Intelligences and styles in language teaching: what is the difference?

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ABSTRACT:
This article deals with a hypothesis of distinction between intelligences and learning styles, which are two commonly confused psychological constructs. In addition, we consider a possible application of Gardner's theory to language teaching[1].
Key words: Intelligences, Learning Styles, Learner Autonomy.

Inteligencias y estilos de aprendizaje en la enseñanza de la lengua: ¿Cuál es la diferencia?

RESUMEN:
Este artículo se ocupa de una hipótesis acerca de la distinción entre las inteligencias y los estilos de aprendizaje, que son dos construcciones psicológicas comúnmente confundidas. Además consideramos un uso posible de la teoría de Gardner a la enseñanza de la lengua.
Palabras clave:Inteligencias, Estilos de aprendizaje, Autonomía del estudiante.

Intelligences et styles d'apprentissage dans l'enseignement du langage: Quelle est la différence?

RÉSUMÉ:
Cet article traite de l'hypothèse d'une distinction entre le type d'intelligence et le type d'apprentissage: on croit trop souvent qu'ils sont liés psychologiquement. De plus, nous examinerons la possibilité d'une application de la théorie de Gardner sur l'apprentissage des langues.
Mots clé: intelligences, style d'apprentissage, autonomie d'apprentissage.

SUMARIO: 1. Techniques addressed to styles the peripheral stimuli. 2.Techniques addressed to intelligences and the outline of a "multiple intelligence approach". 2.1. The intermediary stimuli. 2.2. The central stimuli.

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[1] For a broader perspective: Torresan P., 2006, "Multiple Intelligences and Language Teaching: Another Look at Broken Paths", *Mosaic*, VIII, 4, 34-42.

1. TECHNIQUES ADDRESSED TO STYLES: THE PERIPHERAL STIMULI

The term «intelligence» refers to a capacity specifically linked to content (there are, up to now, according to Howard Gardner, eight intelligences: linguistic, logical-mathematical, spatial, kinaesthetic, musical, intrapersonal, interpersonal and naturalistic), while «learning styles» point to various ways of doing certain tasks, which could be transversal with regards to different contents (Gardner 1999b).

Mathematical intelligence, for instance, is a capacity applied to logical-mathematic concepts and operations (obviously in different sectors: from pure mathematics to linguistics, from physics to economics); whereas, the reflective style is a way of approaching tasks that could be utilized in artistic, musical or individual performances, although such operations do not entail any calculation. The reflective style emphasizes planning, defining objects and ordered presentations of information that, at times, can be confused with mathematical intelligence.

The distinction between intelligences and styles forces us to reconsider the outline with which language teaching strategies, that give shape to various intelligences, is usually presented.

It is, therefore, necessary to clarify whether a technique has anything to do with activating certain intelligences or whether it, in fact, acts at the superficial level of styles.

Thus,

— a simple non specific movement that accompanies a task –as in many icebreakers–, is not an action that empowers kinaesthetic intelligence, but is an activity helpful to those students whose learning style is kinaesthetic (i.e. learning through movements);

— having students work in pairs or in groups has nothing to do with interpersonal intelligence (as is otherwise proposed by Fletcher 2000; Hall Haley 2004). Interpersonal intelligence consists of the ability to recognize someone else's intentions and to have an influence on an others' behaviour (Gardner 1983). Working in pairs or in groups is simply an environment preferred by outgoing students;

— individual work doesn't necessarily result in the development of intrapersonal intelligence (as proposed by Kagan L. 1998; Hall Haley 2004); it is simply an environment preferred by introverted students. On the other hand, it is insufficient to claim simply that such intelligence can be enhanced through self-esteem programmes (Christison, 1998; Campbell, Campbell, Dickinson 2004; Hoffmann, Norman 2004; Puchta, Rinvolucri 2005).

— a sequential presentation of the topic, as opposed to a global and holistic one, deals with a characteristic style of learning (field independent, as

opposed to field dependent) and not at all with logical–mathematic intelligence (as is proposed by Fletcher 2000).

— listening to songs, introducing relaxing music into the classroom or using rhythm to enhance memorization, may be preferred by auditory students (this is attributed to musical intelligence by Fletcher 2000 and Proseprio 2002). According to Gardner: "In some classes, children are encouraged to read and to carry out mathematical exercises while music is playing in the background. Now I myself like to work with music in the background. But unless I focus on the performance (in which case the composition is no longer serving as background), the music's effect is unlikely to be different from that of a dripping faucet or a humming fan" (Gardner 1995).

— The use of music as an instrument that enhances memorization, as proposed by Suggestopedia (Lozanov 1978), is also foreign to the theory: "It may well be the case that it is easier to remember a list if one sings it or even if one dances while reciting it. I have nothing against such aids to memory. However these uses of the materials are essentially trivial. What is not trivial […] is to think musically or to draw on some structural aspects of music in order to illuminate concepts like biological evolution or historical cycles" (Gardner 1995).

— It is not enough to decorate the room with plants or to bring animals into the classroom to develop the students' naturalistic intelligence (maintained by Fletcher 2000, Armstrong 2000)! Nor can it be related to ecological themes or to the initiatives of environmental protection (as is held by Hall Haley 2004)! Even a child who lives on the thirtieth floor of a Manhattan skyscraper can have this intelligence, if he has a passion for collecting butterflies, precious stones, stickers, corks and so on. In fact, naturalistic intelligence has to do with the observation of patterns, it consists of determining groups, based on the regularities and the differences between single elements (Gardner 1999b; cf. also Barkman 2000; Campbell, Campbell, Dickinson 2004).

— "Linguistic intelligence does not mean being talkative or liking to talk" as rightly observed by Viens & Kallembach 2004), nor is it promoted through word games (as proposed by Fletcher 2000).

— The use of colours to underline certain morphological categories or images aimed at enabling the students to grasp a verse satisfies one of the visual styles of learning, but it is not necessarily conditioned by spatial intelligence (as was affirmed by Christison 1998, Fletcher 2000 and Hall Halley 2004), and the same is true of visual mnemonic techniques (as opposed to Campbell, Campbell, Dickinson 2004). Spatial intelligence, it is worth remembering, is a cognitive strategy that can be practiced even by a blind person. The confusion which usually occurs between intelligences and styles is shown in picture 1.
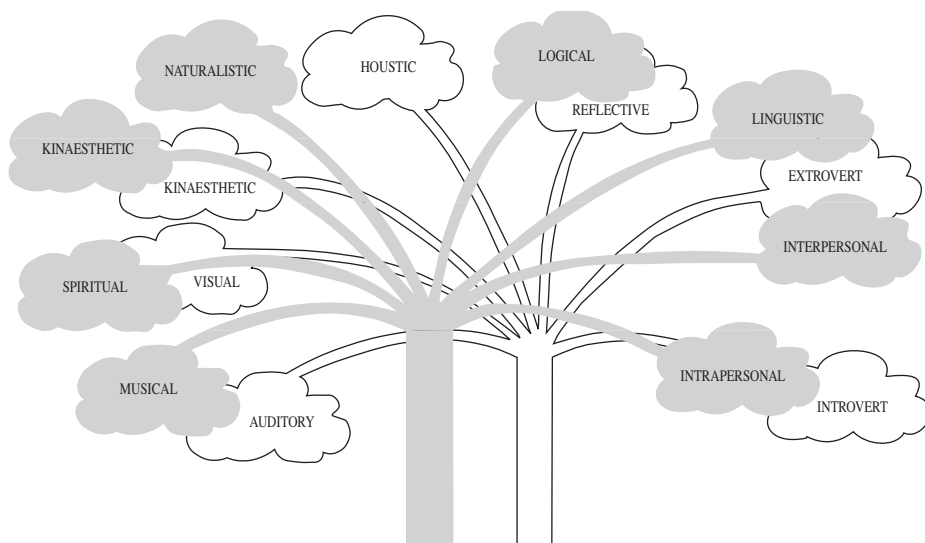
Picture 1. *Intelligences and Styles*

In short, if it is true that some proponents of intelligence, including Gardner, are convinced that intelligence is not only in the mind of an individual, but also in the resources, in the objects and in the relations through which one's actions are made visible to the world ('distributed intelligence'; cf. Pea 1993; Salomon 1993; Gardner, Kornhaber, Wake 1996), at the same time, it is also true that the mere presence of some objects (images, written or oral texts, numbers and music or movement), or some conditions (working alone or in a group), do not guarantee the development of the intelligence which those objects or conditions can be traced to. In other words each intelligence requires a cognitive operation; otherwise, the aforementioned objects and resources are 'blind'.

Borrowing Lozanov's terminology of 'peripheral stimuli' concerning the use of images and of music in the suggestopedic sessions (Lozanov 1978), we can say that most of the aforementioned techniques are peripheral stimuli, i.e. strategies that appeal to individual learning preferences without reaching the different systems of mental representation, the authentic intelligences. In any case, peripheral stimuli do not involve authentic intelligences since those intelligences are not challenged in the process.

2. TECNIQUES ADDRESSED TO INTELLIGENCES AND THE OUTLINE OF A 'MULTIPLE INTELLIGENCE APPROACH'

2.1. The intermediary stimuli

A technique designed to activate intelligences may be called intermediary stimulus. When a peripheral stimulus triggers a perceptive or emotive mode (provided

that we do not concentrate on it, and in which case it is no longer peripheral), an intermediary stimulus indicates the activation of two or more intelligences and has, primarily, a cognitive significance. The adjective 'intermediary', therefore, permits emphasis of the communication taking place between one code and another.

In order to demonstrate the distinction between an intermediary stimulus and a peripheral stimulus, let us examine an example.

Imagine that a foreign language teacher gives students a newspaper article concerning thefts taking place in the metro. The task is of a linguistic nature: the students have to read and understand the text. The teacher may assist in this task using a variety of techniques, some of which will stimulate styles of learning (peripheral stimuli), and others of intelligences (intermediary stimulus).

This is illustrated in table 1.

Table 1. *Peripheral stimuli and Intermediary stimuli in the understanding of a foreign language text*

Peripheral stimuli	learning style	Intermediary stimuli	intelligence
The teacher places around the class a series of images introducing a theme	Visual	The teacher then invites students to establish, based on the format, what the basic text is about while being at their disposal to answer any questions that may be raised concerning the nature of the images accompanying the text.	Spatial
Through a heuristic process, the teacher invites students to devise solutions to the problem of theft in public transit systems (metro, bus, etc.)	Reflective	The teacher illustrates a series of statistics referred to in the article (about the frequency of thefts in public transit systems, compared to data from other countries, etc.) or writes on the board, in sequence, the important concepts presented in the text.	Logical
The teacher introduces background music to help students relax.	Auditory	The teacher uses musical verses or some simple auditory sequences while presenting different parts of the text.	Musical
The teacher proposes a dynamic group activity related to the theme (a game of cops and robbers, for instance).	Kinaesthetic	The teacher mimics, in order, the different methods the criminals have used to rob their victims in the metro, according to information reported in newspaper articles.	Kinaesthetic
The teacher asks students to read the text individually.	Introvert	The teacher demonstrates the theme and describes related events from his own life.	Intrapersonal
The teacher asks students to read the text several times, encouraging them to exchange information following each reading.	Extrovert, holistic	The teacher writes on the board a number of key words taken from the passage and asks students, in pairs, to associate each word with a person known to them, and to explain their reasons for their choice.	Interpersonal
The teacher introduces the text, generating questions, providing familiarity with the material and encouraging students to identify inter-disciplinary links.	Global	Students are asked to trace analogues and differences with another basic texts referring to the same theme (a letter, a police report, a novel, a video excerpt, etc.).	Naturalistic

As is clear from the table above, a peripheral stimulus simply furnishes the context in which the didactic activity takes place, whereas an intermediary stimulus forms part of the same didactic activity and supplies it with useful text related data. The peripheral stimuli, in other words, act extrinsically of the task, giving rise to a certain level of expectation, an emotional state as well as organization of the task and a distribution of roles. The intermediary stimuli, on the other hand, have a more intrinsic character as they elaborate on the information presented in the text. To solve a linguistic problem with a kinaesthetic intermediary stimulus, for example, is to reason simultaneously with linguistic logic and corporal logic. The same would be true for all the various combinations of intelligences.

2.2. The central stimuli

Thus, to summarize what we have considered so far, the theory of multiple intelligences can contribute to the teaching of a language through a definition, capable of order and force, of the intermediary stimuli and not of peripheral stimuli, which, are related to learning styles. The intermediary stimuli can be considered entry points of which the Harvard psychologist Howard Gardner speaks about in reference to declarative knowledge (Gardner 1993; 1995; 1996; 1999a; 1999b).

Considering a passage from *Frames of Mind*, a further distinction is necessary.

"The abilities entailed in an intelligence can be used as a *means for acquiring information*. Thus, individuals may learn through the exploitation of linguistic codes, of kinaesthetic or spatial demonstrations, or of interpersonal bonds. Even as various intelligences can be exploited as means of transmissions, the actual *material to be mastered* may itself fall squarely within the domain of a specific intelligence. If someone learns to play an instrument, the knowledge to be acquired is musical. If someone learns how to calculate, the knowledge to be gained is logical-mathematical (even if the means is linguistic in nature). And so it turns out that *our various intellectual competences can serve both as means and as message, as form and as content* [the last part given in italics is added by me]" (Gardner 1983: 334).

Intelligence as 'form', as referred to in Gardner, seems to correspond to the strategies we refer to as intermediary stimuli.

Intelligence as content appears, on the other hand, to focus on strategies that are isomorphic as opposed to material, repeating the same code in which are presented both the text to understand and the procedure of assimilation. We are obliged, for this reason, to coin a new term; central stimulus.

We may say that when the understanding of a concept or the realization of a procedure is achieved through use of one or more of the various intelligences beyond the one that directly corresponds to the concept in question, that there occurs an instance of intermediary stimulus. When, on the other hand, it is mediated by qualities belonging to the intelligence directly associated with the concept it is called central stimulus.

It is certainly clear that if I employ musical language to enhance the musical competence of students, the mathematical to enhance that of mathematics, or the personal to enhance that of personal, I do so through a series of central stimuli. In

the specific case of teaching languages, the linguistic activities required for the understanding of a sentence in a foreign language (cloze, multiple choice, true or false, open questions etc.) constitute the central stimuli, where as the activities of transcodification that employ the use of miming, music or designs constitute the intermediary stimuli.

However, the concept of intelligence as 'content' is not a simple idea but a complex one.

If it is true that one intelligence does not, in daily activities, act independently but in concert with others, it is also true that each intelligence is itself comprised of many elements, or subintelligences, which are not easily identified. Imagine being immersed in a conversation with somebody: being that it is not easy to set limits between prosody, morphology and praxis, it becomes necessary in order to understand the communicative event, that one realizes that each of these components represents a different aspect of communication. There exists, so to say, a sort of cooperation not only between the various intelligences, but also between the elements that comprise any particular intelligence.

Gardner emphasizes the fact that the subintelligences that make up any one intelligence are not necessarily themselves compatible: "Most of us have no trouble walking or finding our way around while we are conversing; the intelligences involved are separate. On the other hand, we often find it very difficult to converse while we are working on a crossword puzzle or listening to a song with words; in these cases, two manifestations of linguistic intelligence are competing" (Gardner 1999b:40).

Language teachers know, in fact, how useless it is to correct form during a student's unprepared speech: all his attention is concentrated on what he is saying (the semantic i.e. the real linguistic aspect of a language) therefore the teacher's feedback (the morph syntax, i.e. the logical mathematical aspect of the language) will generally not be noted.

We may consider, in addition, as further evidence of the existence of subintelligences, some specific disabilities that accompany a trauma (as in many cases of aphasia, each one being characterized by a loss of a specific language function), besides the idiot savant cases in which very high levels of performance with regard to one intelligence are accompanied by equally poor performance in other tasks related to that same intelligence.

How many and which subintelligences are related to each intelligence seem to be issues destined to long scientific debate.

However, for our purposes, it is worth attempting a definition which will allow us the possibility of distinguishing between the various stimuli.

Considering specifically the case of linguistic intelligence, based on information already in the possession of linguists and neuroscientists (cf. Armstrong 2004), we believe that the various subintelligences that form any individual intelligence exhibit traits related to all intelligences. To restate, let us say that the observations of linguists and neuroscientists lead us to believe that there are at least eight subintelligences of linguistic intelligence, and that in each of these is reflected one of the eight primary intelligences. (Table 2).

Concerning linguistic intelligence, we now believe the following:

— *a properly linguistic subintelligence*, which considers inherent aspects of language, i.e. lexicon and the semantic;

— *a logical subintelligence*, which is employed in the recognition of the form and order of words. (morphology and syntax);

— *an intra-personal subintelligence,* contributing to the emotional dimension of language;

— *an interpersonal subintelligence,* which aids in the pragmatic component of communication;

— *a musical intelligence*; which is related to phonology and prosody;

— *a kinaesthetic subintelligence*, which relates to the extra linguistic component of communication;

— *a visual subintelligence*, activated by the context, graphic-spatial characteristics of the text, and other visual information collected during examination.

— *a naturalistic subintelligence*, related to interlinguistic, intertextual and intercultural relations.

Table 2. *The linguistic subintelligences*

Intelligence	Characteristics	Aspects of language (Linguistic subintelligences)
Linguistic	A sensibility to words	The semantic and the lexical
Logical	Attention to the cause –effect and spatial-temporal relations.	The morph syntax
Intra-personal	Knowing oneself: being conscious of one's cognitive and emotive processes	The emotional dimension of language
Interpersonal	Recognizing the intentions and needs of others	The pragmatic dimension of communication
Naturalistic	Being aware of similarities and differences	The relation between texts, contrasting analysis and intercultural experience
Kinaesthetic	The capacity to use one's body in an effective manner	The extra linguistic dimension of communication
Musical	Having a certain sense for rhythm, pitch and melody	Phonology and prosody
Spatial	Perceiving and imagining the position of objects in space and their movements	Context and visualisation

It is easy for us to visualize this process if we imagine ourselves to be readers of a foreign language text, struggling with a word which is unknown to us. A complex process is now put into motion. The word (for example, the Italian word

'melanzana', eggplant) is read from a text that, through a series of semantic relations, allows us to form assumptions (➔ *linguistic subintelligence*). Further, its morphological components are noted («is it a verb, a noun or an adjective?» ➔ *logical subintelligence*; the ➔ *musical memory* of the reader («how is it pronounced: mèlanzana or melànzana?»), makes comparisons to familiar words or to other familiar languages. (manzana? [Spanish]; ➔ *naturalistic subintelligence*). One may also employ the strategy of inferring the author's intentions (➔ *personal subintelligence*). It is clear that the body is also involved in these processes through ➔ *kinaesthetic memory*, of previous experiences with an eggplant, of eating an eggplant, of maybe just of touching or smelling an eggplant.

Returning to the distinction between the stimuli. As regards the central stimuli, which correspond to intelligence as content, we may be tempted to state that when using linguistic intelligence the primary subintelligence in use is the linguistic subintelligence and that it generates techniques helpful in the enhancing of lexical and semantic competence.

Actually, we are forced to discard this assumption because the realization of a communicative event requires a strict cooperation between the subintelligences of the linguistic intelligence. It is, in fact, equally important for an interlocutor to be familiar with the vocabulary, understand the context in which a term is employed, why a specific form or a certain sequence of words is necessary, how accents are inserted into a phrase or what is an appropriate distance from others in the conversation.

In my opinion, the concept of centrality of stimulus is to be considered as having commenced from the isomorphism between a stimulus and the individual subintelligence, not as correlative of central subintelligence. Because it is difficult to isolate examples Gardner is unable to ascribe to any of the intelligences the capacity to coordinate the others (Gardner 1999b). In any case, central stimuli and intermediary stimuli are present for all subintelligences (picture 2).
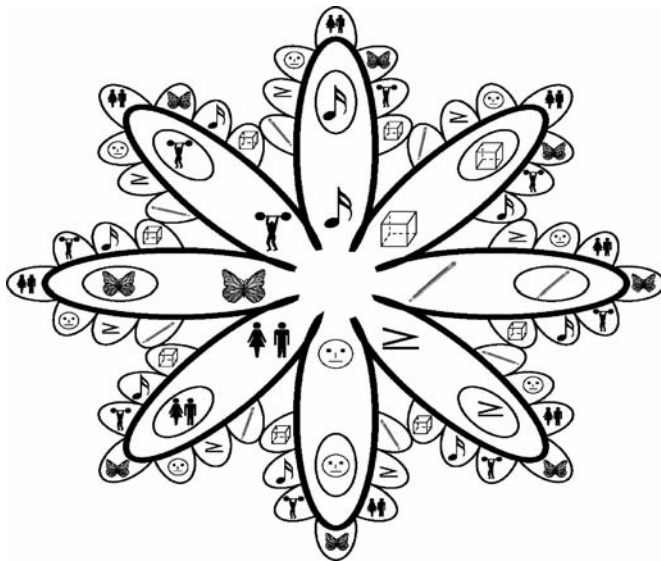
To summarize, in order to understand a 'multiple intelligence approach', we must conceive linguistic intelligence as constituted by relatively autonomous components and linguistic subintelligences, which, like flowers, are composed of many petals.

Each subintelligence can be activated by different stimuli, as spores that spread from the petals of a flower. The more stimuli we use when exposing students to different aspects of language the more individualized, student-centred and complete our language instruction will be.

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