

## DIFFERENTIATING TEACHING ACCORDING TO INDIVIDUAL LEARNING STYLE: OPTIONS AND SUGGESTIONS

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### ABSTRACT

Learning styles vary across individuals. There are more than 71 learning styles that have been identified along at least twenty different dimensions. Learning style proponents recommend that teachers adapt their pedagogical approaches to best fit each learner's style preference. The first part of this paper reviews early research on learning styles. Then a number of instruments for measuring learning styles are discussed. In the end, this paper suggests some options concerning differentiating teaching according to individual learning style.

**Keywords:** Learning style, the flexible approach, the compensatory approach.

### INTRODUCTION

Individuals differ in how they learn. Quite a few studies have been devoted to elucidating how learning styles are related to success in language learning and to what extent they are related (Cohen, 1998; Ehrman & Leaver, 2003; Reid, 1995). However, there is no general agreement about what learning styles consist of or how to measure them. 'Style' is a term that refers to consistent and rather enduring preferences within an individual that differentiate her or him from others. Learning styles are thought of as cognitive, affective and physiological traits that are relatively stable indicators of how learners perceive, interact with, and respond to the learning environment (Brown, 2014). Some researchers have made use of instruments borrowed from psychology, while others have developed definitions for learning styles based on direct observation (Ellis, 2008).

### EARLY STUDIES ON LEARNING STYLES

Over the decades, educators and psychologists have identified a long list of cognitive, affective, intellectual, cultural and sensory factors for possible learning styles. They use different terminologies when classifying learning styles. They also divide in rubrics for measuring them. The following table lists a few of the more salient learning styles that have been identified.

**Table 1. Taxonomy of learning styles**

<p><b>Impulsive</b> (This style is characterized by under-focused attention, distractibility, and premature decision making. Impulsive learners prefer to focus on the overall picture, which takes less time) vs. <b>Reflective</b> (Reflective learners prefer to think about things quietly first and analyse fine details.)</p>	<p>Bruner et. al., 1956; Guilford, 1956; Kagan, 1965</p>
<p><b>Holistic/ Global</b> (Global learners put things together in novel ways once they have grasped the big picture.) vs. <b>Serial/ Sequential</b> (Sequential</p>	<p>Pask &amp; Scott, 1971, 1972; Daniel, 1975</p>

learners tend to gain understanding in linear, logical stepwise paths.)	
<b>Field Dependent</b> (FD learners tend to seek out external referents for processing and structuring information.) vs. <b>Field Independent</b> (FI learners are capable of developing own internal referents and restructuring own knowledge.)	Witkin et. al., 1977; Witkin & Goodenough, 1981; Hensen & Stansfield, 1981; Day, 1986; Abraham, 1985; Chapelle & Roberts, 1986; Goodenough, 1986; Oxford, 1990; Oxford et al., 2014
<b>Global</b> (big picture) vs. <b>Particular</b> (attention to details)	Harshbarger et al., 1985; Ellis, 1989
<b>Synthetic</b> (integrative) vs. <b>Analytical</b> (systematizing)	Barbe et al., 1979; Dunn, Dunn & Price, 1989; Dunn, 1984; Reid, 1987; Willing, 1988
<b>Inductive</b> (Inductive reasoning learners prefer a bottom-up approach, moving from the more specific to the more general and draw conclusions). vs <b>Deductive</b> (Deductive reasoning learners prefer a top-down approach which moves from the more general to the more specific).	Clahsen, 1985
<b>Intuitive-random</b> (Intuitive learners prefer discovering possibilities and relationships.) vs. Concrete-sequential ( <b>Sensing</b> ) (Sensing learners tend to like learning facts.)	Gregorc, 1979; Myers & McCauley, 1985
<b>Visual, Auditory, Kinaesthetic</b> (VAK) or Tactile (Learners use one to three modalities to receive and learn new information and experiences. Visual learning style involves the use of seen or observed things. Auditory learning style involves the transfer of information through listening. Kinaesthetic learning involves physical experience. Kinaesthetic learners do best while touching and moving.)	Barbe, Swassing & Milone, 1979; Fleming, 2014 Dunn, Dunn & Price, 1989; Reid, 1987; Willing, 1988
<b>Accommodating</b> (feeling and doing-CE/AE), <b>Converging</b> (thinking and doing-AC/AE), <b>Diverging</b> (feeling and watching CE/RO) and <b>Assimilating</b> (thinking and watching-AC/RO) Doing (Active Experimentation - AE) Watching (Reflective Observation - RO) Feeling (Concrete Experience - CE) Thinking (Abstract Conceptualization - AC)	Kolb, 1985, 2015
<b>Comprehension</b> (This learning style adopts a global approach to the task and pays a wide focus of attention to building the big picture before filling in the details.) vs. <b>Operation</b> (This learning style involves progressing step by step.)	Clahsen, 1985
<b>Communication-oriented</b> (Communication-oriented learners seek to develop their capacity to communicate effectively.) vs. <b>Norm-oriented</b> (Norm-oriented learners are concerned with developing knowledge based on rules and norms.)	Clahsen, 1985

<b>Passive</b> (Passive learners demonstrate indifference, dependence and a narrow focus.) vs. <b>Active</b> (Active learners exhibit curiosity, initiative and a wide focus while selecting information on their own.)	Dechert, 1984; Wenden, 1991; Willing, 1988
<b>Feeling</b> vs. <b>Thinking</b> (refers to the process of making choices. A decision based on feeling emphasizes subjective and personal factors while a decision based on thinking stresses the importance of objectivity and justice.)	Myers & McCauley, 1985
<b>Extroversion</b> vs. <b>Introversion</b> (Extroverts find energy in relation to people in learning and doing things while introverts find energy in their inner world of ideas, concepts and abstractions and prefer internal activities and solitary work.)	Willing, 1988; Oxford, 1990, 2011
<b>Ambiguity Tolerance</b> (AT learners tend to perceive ambiguous situations as desirable.) vs. <b>Ambiguity Intolerance</b> (AI learners tend to perceive or interpret ambiguous situations as sources of threat.)	Naiman et al., 1978; Roberts, 1986
<b>Left-brain</b> dominance vs. <b>Right-brain</b> dominance (may influence how people receive and process information differently. The left brain processes information sequentially. In contrast, the right brain perceives and processes information even while it is in the process of changing.)	Joseph, 2012; Torrance, 1980, Danesi, 1988
Open-oriented ( <b>Perceiving</b> ) vs. Closure-oriented ( <b>Judging</b> ) (refers to ways of responding to the outer world. Judging people tend to be more careful and inhibited while Perceiving people tend to be spontaneous.)	Myers & McCauley, 1985

Carrell and Monroe (2013) used the MBTI (Myers-Briggs Type Indicator) to investigate how learning styles influence ESL college students at different levels of English proficiency in a writing class. They found that ESL students who were Intuitive, Feeling and Perceiving as opposed to Sensing, Thinking and Judging tended to use a greater diversity of lexis in their writing, regardless of the proficiency levels. The Thinking students preferred a structure-driven writing process. Therefore, they were put in a traditional composition class, which emphasizes structure, encourages outlining to generate ideas and uses analytical writing tasks. Data results showed that there was a positive relationship between the Thinking students' preference style and their success. In contrast, due to style incompatibility, the Feeling students did not perform well in the traditional composition class.

In a study on student-teacher style differences in a multicultural tertiary ESL setting, Wallace and Oxford (1992) found that in writing class, style differences between students and teachers negatively affected student grades, while in the situation of style congruence, students did better. In reading and grammar class, the mismatch between instructional styles and learning styles had a negative impact on academic performance for a significant number of students.

In a survey of vocabulary learning, Sanaoui (2005) discovered that the Analytical learners taught in the structured class were more successful in retaining vocabulary. A structured approach was also found to be more effective for both beginners and advanced learners. Furthermore, some learners seemed to learn best when the vocabulary items were presented in graphic form, while some learned best when the target words were orally repeated. A majority of the students could remember the target words better if the analysis opportunity was given. Some learners learned better through imitation while some performed better through inductive or deductive exercises. Quite a few seemed to be flexible in learning vocabulary when exposed to a variety of stimuli.

Elliott (1995) compared the pronunciation accuracy of Spanish learners with the FI/FD style and the right/left brain dominance. He found that brain function lateralization is related to pronunciation accuracy in certain tasks. The result supported Leaver et al. (2005) speculation that individuals with a strong right brain have better pronunciation. Oxford (1990) reported that the left hemisphere of the brain deals with language through analysis and abstraction, while the right hemisphere recognizes language through auditory or visual patterns.

Ellis (1993) conducted a survey on L2 acquisition, in which two types of learners received the same instruction (form-focused and teacher-centred). Data results showed that the two learners did manifest identifiable styles of learning. One learner's style was exclusively experiential, while the other's learning style was more balanced. Suffering from tension and stress, the Experiential learner adapted her style to the requirements of the course. The other learner also adapted her style, because of her strong instrumental need to succeed. The course proved a painful experience to the Experiential learner and she was unable to perform effectively. This implies that her chosen learning style might not have been the style she was naturally suited to. For this result, Ellis (1993) concluded that "learners do benefit if the instruction suits their learning styles, but if it does not, they may be able to adapt, at some cost to their own ease of mind and the type of proficiency they develop" (p. 187).

To identify learning styles, a number of assessment instruments have been created and utilized as below. They are used to help learners to identify their own preferences, propensities, abilities, strengths and weaknesses.

**Table 2. Instruments for identifying learning styles**

Style Orientation/Analysis Survey	Oxford, 1990, 2011
Learning Style Inventory (LSI)	Kolb, 2015, Dunn, Dunn & Price, 1989; Canfield & Lafferty, 1981
Learning Style Indicator	Wintergerst, DeCapua & Itzen, 2001
Myers-Briggs Type Indicator (MBTI)	Myers & Briggs, 1976
Modern Language Aptitude Test (MLAT)	Carroll & Sapon, 1957
Group Embedded Figures Test (GEFT)	Witkin, Oltman, Raskin, & Karp, 1971
Child Rating Form	Ramírez & Castenada, 1974
Edmonds Learning Style Identification Exercise (ELSIE)	Reinert, 1970, 1976
Learning Channel Preference Checklist	O'Brien, 1990
Educational Cognitive Style, Cognitive Preference Inventory, Cognitive Style Interest Inventory	Hill, 1971
Teacher Assessment of Student Learning Styles	Hunt, 1979

Paragraph Completion Method (PCM)	Hunt, 1979
Learning Style Inventory (CE, RO, AC, AE) Doing (Active Experimentation - AE) Watching (Reflective Observation - RO) Feeling (Concrete Experience - CE) Thinking (Abstract Conceptualization - AC)	Kolb, 2015
Transaction Ability Inventory	Gregorc, 1979
Inventory of Learning Processes	Schmeck, 1988
Keirsey Temperament Sorter	Keirsey & Bates, 1984
Human Information Processing Survey (HIPS)	Taggart & Torrance, 1984

Among various instruments, the most common measure is self-check questionnaires in which test-takers respond to a list of questions along a scale of 5 to 7 points of agreement and disagreement. Corbett and Smith (1984) first came up with the issue of reliability in measuring learning styles. Measurement through self-check questionnaires is not objective (Jones, 2009). The reported style preferences reflect the learner's preferred approaches rather than immutable traits. Learners can be influenced by varying situations and contexts. For instance, field independent (FI) and field dependent (FD) styles are not in complementary distribution. Learners are able to exercise both FI and FD learning styles depending on the task in which they are engaged.

Naiman et al. (1978) have tried to identify the learning styles of good language learners. Due to the multi-facets of learning styles, they failed to reach a conclusion concerning the relationship with achievement.

## OPTIONS OF DIFFERENTIATING TEACHING

Everyone can learn under the right circumstances. Under this premise, differentiating teaching means teaching the same material to all students using a variety of instructional approaches, or it may require the teacher to deliver lessons at varying levels of difficulty based on the ability of each student. It is worth noting here that differentiating teaching is not a point, but rather a continuum (Altman, 1980).

Some educators presume that a learning style, like aptitude, is immutable (Reinert, 1976). It remains consistent regardless of the learning environment. Therefore, they suggest that students should be exposed to a teaching style that is consistent with their learning style. Counter to this presumption, Tarone (1980) found that style shifting occurs when the same person responds to different contexts. Dorsey and Pierson (1984) also discovered that age, experience and culture influence learning styles. In response to divergent views, three approaches to differentiating teaching according to learning styles are suggested.

## THE FLEXIBLE APPROACH

In view of a diversity of learning styles that are likely to be present in any group of learners and the absence of reliable measures for assessing learning styles, Hunt (1976) and Dunn, Dunn and Price (1989) proposed teacher flexibility. From the pedagogical point of view, even if a group of learners have the same style preference, they may not necessarily benefit from the same instructional activity that is assumed to fit their learning style.

In the survey of adult migrant education, Willing (1988) noted that “teachers are able to respond appropriately to a broad spectrum of learning style differences if the need for that diversified response is clear” (p. 88). Trautmann (1979) defined differentiated teaching as planned differences in instructional style. Friedman and Alley (1984) suggested that flexible teacher guidance can motivate students to identify and utilise their preferred learning styles.

To add teacher flexibility, variety is suggested to be taken into account when planning classroom activities.

### **THE MATCHING APPROACH**

Willing (1988) suggested that teachers can differentiate their students through direct observation based on the following polarities:

- Prefer to work alone vs. Work with others
- Like a step-by-step presentation vs. a holistic presentation
- Want to organise own material vs. Want teachers to prepare and explain the material
- Rely on the spoken word vs. the written word
- Focus on the learning itself vs. Immersion in realistic situations
- Prefers a structured form vs. an unstructured form

Once general learning styles have been identified, “any learning arrangement should be structured to permit differentiated teaching to be carried out in an on-going way within that arrangement” (Willing, 1988, p. 169). This can be done through matching.

Matching means that instruction is individualised for groups of students with similar learning styles in such a way that the student has the opportunity of utilising those cognitive skills in which he or she is particularly strong (Rivers & Melvin, 1981). Matching enables students to perform the task more efficiently and therefore results in efficient learning. The matching approach is also advocated by Nunney (1977), Lepke (1977) and Reinert (1976) for foreign language learning. Ellis (1989) proposed that matching is best achieved by the teacher catering for individual needs, emphasizing group dynamics and offering a range of activities during the moment-by-moment process of teaching.

### **THE COMPENSATORY APPROACH**

Different from the matching approach, the compensatory approach stresses the importance of remediation (Birckbichler & Omaggio, 1978). Instead of tailoring instruction to fit a student’s particular strength, students are assigned to special activities for those aspects of the learning task where their skills are weak. Salomen (1972) proposed the compensatory mode and the preferential mode to complement strengths and weaknesses. By complementarity or similarity, deficiency in a particular ability can be filled or remedied. As Rivers and Melvin (1981) have noted, “students, once aware of their own weak points, may be able to consciously plan compensatory strategies” (p. 90).

For this reason, Oxford, Hollaway and Horton-Murillo (1992) offered some recommendations:

1. Assess the learning styles of both teachers and students through more than one style measure.
2. Provide a variety of activities to meet the needs of students with different learning styles.



3. Grouping learners into broad types makes differentiated teaching more feasible. As Oxford, Hollaway and Horton-Murillo (1992) have indicated, teachers can try style-alike groups for greatest efficiency and use style-varied groups for generating greater flexibility. The latter makes learning lively, while the former ensures that the teamwork is done in good order. Johnson, Johnson and Holubec (1986) advocate co-operative learning in that it can accommodate a variety of learning styles.
4. Design activities where learners can find some section of the class that particularly appeals to them to reduce their fear or anxiety.
5. Incorporate learning strategies into lesson plans (e.g. O'Malley & Chamot, 1990; Oxford, 2011.)
6. If there is a style conflict, help students view different learning styles as opportunities for growth.

## CONCLUSION

Early research aimed to delineate learner styles, which were presumed to influence an individual's mastery of a learning task. Most work in this area was based on the assumption that individuals would be able to learn with their best abilities (Diller, 1981) under differentiated teaching, which accommodates learner style differences. Recent research focuses on the effects of differentiated teaching according to learning styles.

Learning style assessment, observation, interviews and questionnaires are helpful in defining the instructional situation and in determining an optimal pedagogical approach. The learning style information can be used as follows:

1. Teachers can adapt instructional styles to students' learning styles on both micro and macro scales.
2. At a gross level, a teacher needs to cater for the factors that a class has in common. At a finer level, the teacher has to cater for the differences between individuals in the class by providing opportunities for each of them to benefit in their own way.
3. Learning style information helps in training learners to develop greater awareness of their most efficient ways of learning and to actively seek appropriate learning conditions.
4. It can be used as a resource in adjusting classroom practice to the individual needs of learners.

In conclusion, instructors who practice differentiation in the classroom may (1) design lessons based on students' learning styles, (2) group students by shared interest, topic or ability for assignments, and (3) continually assess and adjust lesson content to meet students' needs.

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