Summary
SUMMARY

Each individual has a distinct learning style, that determines the kind of approach adopted or preferred by him/her in each new situations. People work and learn better when placed in an environment that matches their way of working and learning. This is true of numerous situations, such as working in teams, choosing a profession, informal learning situations and the formal classroom situations. Therefore, it is important to know that how learning styles influence our choices, styles of work, decision-making and learning capability itself.

The learning styles play a crucial role in how effectively the information is stored. Each learner has a different way of learning that depends upon many personal factors and every one has a distinct, cognitive/learning style (Montgomery, 1996; Snow, 1989; Mumford & Honey ,1996)

According to Keefe (1979) Learning style means the composite of characteristics, cognitive, affective and physiological factors that serve as relatively stable indicator of how a learner perceives, interacts with and responds to the environment.
Kolb (1984) also used the term convergers and divergers but with a rather different meaning. Within this terminology, the convergers prefer abstract material and process actively, while the divergers look for concrete information and process reflectively. Two other styles described by him are the assimilators and accommodators. To look into the details of these 4 types here is a following brief.

On the basis of the score obtained by an individual in these dimensions he/she can be placed in either of the following four categories.

The *Divergers/Imaginatives* are those who are concrete experimenters and reflective observers. Their strength lies in imaginative ability and the awareness of meaning and values. They perform well in situations that call for the generation of alternative ideas and implications. They tend to have broad cultural interests, are interested in people, and are feeling- oriented.

The *Convergers/Precisions* are active experimenters and abstract conceptualisers. Their strength lies in problem solving, decision-making and the practical application of ideas. Their expression of emotion is controlled, and they prefer dealing with technical tasks and problems rather than with social and interpersonal issues
The Assimilators/Analyticals are reflective observers and abstract conceptualisers. Their strength lies in inductive reasoning and the ability to create theoretical knowledge. They tend to be less interested in people and practical applications and more concerned with ideas and abstract concepts.

The Accomodators/Dynamics score high on concrete experience and abstract conceptualisation. Their strength lies in carrying out plans and tasks and getting involved in new experience. They tend to be adaptive and risk taking. They are at ease with people, but sometimes impatient.

The processing of information by any learning style involves the same common three stages i.e. encoding, storage, and retrieval. The literature and the meaning of the style leads to an assumption that the degree of learning, storage or retrieval may vary as a function of the learning style adopted by an individual.

Retrieval is greatly facilitated if contextual cues associated with the word during encoding are present. The more of these cues that are present, the more activation will spread from their nodes of the largest node and the greater the likelihood of its reactivation. The effectiveness of a retrieval cue is diminished, however, if it is also associated with
other memories. The more the connections radiating out form a node, the less activation seems to flow through any one of them.

These learning styles can be implicated in the field of research and education, and can also be helpful for the students. Therefore, the area is worth exploring further. Keeping this in mind, the following problem was formulated.

To study the effect of learning styles and retrieval facilitation on verbal memory.

The following objectives were formulated:

1. To investigate and compare the performance of 4 types of learners on verbal learning.
2. To investigate and compare the performance of 4 types of learners on retention of following 4 verbal tasks.

Both of the objectives to be investigated form the following viewpoint.

(i) To find out whether the 4 types of learners differ from each other regarding their performance on the given tasks. (i.e. between learning type)

(ii) To find out if any one type of learners differ in performance on different tasks.(i.e. within learning type differences)

(3) To find out if there is any significant effect of learning style in performance of males and females on different tasks.
To meet these objectives a 2x4x4 factorial design was employed. A sample of 800 (400 males and 400 females) students with an age range of 16 to 25, having mean age range of 21 years was selected from various educational institutions in Rohtak district. They were given Kolb Learning Style Inventory to select at least 64 Ss belonging to each of the learning styles. A total of 256 subjects (128 Males and 128 females) were thus screened. Now the Ss in each learning style were divided into four groups having 16 Ss i.e. 8 males and 8 females. These four groups of each learning style were now tested on 4 verbal memory tasks i.e. serial recall, free recall, cued recall and recognition.

For conducting the experiment the following tools were used:

1. Kolb’s Learning Style Inventory

2. Following Memory Tasks were taken up:
   i) Free Recall
   ii) Serial Recall
   iii) Cued Recall
   iv) Recognition

The subjects were contacted individually and apprised of the purpose of the study. Each subject was then given the task as per the group to which he/she belonged. The subject was made to learn the given
task upto a criterion of 80% learning. Now after a filled gap of one hour the subject was again tested for the retention of the task learnt.

The first objective was to investigate and compare the performance of 4 types of learners on acquisition of 4 verbal tasks. To find out the significance of differences, a three way ANOVA was employed. The F value across learning style was significant. Therefore, a post hoc analysis was employed using DRT to check that which of the particular differences are significant. First of all, DRTs on the means added across learning style were employed.

The results of means added across learning style indicated that the analytical learners were significantly slower in acquisition and took maximum trials to learn the nonsense syllables. However, imaginative, dynamic and precision learners did not differ significantly from each other.

The results of the means added across memory tasks indicated that subjects took significantly more trials to learn serial task than all other tasks. Recognition task was significantly easier than serial, cued learning were significantly easier than recognition, and free recall was significantly easier than recognition, thus free recall being the easiest.
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To obtain better and clear picture, a DRT on acquisition trials taken by all the 16 groups was employed. Each type of learners took maximum trials to learn serial recall and least trials to learn free recall and cued recall. Learning style also indicated the similar trends that analytical were the slowest.

The second objective was to investigate and compare the performance of 4 types of learners on retention of following 4 verbal memory tasks. For this after a filled gap (1 hour) the subjects were asked to recall the words they had learnt previously.

Now to find out the significance of differences, a three way ANOVA was employed. The F value across learning style on retention was significant. Therefore, a post hoc analysis was employed using DRT to check that which of the particular differences are significant.

DRT employed on the means added across learning style for retention indicated non-significant differences for retention of various tasks. Means when added across memory tasks on retention and tested for their significance indicated that the retention was maximum in free recall differing significant when compared to other tasks. So this was found to be the most easy method for retention.
Another DRT on retention score of 16 groups was employed. The results indicated that in retention the dynamic, analytical and precision subjects retained significantly better in free recall than serial learning.

When comparing the retention added across the memory tasks with the acquisition added across the memory tasks, it is clear that free recall was one of the most of the easiest task to acquire and maximum retention was also observed in free recall. Serial learning was most difficult to acquire and in this task retention was also significantly lesser than others, irrespective of the learning type.

Regarding the sex differences in acquisition trials, F was not significant indicating no any significant gender difference on performance amongst different types of learning styles.

In retention the males showed the best retention in imaginative subjects for free recall whereas the females showed no any significant differences within themselves. No male, female differences were found except for better retention on free recall, and better learning by imaginative Ss. The interaction between learning styles, memory tasks, learning style and gender, memory tasks and gender and in learning style, memory tasks and sex was found to be significant in case of both the acquisition and retention.
To conclude and sum up these results indicated that learning styles do alter memory as a function of retrieval facilitation, although deeper probing is required before drawing any universal generalizations.

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