Learning Styles

A brief overview of differences in human learning characteristics

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Gordon (1998) uses Griggs (1991, p.7) definition of learning style, who defines it as the:

**"Composite of characteristic cognitive,
affective, and
psychological factors**

**that serve as relatively stable indicators of how a learner
perceives,
interacts with, and
responds to
the learning environment."**

[emphasis and text arrangement mine]

It is important to note that learning styles is not related to intelligence, mental ability or actual learning performance. A particular learning style is no better than another style.

Keefe (1991) states that learning style is both a student characteristic and an instructional strategy. As a student characteristic, learning style *indicates how a student learns and likes to learn*. As an instructional strategy, it informs the cognition, context, and content of learning. [Italics mine]. Keefe expands the Griggs definition to include physiological/environmental characteristics. Further, he states the basis of learning styles lies in the structure of neural organization and personality which both molds and is molded by human development and the learning experiences of home, school, and society (Keefe and Languis, 1983). In other words, the learner's cognitive information processing mechanism coupled with their life experiences form the core their learning style.

Cognitive Styles are the information processing habits which represent a person's typical modes of perceiving, thinking, remembering, and problem solving (Messick, 1969 in Keefe, 1991).

Affective Styles are motivational processes—attention, expectancy, incentive—viewed as the learner's typical modes of arousing, directing, and sustaining behavior (Keefe, 1979).

Physiological Styles are biologically-based modes of response that founded on sex-related differences, personal nutrition and health, and accustomed reaction to the physical environment (Keefe, 1979).

In situations where the learner's learning style does not match the learning environment, a remediational approach to style is best used, which stresses the importance of retraining learner cognitive skills for coping with existing learning environments. Some cognitive skills are more productive of school achievement that others, and that sometimes learner skills need to be augmented (remediated) for any real learning to take place (Keefe, 1991).

Keefe's work with the National Association of Secondary School Principals (NASSP) produced a learning style instrument in 1986—the NASSP Learning Style Profile (LSP). Research identified 24 significant perceptual responses, cognitive styles, motivational orientations, and environmental preferences. Table 1 shows the elements grouped in four higher factors.

I.Perceptual responses	Visual Auditory Emotive	
II. Cognitive or information processing styles	Sequential processing Simultaneous processing Discrimination Analytic	Spatial Memory Categorization Verbal-spatial
III. Study preferences	Persistence Posture Mobility	Sound Lighting Afternoon study time
IV. Instructional preferences	Verbal risk Grouping Manipulative	Temperature Early morning study time Late morning study time

Table 1

Research has not produced conclusive evidence about learning styles, rather insight about learning styles can be gained from information about learning conditions and cognitive learning styles (Gordon, 1998). Most learning style research has involved assessment of the psychological dimension called field-dependence/independence.

Field dependent and field independent characteristics have the broadest application to education concerns. Table 2 summarizes the characteristics and behaviors associated with the field-dependent/independent learning styles (Gordon, 1998).

Field-dependence/independence learning style scores can be measured by the Group Embedded Figures Test (GEFT) (Witkin, Ottman, Raskin, & Karp, 1971).

It is important to note that an individual's learning style is not likely to be easily categorized as described. Learning styles are distributed along a continuum of a bipolar scale. The different learning style definitions and associated scales are described below.

Dunn and Dunn (1978, in Gordon, 1991) designed a Learning Style Inventory for school-age learners and a second instrument for adult learners which includes four individual preference areas:

- Immediate **physical environment** (light, sound, temperature levels, choice or arrangement of furniture).
- Individual **emotionality** (motivation, taking responsibility, task persistence)

- Individual **sociological needs** (self-oriented, peer or group oriented, adult oriented, or combined orientations)
- Individual **physical needs** (perceptual preferences, mobility, time management)

Field-Dependent	Field-Independent
Find it difficult to learn when the learning task involves several steps	Able to accomplish learning tasks that involve several steps
Experience difficulty in problem solving situations	Good at analytical problem-solving
Prefer to have answers provided by the instructor	Prefer an inquiry approach to learning
Prefer externally defined goals and organization	Can provide their own structure to learning activities
Prefer a spectator approach to learning	Prefer trial and error as opposed to being shown how
Value positive reinforcement from the teacher	Do not typically respond to positive reinforcement offered by teachers
Have well-developed social skills and are more attuned to social cues	Have poorly developed social skills and are more socially independent
Favor extrinsic motivation	Are intrinsically motivated
Prefer collaboration	Prefer competition

Table 2. Field Dependence/Independence Characteristics

Another approach described by Gordon (1998) that was developed by Felder and Silverman (1988) uses one set of common categories for analysis:

1. How information is perceived
   - Visual — *see*
   - Auditory — *hear*
2. Type of information preferentially perceived
   - Sensory (external) — *sense outside oneself*
   - Intuitive (internal) — *intuit inside oneself*
3. How information is organized
   - Inductive — *build up principles*
   - Deductive — *break down principles*
4. How information is processed
   - Actively — *extrovert*
   - Reflectively — *introvert*
5. How progress toward understanding takes place
   - Sequentially — *serially*
   - Globally — *holistically*

Additional self-scoring inventories that help individual learners and instructors identify cognitive learning styles includes the Kolb Learning Style Inventory and the Myers-Briggs Type Indicator.

The Gregorc Style Delineator defines “four channels” through which the mind receives and expressed information most efficiently and effectively as mediation abilities. The two mediation abilities that have the greatest effect on learning are perception and order.

Perception Abilities: The means through which a learner grasps information from the environment as either *abstract* or *concrete*.

Order Abilities: The ways in which a learner arranges, systematizes, references, and disposes information can be either *sequentially* or *randomly*.

Most individuals are predisposed strongly toward one, two or even three styles, but rarely all four. The possible combinations of perception and ordering abilities are:

Concrete Sequential (CS)
Abstract Sequential (AS)
Abstract Random (AR)
Concrete Random (CR)

Gordon goes on to describe how teachers can best use this information about learning styles to improve the performance of their students or change the environment to increase the chance of success. The last important topic covered in his paper is the learning modalites and selected teaching techniques. In brief, the learning modalities are:

- Kinesthetic (the doers)
- Tactual (sensitive students)
- Auditory (yakkety yak)
- Visual (the eyes have it)

References

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