Learning Curve and its types with educational implications

Learning process is not always similar. There is more progress in sometimes, sometimes less and sometime absolutely nil. So, we cannot find out the rate of learning. But, psychologists have attempted to measure the progress in learning. They described the progress in learning by drawing a line on the graph paper. This line is curve, and not straight. So, it is called Learning curve.

This principle of learning involves the time factor and the repeated effort in order to gradually increase the strength of the response. This is especially true when the behaviours to be learned are comparatively complex such as skills that are learned and improved by practice. Learning curve is a diagrammatic presentation of the amount learned in relation to time.

The first person to describe the learning curve was Hermann Ebbinghaus in 1885. He found that the time required memorizing a nonsense syllable increased sharply as the number of syllables increased. Psychologist, Arthur Bills gave a more detailed description of learning curves in 1934. He also discussed the properties of different types of learning curves, such as negative acceleration, positive acceleration, plateaus.

DEFINITION

- According to Skinner, a learning curve is a progress representation of person's improvement or lack of improvement in a given activity.
- Raimers et.al defined the learning curve as a method of partial learning of a given activity.
- A learning curve is a graphical representation of how learning takes place in a particular situation – S.K.Mangal.
- Learning curve refers to the graphical relationship between the amount of learning and the time it takes to learn.

In the learning curve there are two scales: horizontal and vertical. The horizontal scale is called x-axis and the vertical scale is called y-axis. For drawing the learning graphs we divided the horizontal scale (x-axis) into units of time or the numbers of trials required for learning and the vertical scale (y-axis) into units of achievement, material studied or problem solved, etc.

STAGES

Normally learning curve comprises of four stages.

- Initial stage- It is also called lad phase. In lag phase the learning is merely zero for first few practices.
- Steep up stage- This is the second stage. It is also called log or exponential phase. In this stage the learning is suddenly increased and rate of improvement is substantial.
- Intermediate stage-
- It is also called Stationary Phase. Now, there is no progress in learning or improvement is arrested. So, it is called Plateau. Skinner says 'a plateau is a horizontal stretch indicative of apparent progress'. It places an important role in learning process because when such a stage is reached, a learning curve becomes almost flat.

Reasons for plateau in learning-

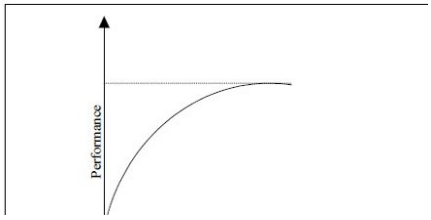
- Poor or faulty method of learning.
- Physical and mental fatigue or boredom
- Too much difficulty or complexity of the learning material
- Lack of proper motivation and loss of interest of the learner
- Poor and unfavorable environment
- Distraction and inattention of the learner

- Satisfaction of the learner with moderate achievement
- Final stage- This is the final stage. Here the learner has reach the maximum limit of the improvement.

Types of curves-

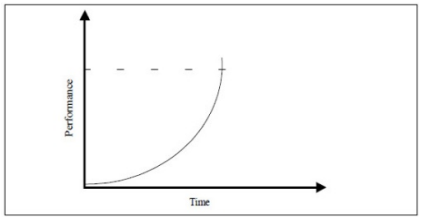
There are three types of learning curve based on the units which plotted.

- **Concave curve (**Positively accelerated learning curve)**-** This learning curve



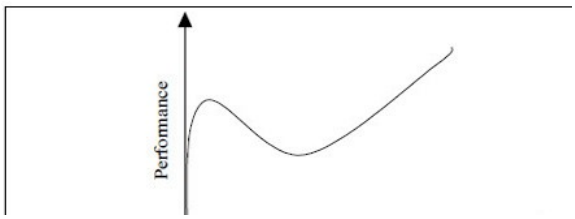
is also called positively accelerated curve. It depicts slow initial improvement in learning that increases with time leading towards the mastery of learning materials. At the initial the rate of progress may be slower, but at the final the learning rate increases noticeably. This learning curve is often occurring in the learning situation. Here the task may be new one or difficult one to the student at the beginning. But with the increasing practice he is mastery over that at the end.

- **Convex curve (**Negatively accelerated learning cure)- This learning curve is



also called negatively accelerated curve. It depicts rapid initial improvement in learning that decreases with time. At the initial the rate of progress maybe faster, but at the final the learning rate slows down noticeably. This learning curve is occurring in the learning situations where the task is simple or learner has had previous practice on a similar task.

- **Cancave and convex curve**- The third curve involves the combination of the first two concave and convex curves, is known as Concave-Convex Curve. It looks like an English letter 'S'. So called S-shaped curve. In the beginning this is depending upon the nature of the learner, learning material and the learning environment. It is normally obtained where the situation the learner study the entire learning from zero performance to its mastery.



- ***Slow Learning:*** The initial stage in the above curve is that of slow learning because of the newness and difficulty of skill. Once the learner has acquired some basics of his operations, he gains some confidence and this results in the second stage of increasing returns.
- ***Increasing Returns:*** The learner gains confidence in this stage. He has acquired the required skill. This results in the third stage.
- ***Plateau:*** When the learner feels that he has acquired the required skills, he reaches a comparative plateau where no further gains in skills are acquired. However, this may be a false plateau and the learner may be developing new ideas in improving efficiency.
- ***Peak Proficiency:*** The development and application of new ideas may further improve upon his skill until he reaches the peak inefficiency, beyond which the skill becomes a kind of habit and an integral part of operations.
- ***Over Learning:*** When the skill becomes a kind of habit, the period is termed as over learning because the learning becomes automatic and unforgettable.

Characteristics of learning curve

- There is an initial improvement whether it is slow or rapid.
- No stage learning progress is uniform. There are various ups and downs (spurts) in the learning curve even a general acceleration is recorded.
- In between the beginning and end of the learning curve, there is no improvement in learning is called plateau (flat or stationary stage).
- At the final stage in the learning curve, we can find whether there is any little learning or no learning takes place.
- After reaching the stationary stage or plateau the learning curve again shows some improvement with spurts.

Educational implications

- The teacher should keep in his mind the individual differences of the learners.
- The teacher has to choose or use proper method of teaching and techniques and environment by the guidance of the learning curves of his students.
- The students may acquaint with their own progress in learning. It can give them the opportunity of self-appraisal.
- The unusual spurt reveals about the fatigue, poor motivation, poor method of teaching and other personality characters of the learner. The teacher can make use of his knowledge in studying the behaviour of the student and eliminate the plateau.

Efficient methods creating interest, making aware of the goals, moving simple to complex, providing motivation, minimizing the distraction factors are used to eliminate the plateau.