CHAPTER - VI
HIERARCHIAL LEVELS OF UNDERSTANDING
AND RECALL
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6.0 GENERAL

The main purpose of the linguistic elements is to transmit messages and the decoder has to decode the information by processing it. Chapter IV and V dealt vividly with various models and processes that are utilized for processing information from the linguistic elements and the results prove that since the processes involved in information processing were not the same all the linguistic elements were not equally processed. In this chapter the stress is laid on different processes that are involved in the information-processing and the changes in the understanding level and level of recall are gauged. In short the whole spectrum of the processes are analysed to find out the appropriate mental machinery or the cognitive processes which are involved more. The analysis is made between the following:

(1) The task in the same units.
(2) The different units.
(3) The Linguistic elements.
(4) The cognitive processes.

6.1 The tasks in the same units

(1) Task:1 requires the retrieval of the exact meaning of the words from the 'mental lexicon' and the score is 24.2, whereas in task 2 the score is 81.24, which was acquired
during the process of retrieving the association of words from
the semantic memory, reflecting the retrieved words as
representatives of various ‘mental models’. The difference
between them is highly significant. t(49)= 17.99, P< 0.01 and
it shows the understanding level of tasks. (high <- or low->)

UL -> UI <-
T 1
T 2

In experiment 3 and 4 the analysis of different
processes that were employed during the process of
understanding word in a system was made based on task 4 and 5.
In task 4 which involved the cognitive process of comparing
and categorizing the semantically related and unrelated,
semantically related and opposite of the target category, the
understanding level is high, since the score is 86.8 and it is
higher than that of the score of task 5 which is 61.6 and it
demanded: the process of identification of underlying
relationship between pair of words, then matching of that
identified relationship and based on that the examples and
non-examples were accepted and rejected. The difference
between both the tasks is highly significant, t(49)=7.36,
p<0.01

UL <- UL ->
T 3
T 4

To test the process of understanding word in context,
three experiments were conducted, to assess the effect of clue
in the form of sentence on the understanding process.
Experiment-5 analysed the understanding level of the same
words given in task-1 with context clues, and experiment -6 investigated the process of decoding the polysemus words, which denoted different meaning, the difference in the understanding level of both the task is highly significant. The score of task -5 is 54.4 and task 6 is 93, t(49)=6.95, p<.01. The difference proves that the understanding level of complex entries are not in anyway different from the single entry, and the level of complexity has no repercussions, since the effect of the context as a clue is vivid.

\[ UL \rightarrow UL \leftarrow \]
\[ T \quad T \]
\[ 5 \quad 6 \]

Task-5 involved the process of retrieval of the word and its single entry from the context, whereas task-7 involved the process of analyzing the meaning of the antonyms. The question that is raised is, does the positive and negative words and their lexical complexity affects the process of understanding. The results prove that the understanding level of both are same, since context acts as a clue. The score of Task-5 is 54.4 and Task-7 is 62, and the difference is not significant. t(49)=1.52, p>0.10

\[ UL = UL \]
\[ T \quad T \]
\[ 5 \quad 7 \]

Task-6 and Task-7 tested the retrieval of the meaning of words with lexical complexity and with context clues. Eventhough the context were present the understanding level in Task-6 is 93 and Task-7 is 62 and t(49)=6.95,p<0.01. It proves
that the retrieval of the meaning of the polysemus words from
the context is easier than the retrieval of the antonymoms.

(2) The process of understanding the semantic content of a
sentence inspite of the error, (Task-15) is higher than that
of the process of understanding all the idea units of a
sentence. The score in task-15 is 85 and Task-16 is 82.4, but
the difference is not significant $t(49)=0.747$, $p>0.10$. It can
be concluded that the process of understanding a sentence and
its semantic content is the same, eventhough syntactic errors
are present.

The same is the case with Task-15 and Task-17. Task-17
involved the process of deriving the semantic implications of
the sentences and its score is 79.66 and the difference is not
significant. $t(49)=1.475$, $p>0.10$

During the process of making simple restatement of the
sentences inspite of the error (Task-15) and the process of
making constructive and inferential process which demands
pragmatic knowledge on the part of the reader, the
understanding levels are 85 and 64 respectively. The
difference between the two processes is highly significant,
since $t=5.75, p<0.01$

$$UL \leftarrow UL \rightarrow$$
$$T \quad T$$
$$15 \quad 18$$

The utilisation of the process of understanding different idea units embedded in the sentences (Task-16) and the process of understanding the semantic implications are the same (Task-17) and the scores are 82.4 and 79.6, $t(49)=0.658$, $p>0.10$ and the difference is not significant.

$$UL = UL$$
$$T \quad T$$
$$16 \quad 17$$

The process of understanding the different idea units explained by the sentences was utilized more than the process of making inferences to understand sentences, since in Task-16 the score is 82.4 and task-17 the score is 64, $t(49)=4.370$, $p<0.01$ and the difference is highly significant.

$$UL \leftarrow UL \rightarrow$$
$$T \quad T$$
$$16 \quad 18$$

The same is the case with Task-17 and Task-18. The process of understanding the semantic implications in the sentences is more than that of the process of making inferences. The scores are 79.66 and 64 respectively and $t(49)=3.611$, $p<0.01$.

$$UL \leftarrow UL \rightarrow$$
$$T \quad T$$
$$17 \quad 18$$

The analysis vividly proves that the various processes of understanding individual sentences were utilized more than
the process of making inferences which demanded pragmatic knowledge on the part of the reader.

Task-19 which involved the process of bringing in logicality into illogical sequence was employed more than the process of understanding local and global topic of a paragraph. The scores of Task-19 and 20 are 77.65 and 61.6. The difference between both the processes is highly significant. $t=3.525$, $p<0.01$

\[
\begin{array}{c}
\text{UL} \\
T \\
19
\end{array} \leftarrow \begin{array}{c}
\text{UL} \\
T \\
18
\end{array}
\]

(3) The immediate recall of the logical sequence in Task-24 and the various segment in a paragraph in Task-25 are the same, the score in task-24 is 46.2, and Task-25 in 47.3, and the difference is not significant $t(49)=0.23$, $p>0.10$. It can be concluded that the process of recall of the logical sequences of the sentences and the various segments of the paragraph are the same.

\[
\begin{array}{c}
\text{RL} \\
T \\
24
\end{array} = \begin{array}{c}
\text{RL} \\
T \\
25
\end{array}
\]

6.2 The different Units

(1) The process of understanding the word in a system, by utilizing the process of understanding the concepts denoted by the words and their underlying relationship is more than the process of retrieving the meaning of a word in isolation and various association of words. Since the total score in the
understanding level of unit-1 is 52.72 and unit-2 is 74.2 and, \( t(49)=8.55, p<0.01 \), the difference is highly significant.

\[
\begin{array}{c}
UL \rightarrow UL<- \\
W \ W \\
U \ U \\
1 \ 2 \\
\end{array}
\]

The process of retrieving the meaning of words and associations are employed less than the process of understanding word in context, since the context serves as a clue. The understanding level of unit-1=52.72 and unit 3 = 69.19, \( t(49)=7.55, p<0.01 \).

\[
\begin{array}{c}
UL \rightarrow UL<- \\
W \ W \\
U \ U \\
1 \ 3 \\
\end{array}
\]

During the process of understanding words with lexical complexity in context the score is 69.19, which is less than that of the process of understanding word in a system and the score is 74.2, \( t(49)=1.727, p<0.10 \), the difference is highly significant.

\[
\begin{array}{c}
UL \leftarrow UL-> \\
W \ W \\
U \ U \\
2 \ 3 \\
\end{array}
\]

(2) The immediate recall of words that occurred in isolation is higher than that occurred in a system, the scores are 86.4 and 77.8 respectively, \( t(49)=2.28, p<0.01 \).

\[
\begin{array}{c}
IR \leftarrow IR-> \\
W \ W \\
U \ U \\
1 \ 2 \\
\end{array}
\]
The immediate recall of words in isolation are higher than the recall of words that occurred in a context, since the words were smudged into the context to form a larger unit. The scores are 86.4 and 43.6 and the difference between them is highly significant, since \( t(49)=6.84, p<0.01 \).

\[
\begin{array}{c|c|c}
IR & IR & <- \\
\hline
W & W & \\
U & U & 1 3
\end{array}
\]

(3) The delayed recognition of individual words and words that occurred in a system (unit-2) are not the same, since the total scores are 94 and 83.4 respectively, \( t(49)=3.099, P<0.01 \) and the difference is highly significant.

\[
\begin{array}{c|c|c}
DR & <- & DR -> \\
\hline
W & W & \\
U & U & 1 2
\end{array}
\]

The delayed recognition of individual words and words that occurred in a context are the same, the scores are 94 and 92 and \( t(49)=0.709, P>0.10 \) and the difference is not significant.

\[
\begin{array}{c|c|c}
DR & = & DR \\
\hline
W & W & \\
U & U & 1 3
\end{array}
\]

The delayed recognition of words that occurred in a system (unit-2) and in a context (unit-3) are not the same, since \( t(49)=2.551, P<0.05 \), and the difference is significant.

\[
\begin{array}{c|c|c}
DR & -> & DR <- \\
\hline
W & W & \\
U & U & 2 3
\end{array}
\]

(4) The understanding level of the part of the
sentences and the sentences in isolation are the same. The total scores are 74.4 and 77.73 respectively, \( t(49)=1.027 \), \( p>0.10 \) and the difference is not significant.

\[
UL = UL \\
S \quad S \\
U \quad U \\
1 \quad 2
\]

The understanding level of the sentences in isolation is higher than the understanding level of paragraphs. The scores are 77.73 and 67.3, \( t(49)=2.982 \), \( p<0.01 \) and the difference is significant.

\[
UL <- UL -> \\
S \quad S \\
U \quad U \\
2 \quad 3
\]

The difference between the understanding level of part of a sentence and sentences in paragraph is highly significant, \( t(49)=1.825 \), \( p<0.10 \). Since the understanding level in part of sentences is 74.4 and paragraph is 67.3.

\[
UL <- UL -> \\
S \quad S \\
U \quad U \\
1 \quad 3
\]

(5) The scores in the immediate recall of part of the sentences and various sentences in isolation are 69.2 and 68.4 respectively and the difference is not significant, \( t(49)=0.167 \), \( p>0.10 \)

\[
IR = IR \\
S \quad S \\
U \quad U \\
1 \quad 2
\]

The recall of part of sentences and the passage are not the same, the scores are 69.2 and 45.8, \( t(49)=5.721 \), \( p<0.01 \).
The recall of different sentences in the isolation is higher than the recall of various sentences in a paragraph and the scores are 68.4 and 45.8, $t(49)=4.849, p<0.01$ and the difference is highly significant.

6.3 The linguistic elements

(1) The score of understanding level of words are 65.3 and it is less than that of the understanding level of sentences which is 72.7. The difference between the scores is highly significant, $t(49)=3.122, p<0.01$

(2) The difference in level of immediate recall between words and sentences is highly significant. The scores are 69.6 and 57.4, and $t(49)=3.809, p<0.01$.

(3) The delayed recognition of words are higher than the delayed recognition/recall of sentences. The scores are 89.78 and 69.02 respectively, $t(49)=4.671, p<0.01$

6.4 The Cognitive Processes

The total level of understanding of words and the
sentences are higher than that of immediate recall; the score of understanding level is 69 and immediate recall is 62.73, $t(49)=2.775$, $p<0.01$.

UL <- IR ->

The difference between the total level of understanding and delayed recognition/recall is also significant. The scores are 69 and 79.38 respectively, $t(49)=5.564$, $p<0.01$.

UL -> DR <-

The total level of immediate recall is less than that of delayed recall/recognition. Since the scores are 62.73 and 79.38, $t(49)=8.05$, $p<0.01$ and the difference is highly significant.

IR -> DR <-

6.5 Summary

The analysis at various levels can be summed up, by the following argument.

(1) In the understanding level of words, the process of identifying the different concepts of the same word in Task-6 is high, in the immediate recall of words the process of recalling word in isolation (Task-8) is high in the delayed recognition task, also the recall of individual words are high. (Task-9). In the understanding level of sentences, the process of making restatement of the sentences with error (Task-15) is high, in the immediate recall task, the recall of the part of the sentences (Task-22) is high.

(2) In understanding level, recall and delayed
recognition level of various units in word level are as follows:

UL -> UL <- UL <->
U U U
1 2 3

IR <- IR <-> IR ->
W W W W
U U U
1 2 3

DR <- DR -> DR <-
W W W W
U U U
1 2 3

The understanding level and recall and delayed recognition and recall of units in sentences are as follows:

UL <-> UL <- UL ->
S S S
U U U
1 2 3

IR <- IR <-> IR ->
S S S
U U U
1 2 3

DR <- DR ->
S S
U U
1 2

(3) The cognitive process of understanding, recall and recognition of various linguistic elements are:

UL <-, UL <-, IR ->, IR ->, DR <-, DR ->
W S W S W S

UL <-> IR -> DR <-