over students. The implication of WATs over students can be increased with the increase of difficulty level as well.

The findings reveal that how much the implication of association theory can contribute to the pedagogy. Its results talk. A less consumption of time and a more rate of gaining knowledge are the key significances. There is less theoretical work but much more emphasis is upon the practical approach. The testing and testing again and again will make the learners additionally skillful in producing words with the aid of associations. As far as its application is concerned, it is equally applicable to the syllabus class as well as to the language skills class. The results showed that instructors should follow this sort of teaching in their class rooms because different students behave and take input differently in different modes of instructions. An alternation in the methodology in pedagogy will shows the positive and negative effects of previous method as well as the good and bad outcomes of the new one. It leads the system to strive for the best in educational system which is the great need of today in Pakistan more specifically. After having implemented word association methodology, the fore grounded fact is this methodology is more inclined towards task-based syllabus which is the need of the day and most promoting type of syllabus now-a-days in Pakistan as well. The tool of testing (WAT) upon which the whole procedure is based, actually one of the most authentic ways of managing syllabus through tasks, this proves to be a big cause of implementing word association methodology in a formal classroom situations.

According to Bruner (1966), a theory of instruction includes four crucial features; predisposition of learning, the structure and form of knowledge, sequence and reinforcement. These four features are equally proportioned in word association technique because its implication involves an association with the behavioral change in learning, the functional spirit of prompting acquisition of the second language vocabulary and development of independent thinking. Additionally, word association methodology has its definition goals along with crucial guidance and being facilitated from the instructor. It's a necessitate that to measure the progress and standard of achievement of language learners. Hence word association test will remain a vital instrument to evaluate the program content and materials too. The Psychological theory emphasizes learning through association as it is believed that the more a stimulus is offered, the better perception a learner has which is clearly attainable from the implication of word association test.

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