

### Introduction

Although Sidney Pressey (1927) originated programmed learning, B. F. Skinner (1958) popularized it. Skinner's approach has been called linear in nature and involves the following features:

- **Learners are exposed** to small amounts of information and proceed from one frame or one item of information, to the next in an orderly fashion (this is what is meant by linear)
- **Learners respond** overtly so that their correct responses can be rewarded and their incorrect responses can be corrected
- **Learners are informed immediately** about whether or not their response is correct (feedback)
- **Learners proceed** at their own pace (self-pacing)

Credit:

[http://www.nwlink.com/~donclark/hrd/media/programmed\\_learning.html](http://www.nwlink.com/~donclark/hrd/media/programmed_learning.html)  
[http://edutechwiki.unige.ch/en/Programmed\\_instruction](http://edutechwiki.unige.ch/en/Programmed_instruction)

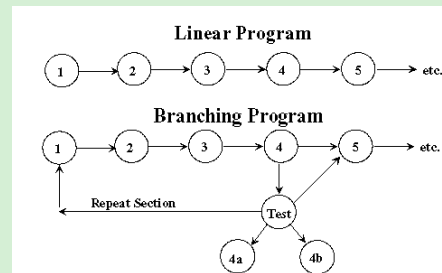
### Linear & Branching Programmed Learning

**Linear:** Programmed instruction is a method of presenting new subject matters to students in a graded sequence of controlled steps. Students work through the programmed material by themselves at their own speed and after each step test their comprehension by answering an examination question or filling in a diagram. They are then immediately shown the correct answer or given additional information. Computers and other types of teaching machines are often used to present the material, although books may also be used. **Crowder's intrinsic or Branching program:** Programmed instruction consists of a network of statements and tests, which direct the student to new statements depending on his pattern of errors. It is based on a particular tool which is called teaching machine.

### Multiple Choice Questions

After the learners have been presented a certain amount of information, they are given a multiple-choice question. If they answer correctly they branch to the next body of information. If they are incorrect, they are directed to additional information, depending on the mistake they made. Many CBT training courses are based on the concept of linear or branching programmed learning.

### Diagram



### Program Learning is Effective

Programmed learning has been proven to be effective (Schramm, 1964). A review of 165 studies of programmed learning was made. Of 36 studies that compared programmed learning with the more traditional kinds of training, 17 found programmed instruction to be more effective, 18 found both kinds of instruction to be equally effective, and only one found traditional training to be more effective.

### Skinner's operant conditioning

Programmed instruction is based on Skinner's "operant conditioning", a (behaviorist theory stating that learning is change in behavior, i.e. the individual's response to events (stimuli). Behavior can be conditioned by rewarding the right stimulus-response patterns.

According to Greg Kearsley:

- Behavior that is positively reinforced will reoccur; intermittent reinforcement is particularly effective
- Information should be presented in small amounts so that responses can be reinforced ("shaping")
- Reinforcements will generalize across similar stimuli ("stimulus generalization") producing secondary conditioning

### The architectures of programmed instruction

Programmed instruction has the following core elements:

- Contents are broken down into pieces of instructions called frames. A frame contains statements and questions.
- Learners then read the frame and immediately answer a question about the frame
- There is an immediate feedback about the correctness of the frame (usually in a different place)
- Instruction is self-paced and learners are active (in the sense of reactive)



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