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Year – IInd (Part-1)

Paper Name - Psychology with Special Reference to Physical Education

Topic Name - Learning

Topic No. - Sec - B (5)

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Lecture No. - 7

Lecture Title

Learning Curves

Hello Viewers. Welcome to the bachelors course of Physical Education.

Well students as already discussed learning is the process of modification of behavior which embarks development, improvement and adjustment. It becomes serious concern of parents, teachers and coaches that the child learns efficiently and proficiently. So they are supposed to keep a (watchful eye)Close watch on the process of Learning.

Learning curves are very effective tools of advantage to the Parents, Teachers and Coaches. Today we will discuss what are learning curves? What are their types? What are salient (Important) features of Learning curves?

Learning curve is graphic representation of the process and rate of Learning, rate of forgetting and retention is also manifested in learning Curves. One can view it by having a look at slope of the curve.

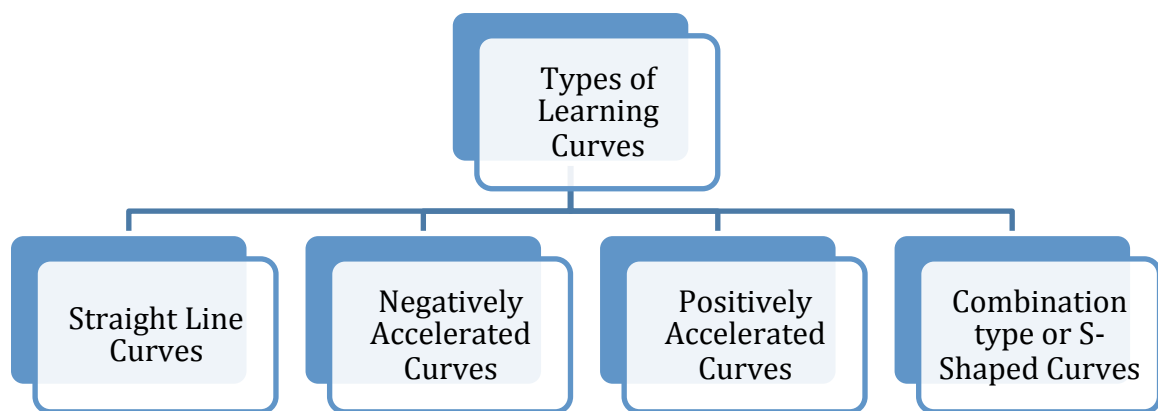
English and English defined learning curve as “the graphic representation of the measured facts at successive units of practice.

According to Postman and Egan, “Having defined a scale of associative strength, we can proceed to plot it as a function of number of practice trials. Such a plot is called a Learning Curve”

Skinner viewed learning curve as “the graphic representation of person’s improvement in a given activity.”

A curve is obtained by graphical drawing of results of an experiment involving any kind of improvement or change in performance. Horizontal X-axis of the graph represents units of practice (independent variable), vertical Y-axis represents dependent variable i.e. actual change in the subject’s performance which may be amount of material learnt. When the measure is the number of responses acquired, we obtain the rising curve and when the performance measure refers to the elimination of the wrong responses or the time required for the completion of the task, we obtain a falling curve.

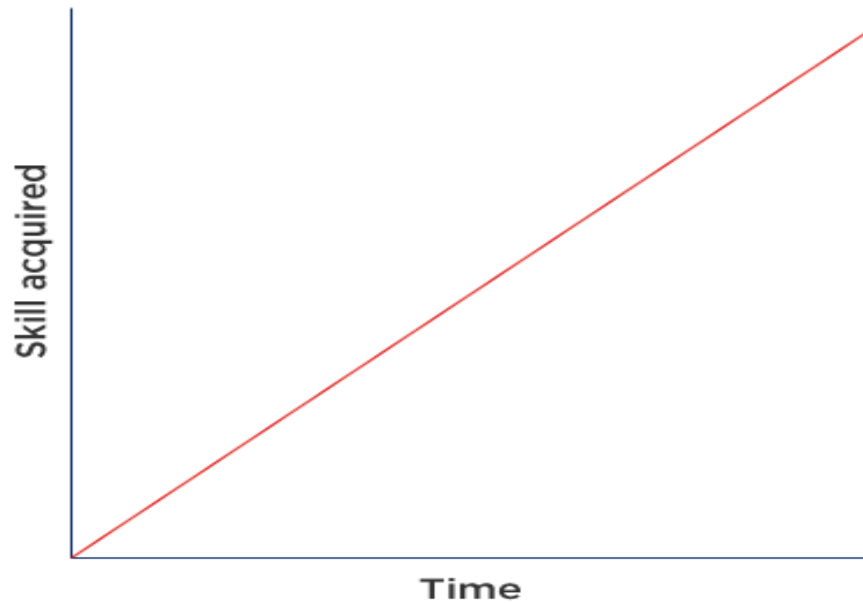
Now we will discuss some common types of Learning curves. There are four types of Curves.



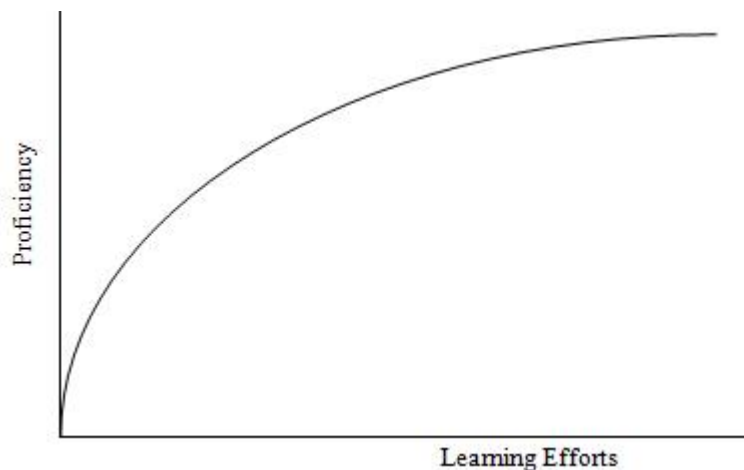
1. Strait Line Curves
2. Negatively accelerated Curves (Convex)
3. Positively accelerated Curves (Concave)
4. Combination type of curve or S shaped curve

1st we will take up Strait Line Curve

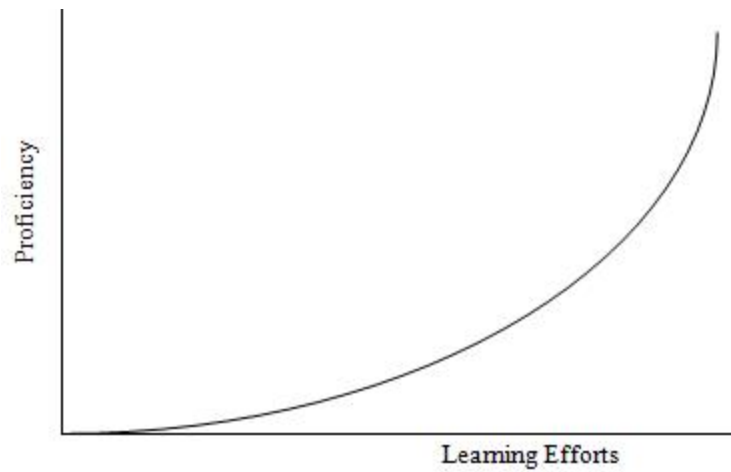
Strait Line Curves: Strait Line Curves shows constant rate of improvement. This type of curve is manifested when learning is very smooth but this type of curve is very rarely found.



Negatively accelerated Curves: Acceleration is the rate of change of speed. negatively accelerated curve is when rate of change of speed is negative i.e. in the beginning there is rapid rise, gradually the rate of speed declines and curve starts showing straightness. This curve attains the shape of a Convex Curves. That's why we call these curves Convex Curves. This type of curve is attained when learning material or situation is simple in the beginning and it becomes a bit complex or different towards the end.

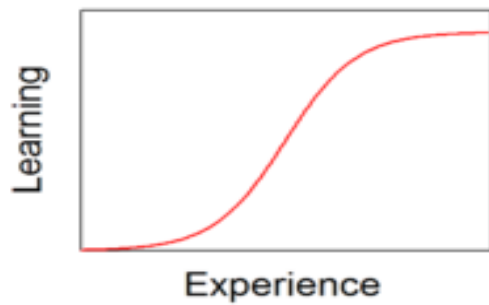


Positively accelerated Curves: In this type of Curve, there is rise in the beginning but gradually the rate increases. This curve attains the shape of a Concave lens. That's why this is also called concave curve. This type of curve is usually manifested when the learning situations are complex in the beginning but become simple towards the end.



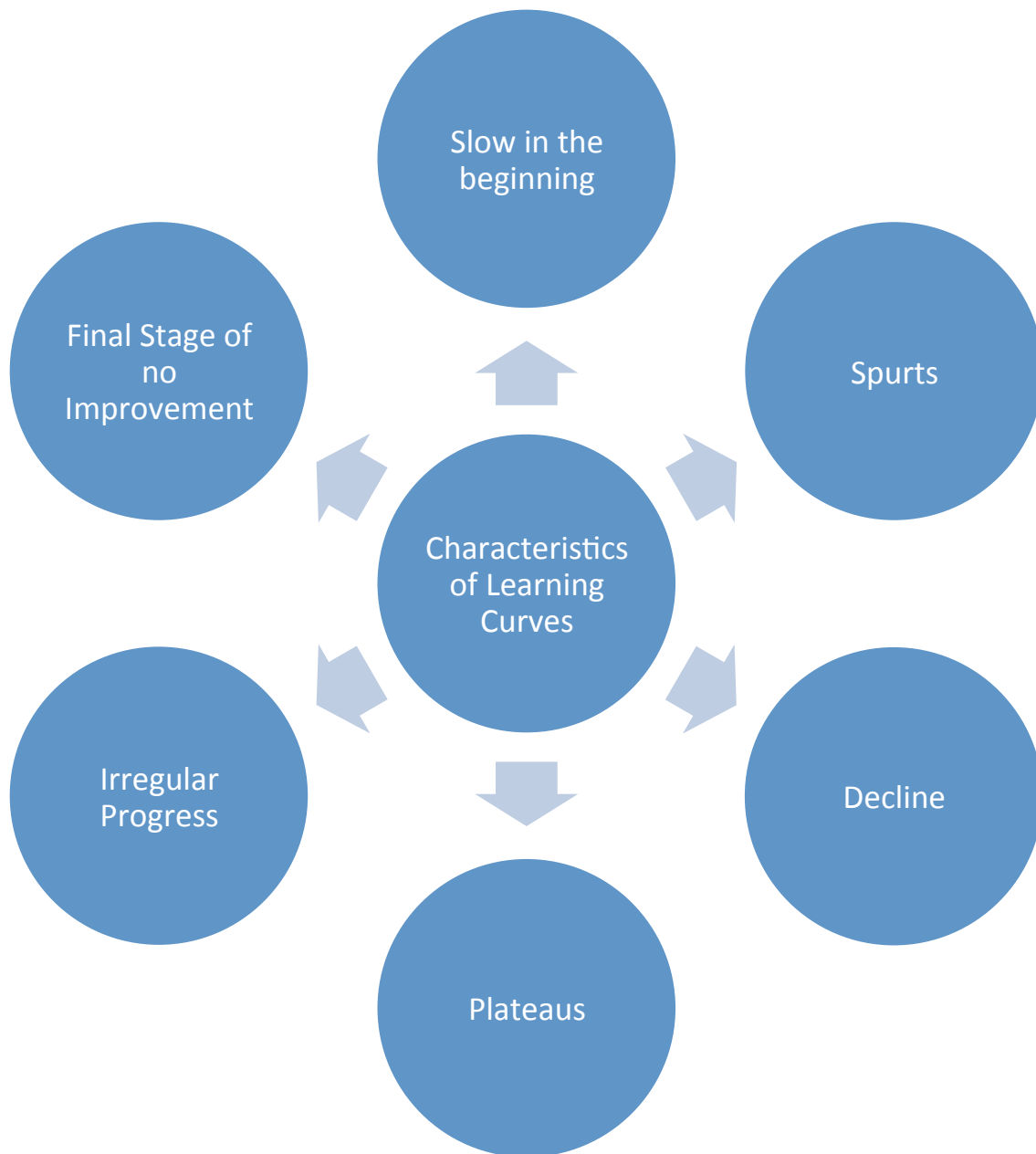
Combination type of curve: Also known as S-Shaped curve is the combination of Concave and Convex type.

S-Curve (Sigmoid)



Well these are the common types of curves which help teachers and coaches to take stock of learning status of the Learner.

Now, we will discuss characteristics of learning curves:-



1. **Slow in the very beginning:** Usually at initial stage, learning manifests slow process because whatever may be the learning material or learning situation, learner takes some time to grow familiar with the learning situation.
2. **Spurts:** It means when the learner has overcome the initial difficulties of learning, the learning quickens, initial learning is followed by spurts which manifests periods of sudden and rapid learning.
3. **Decline:** as said earlier Curves manifest Spurts, after the spurts, rate of learning declines.

4. **Plateaus:** Learning curves manifest plateaus which occur after sometime. This represents a period of No Learning. Neither there is any improvement in the learning nor there is any decrement, learning becomes standstill.
5. **Irregular Progress:** almost, all the learning curves show irregular progress which means learning curve shows fluctuations in the learning. It is due to the fact that personal factors like mood, mental set or other environmental factors affect the learning.
6. **Final Stage:** curves of learning show that there reaches a limit beyond which there is no possibility of improvement.

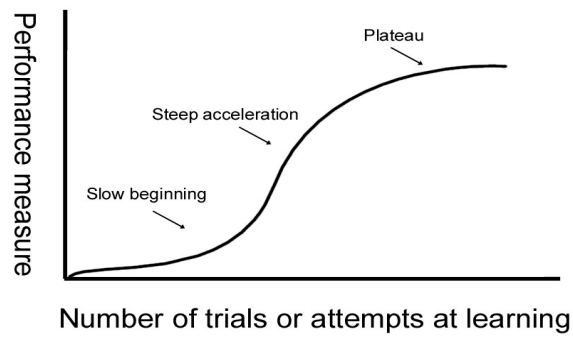
The common characteristic discussed helps the teacher and Coaches to have an appraisal of learning status of the learner under observation.

As said earlier learning curves are very useful for teachers and coaches, we will discuss important implications of learning curves.

- Learning curves help coaches and teachers to make generalizations of rate of progress, which can be helpful in assessing the ease or difficulty of the learning material.
- As learning curves sometimes predict the decrease in efficiency it is helpful for the coaches and teachers to control the situation by appropriately motivating the learner.
- Decrement helps teachers and coaches to organize learning material and methods of teaching to get desired outcome.
- Periodic examination or glances at learning curves are helpful in detecting errors, if certain errors are allowed to persist, it may become difficult to break.

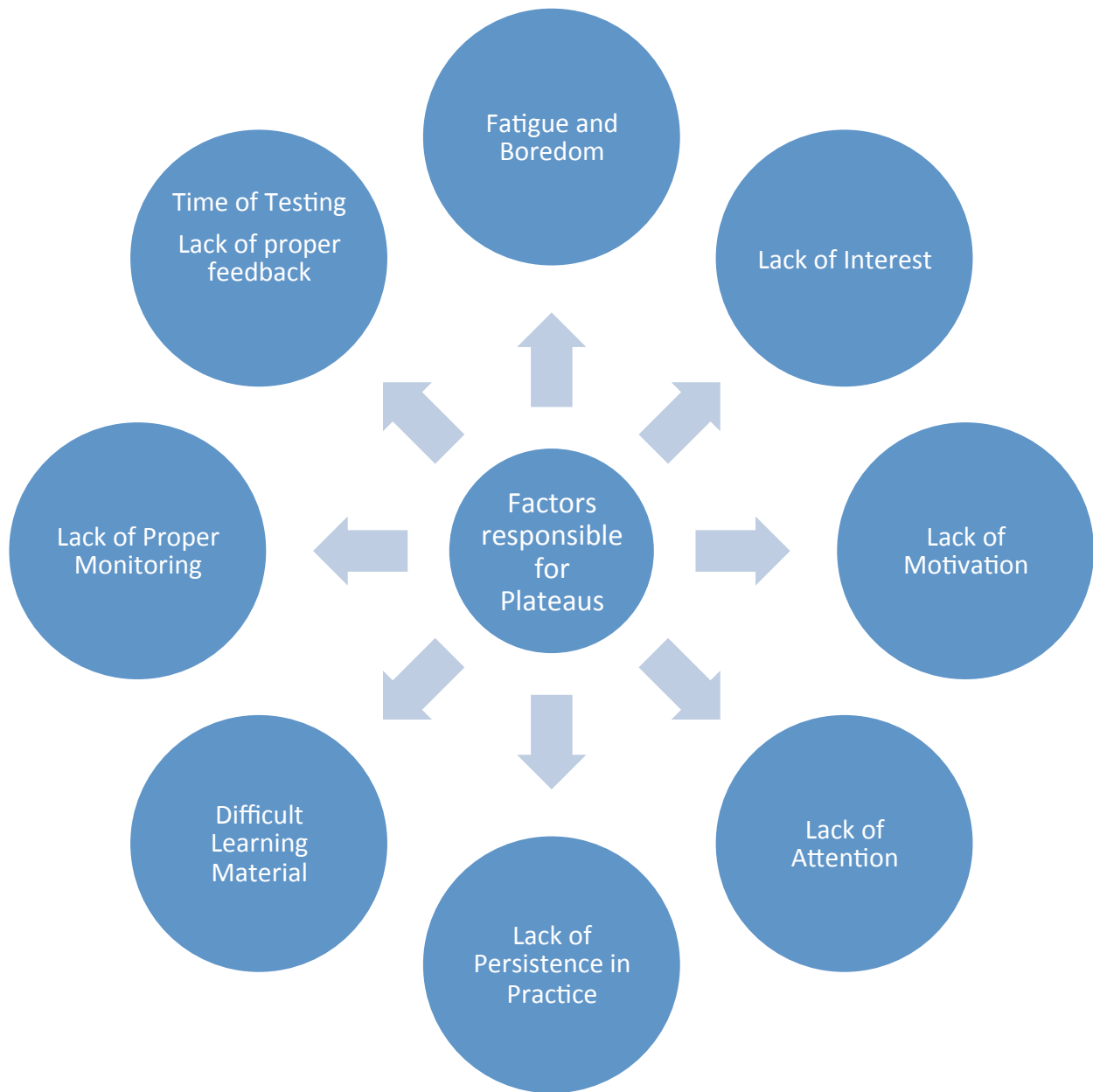
We discussed plateaus are one of the important characteristics of learning curves. Plateaus are the learning curves.

It manifests a period of stagnation in learning where there is neither any progress nor any decrement in learning. It is shown as a horizontal straight line in the curves



This horizontal straight line in the curve alerts the teachers and coaches to take stock of the situation, because coaches and teacher are aimed at improving learning of their pupils. Any situation speaking ill of the learning is a matter of concern for teachers and coaches, so is the PLATEAUS.

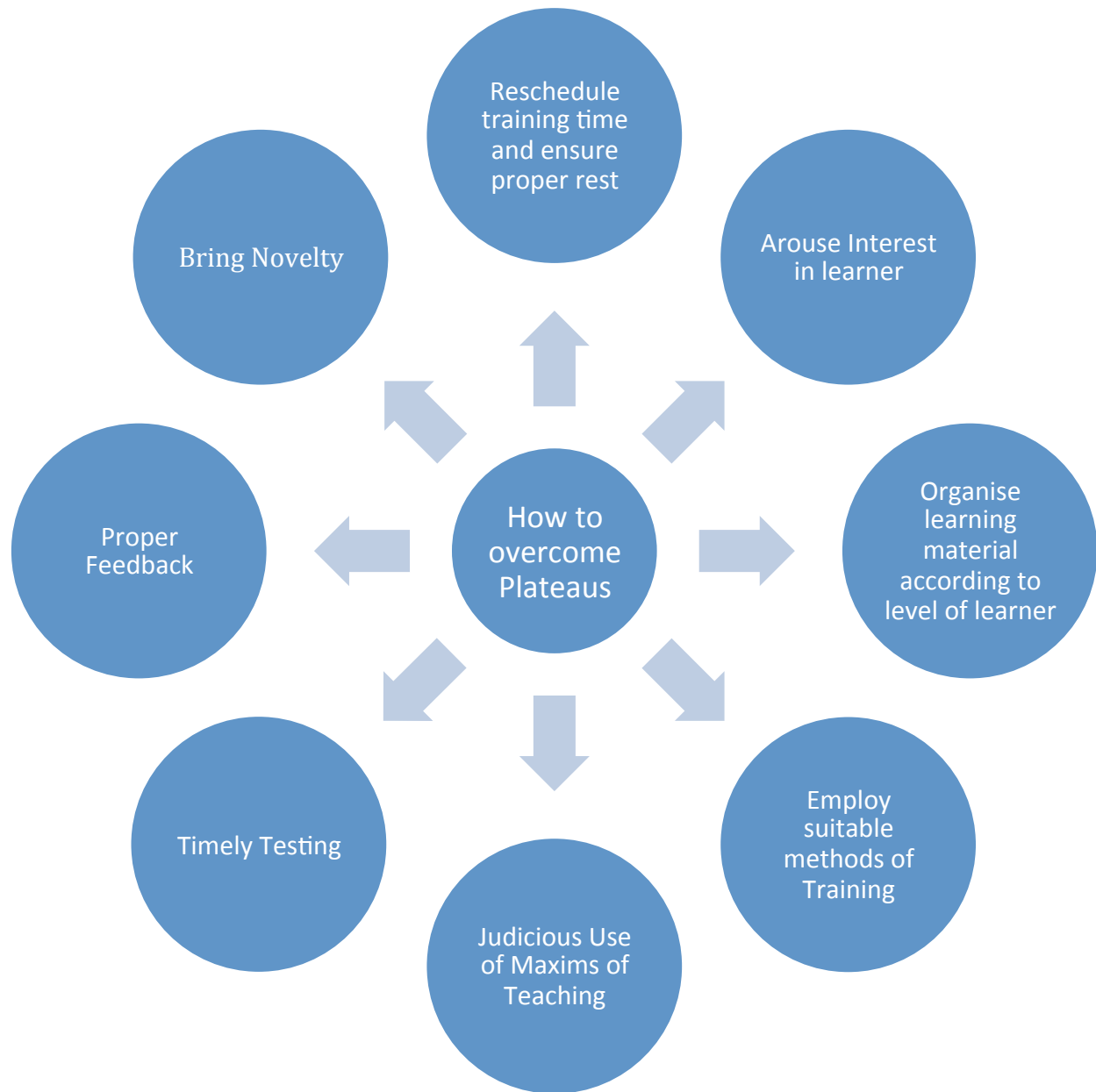
Now will have an appraisal of the factors responsible for plateaus.



- **Fatigue & boredom:** Sometimes fatigue and boredom become the potential cause of Plateaus.
- **Lack of Interest:** if the leaning material is not of interest of the leaner, plateaus occur.
- **Lack of motivation:**if learner is not appropriately motivated it may result in plateaus.
- **Lack of attention:**if appropriate attention is not paid or there is division or fluctuation of attention it causes plateaus.

- **Lack of persistency in practice:** if learners does not practice persistently it may manifest use of wrong and inconsistent methods of learning and doing practice may also become potential cause of plateaus
- If the learning material is unreasonably difficult for the mental level of the learners it, may result in plateaus.
- Lack of proper monitoring by experts (Teacher & Coaches) may become another cause of Plateaus.
- Timely testing slackens interest in learning thereby causing plateaus.
- Lack of proper feedback which causes Plateaus.

Now we will discuss how to overcome Plateaus



- To overcome Plateaus the learning or practice time should be rescheduled to ensure proper rest to the learner.
- Try to make the learning situation interesting or by arousing interest in the learner.
- Organizing the learning material according to level of the learner.
- Teachers and coaches should employ suitable methods of teaching & practicing.
- Teachers and coaches should judiciously make use of maxims of teaching & learning i.e.
 - They must proceed from simple to complex, know to unknown.
 - Whole to part

- Concrete to abstract
- Timely testing by experts can help to overcome Plateaus.
- Proper feedback by the teachers and coaches appropriately motivates the learner and can be helpful in overcoming Plateaus.
- Bring novelty into learning methods or change place of learning to overcome Plateaus.

To conclude, it can be said learning curves manifesting graphically the progress of learning are very useful for coaches and teachers. They are effective tool for ensuring efficient and proficient learning

Plateaus which are observed in learning curves, their appropriate appraisal helps coaches and teachers to bring desirable changes in learning situation to.

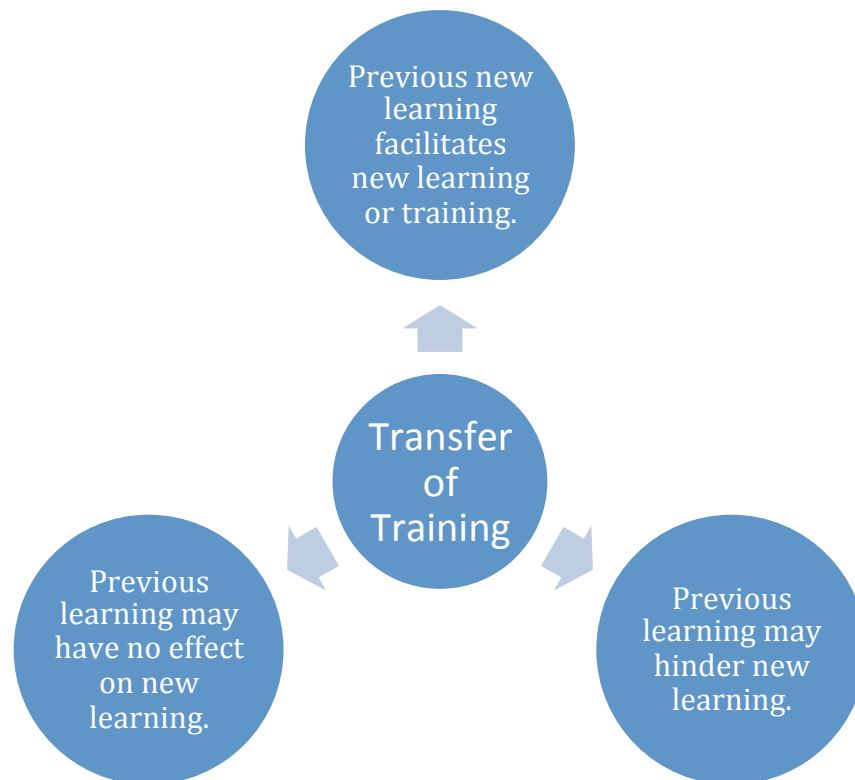
Well students while we were discussing the characteristics of learning, we discussed one of the important characteristics as transfer of learning, which is a very important determinant of interest to the parents, teachers and coaches.

Now we will discuss

- What is transfer?
- What are its different types of effects?
- Theories explaining nature of transfer.
- How we can achieve maximum transfer in teaching learning situations

Transfer of learning is the carry over effect of one learning situation to the other.

We learn so many things in our life. Sometimes when we learn a new task we find that it has been influenced by some of our previous learning or training. When a child learns tables he finds it easy to solve the mathematical problems of division and multiplication. Child who has mastered the cycling skill finds it easy to master the skill of driving scooter or motor cycle. A table tennis player can easily master law tennis. This way we find that learning in one situation helps learning or training in some other situation. Learning or training acquired in one situation have carry over effect in other situation. This carry over effect is not necessarily positive.



- Previous new learning or training facilitates new learning or training.
- It may hinder new learning.
- It may have no effect on new learning.

Transfer learning or training is defined differently by different psychologists

Crow and Crow viewed transfer of learning as “the carry-over of the habits of thinking, feeling, working of knowledge or of skills from one learning area to another.”

Sorenson defines Transfer of learning as “the transfer of knowledge, training and habits acquired in one situation to another situation.”

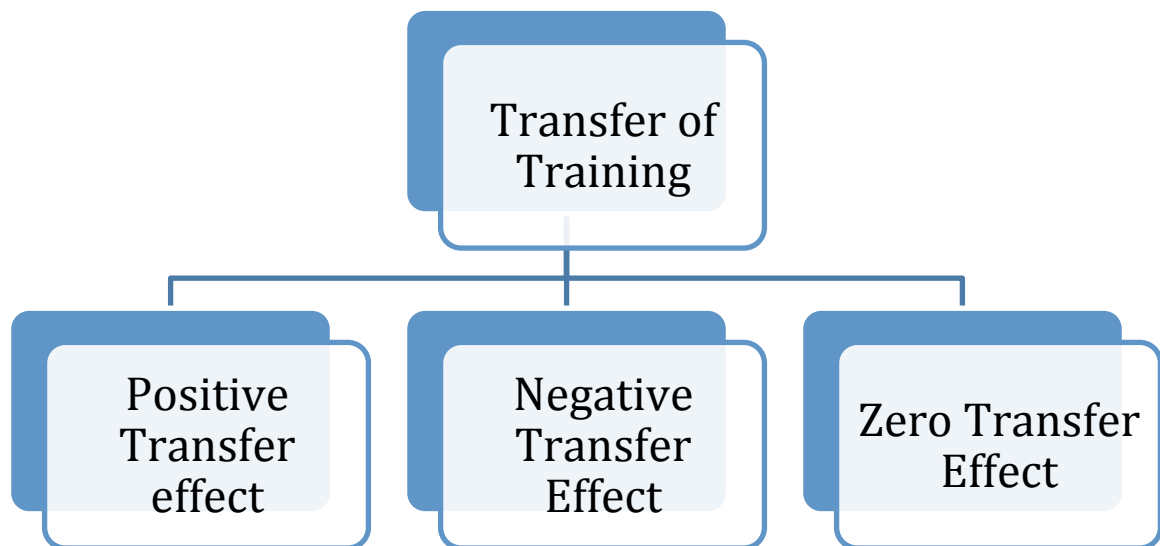
According to Ellis, “Transfer of learning means that experience of performance on one task influences performance of some subsequent task.”

In words of Peterson, “Transfer is generalization, for it is the extension of idea to a new field.”

Guthrie and Powers defines Transfer as “a process of extending and applying behaviors.”

In the light of definition discussed so far, we can conclude that transfer of training occurs, when the results of learning in one situation affects our performance in some different situations.

Transfer of training can be of various types:



1. Positive Transfer effect: when learning of one activity enhances or helps in new learning, transfer effect is said to be positive
2. Negative Transfer effect: when previous learning creates hindrance in new learning, it is called negative transfer effect.
3. Zero transfer effect: when previous learning neither facilitates new learning nor creates hindrance in new learning is zero transfer effect. In other words, it has nothing to do with new learning.

Theories of Transfer effect

Now, we will discuss certain theories of Transfer Effect

Phenomenon of transfer of training is of immense importance to psychologists educationists and coaches. They are interested to know how transfer of training takes place and how previous training interferes with new training. Psychologists, from time to time have tried to find out answer to this question and As a result of their effects to solve this question various theories have come up. today we will discuss various explaining Transfer of Training

First of all we will discuss

1. **Theory of mental discipline:** (faculty Theory) it is oldest theory explaining Transfer of Training. This theory has its roots in faculty psychology which assumes human mind bundle of numerous inter dependent faculties or powers like intelligence, memory,

imagination, judgment, observation, reasoning, thoughts. These powers or faculties are capable of working independently also. According to this thought mind is nothing but functioning of these faculties. These faculties according to this theory are 'Muscles of the mind' and like muscles of the body can be strengthened or improved through exercise. These faculties once strengthened or improved automatically function in all situations in which they are involved. According to proponents of this theory, Transfer of Training can be explained on the basis of strengthened faculties which advocates that situations having the application of similar faculties are supposed to have transfer effect due to strengthened faculties.

Faculty theory was challenged by William James who experimentally disapproved the faculty memory. Later it was disapproved by experiments of De SEIGHT and BRIGGS. Today this theory stands rejected.

2. **Theory of identical Elements:** Proponents of this theory explained the transfer of training on the basis of Identical Elements present in two situations. Later Woodworth supported this theory. Woodworth used the term components instead of elements.

According to this theory Transfer of Training can be explained on the basis of identical elements present in two situations. Mastery of mathematics helps the learner to learn physics easily to the extent that there are some common elements like symbols, formulae, equations, and numerical calculations. Similarly, mastery in typing skill can help to play piano because eye-finger co-ordination are common in both the situations. Learning scooter driving becomes easy for the learner who has learned cycling because of common elements of balancing skill, concentrating on traffic, traffic rules etc. In this way similarity in two situations with regards to common elements of

- ❖ Content
- ❖ Skill
- ❖ Attitude
- ❖ Method
- ❖ Aim
- ❖ Habits
- ❖ Interests

facilitate the process of transfer. Theory of identical elements was widely acclaimed in our day to day life we encounter hundreds of situations carrying identical elements so that mastery over one situation makes it easy for us to tackle another situation in a similar manner.

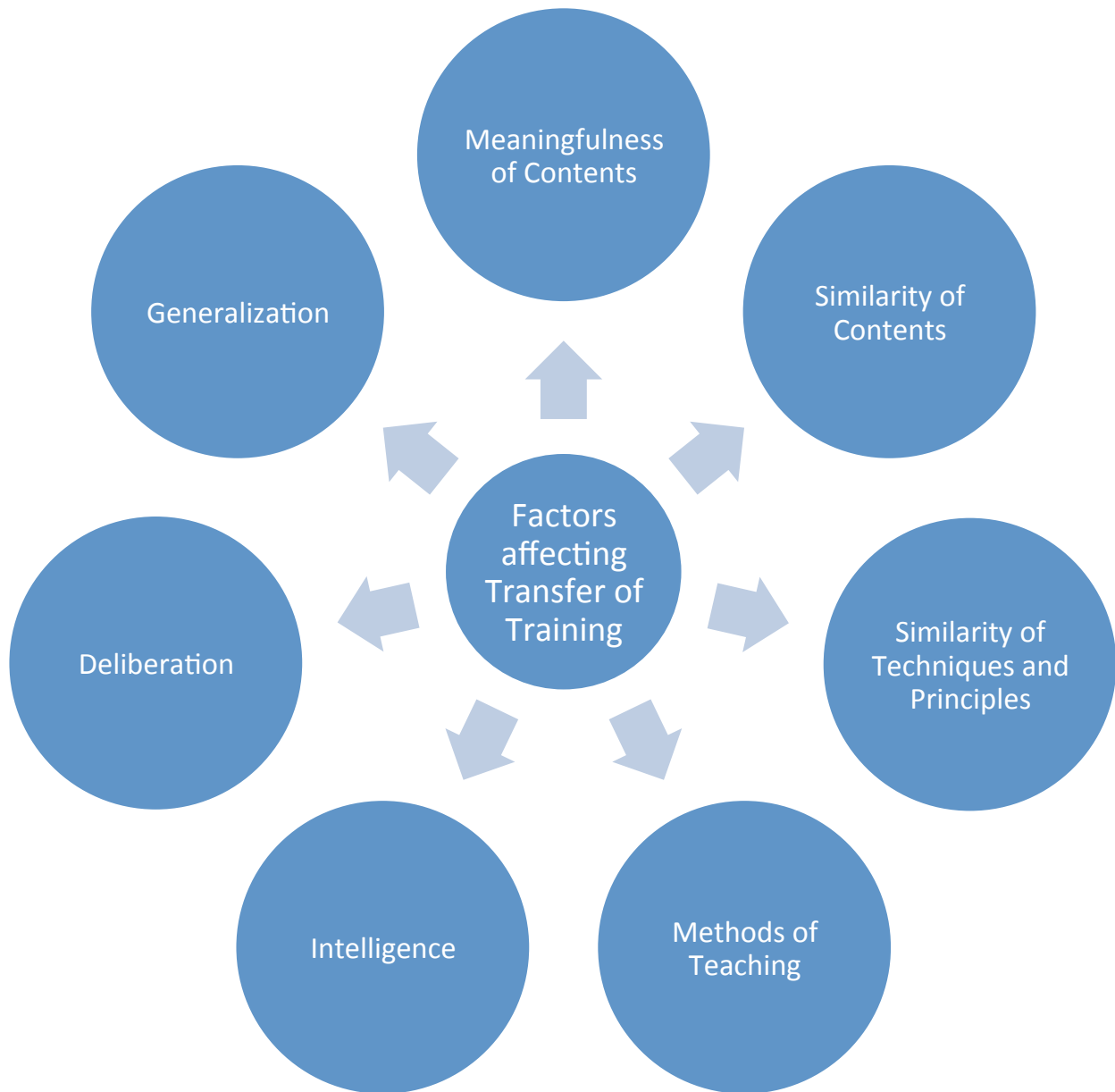
3. **Spearman's Two Factor Theory:**Based on two factor theory of intelligence spearman gave two factor theory of transfer. According to him learning depends upon two factors one is 'G' (general Factor) another is 'S' (Specific factor). 'G' factor is used in every activity whereas 'S' factor is used only in certain specific activities. He opined transfer is greater where 'G' is used and less where 'S' is used or same 'S' factor is used transfer is greater.
4. **Gestalt Theory of Transfer:**According to gestalt theory of transfer of training, transfer depends upon whole part relation between old and new situations. if the learner understands total situations transfer will be more and if he fails to master the total situation there is less likelihood of transfer so according to this theory, learner must understand the total situation while learning to take advantage of transfer in future learning
5. **Theory of Generalization:**Judd propounded theory of generalization to explain the nature of transfer of training. By generalization, we mean to find out relevant relationship between two situations. According to this theory experience in one situation could be generalized and applied in new situation. He experimented and supported his view of generalization.
6. **Theory of Ideals:** Bagley gave theory of ideals to explain Transfer of Training. According to him ideals are deeper than generalization. Ideals form the basis for Transfer of Training. When one adopts or forms ideals then learning becomes easier by way of profiting from Transfer of Training. Fore.g. ideals like thirst for knowledge, spirit of enquiry, love for wisdom are transferable from one subject to another hence enhancing new learning.

To sum up, we can say that these are certain theories that explain transfer of training.

Well students, as we know positive transfer of Training enhances new learning and negative transfer of training hinders new learning. It will be of the concern to teachers and coaches to

achieve maximum positive transfer effect and avoid negative transfer effect. For this purpose it is must that we must know, what effects transfer of training.

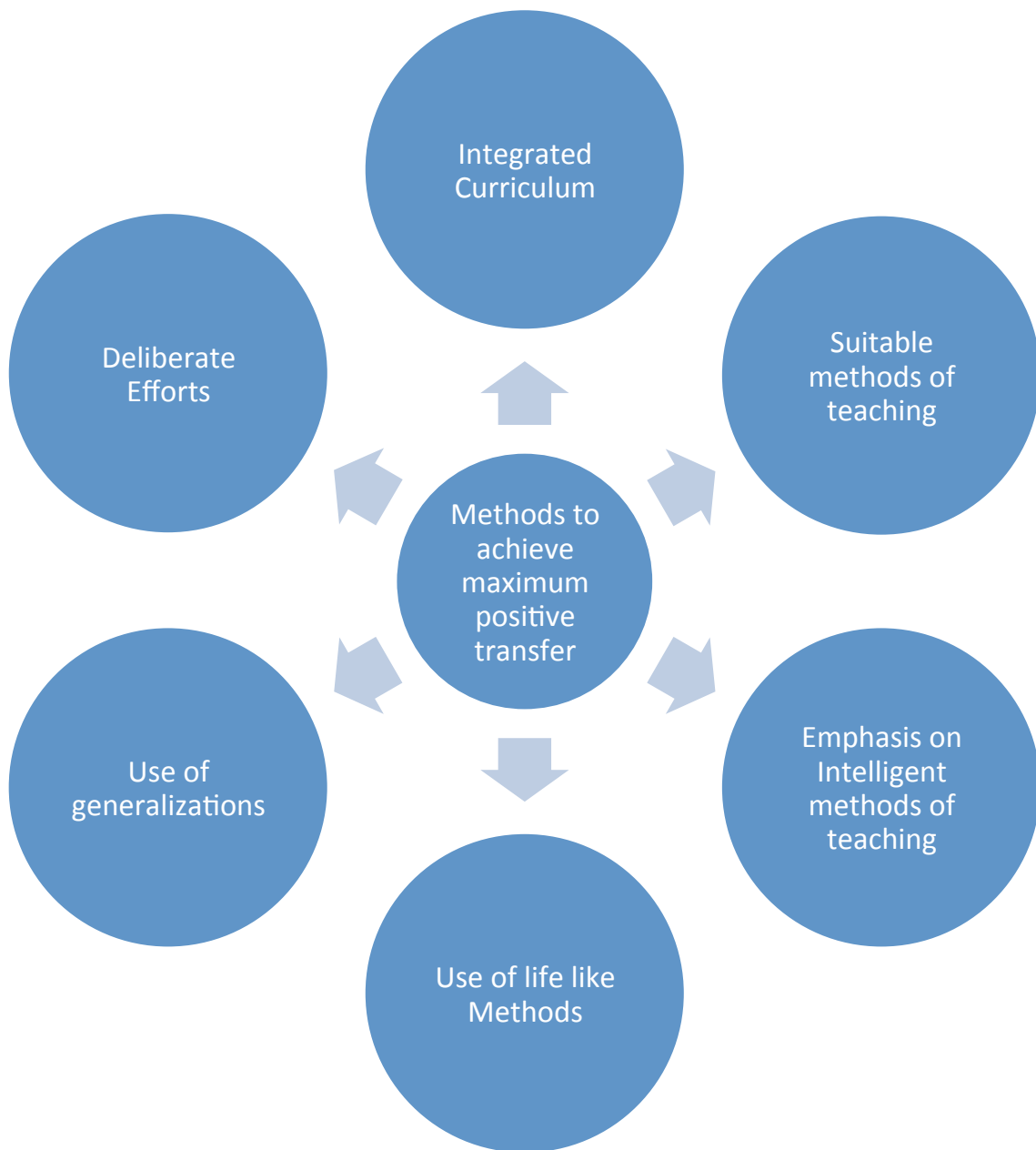
Now we will discuss FACTORS AFFECTING TRANSFER OF TRAINING



1. Meaningfulness of the contents: if the contents are meaningful, transfer will be more.
2. Similarity of the Contents: transfer of training is possible when there is similarity of contents between the two situations. For example, learning of table tennis and lawn tennis and learning cycling and scooter driving

3. Similarity of techniques and Principles: If the two situations contain similar techniques and fundamental principles, transfer will be more. For example, in football and hockey most of the techniques are common
4. Methods of teaching: transfer of training depends upon methods of teaching. If the methods of teaching are interesting, insightful and resembles life like situations, their chances of transfer will be more.
5. Intelligence: amount of transfer is directly related to Intelligence. More intelligent the learner is, more is the likelihood of profiting from transfer of training.
6. Deliberation: transfer of training depends upon deliberation on the part of the learner and the teachers.
7. Generalization: more we are able to generalize; more are the chances of transfer of training from one situation to other.

On the basis of the factors affecting transfer of training, we will now discuss how to achieve maximum positive transfer and avoid negative transfer.



Some of these are:

- Integrated curriculum
- Suitable methods of teaching like emphasis on correlation, coordination between theoretical and practical knowledge, emphasis on intelligent methods of learning.
- Use of life like methods
- Use of generalizations
- Deliberate efforts

To sum up, we can say that Knowledge of Transfer of Training ensures economical learning i.e. parents, teachers and coaches plan such learning situation or program which ensure positive transfer of training and avoid negative transfer effect.

That's all for today's lecture

Thank You