

EVIDENCE OR INTUITION? CATEGORIZING LEARNERS USING PERCEPTUAL LEARNING STYLES

Il presente articolo affronta la questione della validità degli “stili di apprendimento” e della loro presa in considerazione nell’insegnamento differenziato. Quali fondamenti ha la categorizzazione di uno studente come “visivo”, “uditivo” o “cinestetico”? Inoltre: è efficiente adattare il tipo di insegnamento in base a queste “preferenze”? L’autore segnala la difficoltà di assegnare uno specifico “stile di apprendimento” e la mancanza di prove del fatto che la sua presa in considerazione migliori l’apprendimento. In conclusione si evidenzia come le intuizioni su ciò che funziona in classe possono essere a volte sbagliate, si incoraggiano gli insegnanti a informarsi sulle ricerche recenti sui processi di apprendimento e a privilegiare le pratiche di insegnamento la cui efficacia è dimostrata.

● Carol Lethaby San Francisco



Carol Lethaby is a part-time assistant professor on the MA TESOL online at the New School, New York as well as being an honored instructor at UC Berkeley Extension, California. She is also a coursebook author for learners of English as a Second or Foreign Language. See <https://clethaby.com/>

Introduction

When considering the idea of differentiation, the controversial question of whether perceptual learning styles is a useful concept to language teaching practice invariably arises. Much classroom time and energy has been devoted to finding out if learners are visual, auditory or kinesthetic learners. Then, further lesson planning and class time is taken to design and deliver lessons that will suit all of these learners’ preferences. All this is done with the noble goal of wanting to improve learning. The question is whether this is a justifiable use of teaching and learning time or whether it could be a waste of time and resources or, worse still, a potentially damaging teaching strategy.

1. Perceptual learning styles

There are as many as 71 different models of learning styles (see Coffield *et al.*, 2004), but by far the most common in education is the idea of sensory perception learning styles, that is visual, auditory and kinesthetic styles (often called VAK). The idea that is perpetuated both

through the popular media and through much teacher education is that assessing and accommodating learning styles will result in enhanced learning. In the classroom this means that learners are assessed to discover whether they have a preference for reading information which is to be learned (visual learner); hearing information which is to be learned (auditory learner); or whether the learner prefers to ‘learn by doing’, such as by using realia or doing role plays (kinesthetic learner). Teachers then present the information to the learner or groups of learners in their preferred mode of perception in the hope that this will improve learning. This is not a new idea and has been around in education since the 70s and in language education since the mid-80s (see Lethaby and Mayne, 2018, for a discussion of the history of learning styles in teaching).

2. Learning styles in language teaching

A study from 2015 found that over 88% of the language teachers surveyed believed that individuals learn better when they

receive information in their preferred learning style (Lethaby & Harries, 2016). This matches with previous studies carried out amongst primary and secondary teachers in different countries of the world in which it was found that over 90% of teachers believed this idea to be true. If this notion is so universally believed by teachers all over the world, it would appear on the surface that this must be a highly useful and effective teaching strategy, but a closer examination of the empirical evidence and research paints a different picture.

3. Why not assess and accommodate learning styles?

There are various reasons why the use of VAK learning styles in the language classroom is not a useful way to differentiate learners. I'll explain a few of these reasons here and then consider the implications.

3.1 Enhanced learning through learning styles is a neuromyth

The idea that learners learn better when they are taught using their preferred mode of perception (through reading, through listening or through 'doing') is not supported by what we know about the brain and how the brain works, and the scientific community considers the idea of teaching to learners' sensory preferences to be a dubious practice. Dekker *et al.* (2012) argue that the reason why this notion has become so popular in education is that it has been discovered that the brain processes different information in different parts of the brain. However, Dekker *et al.* stress that the brain is so interconnected that the exchange of information across the brain makes it *false* to say that learning only takes place using one sensory mode (Gilmore *et al.*, 2007 in Dekker *et al.*, 2012). It is also argued that incorrect ideas about the brain are spread through popular media, especially considering that neuroscientific literature is often difficult to read and understand and often becomes simplified and distorted when transferred into layperson's terms. Neuroscientists and scientists consider the idea that 'learners learn better when taught according to their preferred sensory mode' to be a neuromyth (myth about the brain). In 2017, a letter in the Guardian was signed by 30 renowned scientists to this effect (see [\[back-idea-of-learning-styles\]\(https://www.theguardian.com/education/2017/mar/12/no-evidence-to-back-idea-of-learning-styles\)\). The reasons why the idea that accommodating learning styles will enhance learning is considered a neuromyth will be outlined below in sections 3.2 and 3.3.](https://www.theguardian.com/education/2017/mar/12/no-evidence-to-</p></div><div data-bbox=)

3.2 The definition and attribution of learning styles

It is difficult to define and measure what learning styles are. A quick overview of the learning style literature will show the reader that the area is confusing. As mentioned above, there are several models of learning styles, and research and attempts to attribute learners as being either visual, auditory or kinesthetic have illustrated that they are *not* consistent, measurable attributes. The same learner may sometimes be assigned a 'visual' style while on a different occasion may be assigned as auditory or kinesthetic, depending on the learning style assessment instrument used. Assignment of learning style is often based on notoriously unreliable questionnaires that ask the learner to self-report on their habits. For example, Krätzig & Arbuthnott (2006) attempted to assign learners as either visual or auditory learners using two methods – an established questionnaire as well as a self-report, that is, the learner her/himself says whether they think they are a visual or auditory learner. Krätzig & Arbuthnott found less than 50% agreement between the learner's self-report and the questionnaire. For example, 40% self-identified as visual learners while 60% were identified as visual learners based on the questionnaire.

3.3 Lack of empirical evidence

The third and most convincing argument against the assessment and accommodation of learning styles as a teaching intervention is that there is no credible evidence that teaching to a learner's preferred learning style improves learning. The idea that using a learner's preferred way of receiving information will enhance their learning is known as the 'meshing' or 'matching' hypothesis, that is, the theory that teaching style and learning style should 'match'. In language learning this implies that by teaching learners that have a preference for text by using text, these learners will outperform other learners who have a different preference when text is used, and conversely, that by using listening, learners who prefer this mode will be advantaged and will do better than other types of

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learners when asked to listen. Aside from the problem of reliably assigning learners as visual, auditory, or kinesthetic, there is also a lack of reliable evidence to show that learners taught in their preferred perceptual mode outperform learners with other preferences. Studies have shown that teaching 'visual learners' through text and teaching 'auditory learners' through listening does *not* lead to enhanced performance. The Krätzig & Arbuthnott study (2006) mentioned in 3.2 found that although between 40 and 60% of learners were identified as 'visual learners', only 23% performed best on the visual test. Rogowsky *et al.* (2015) determined learning preferences through an established questionnaire, then gave tests on reading and listening aptitude. They then randomly assigned participants to one of two groups receiving the same information through an e-text or an audiobook. They found that learners did not consistently outperform learners with a different learning preference when taught in their preferred mode of learning, as the meshing hypothesis suggests they should. It may sound tempting and we may 'feel' as though we learn better based on our preferred styles, but objective testing shows that this is not the case. As Pashler *et al.* conclude, "our intu-

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itions and beliefs about how we learn are often wrong in serious ways" (2009: 117).

4. Is assessing learning styles a harmless practice?

Above, I've argued that teaching to learners' sensory VAK preferences does not actually lead to enhanced learning. This begs the question of whether we could actually be doing harm to learners by assigning them as 'visual', 'auditory' or 'kinesthetic' learners.

4.1 Disservice to learners?

As mentioned above, Rogowsky *et al.* (2015) did not find evidence for the meshing hypothesis, but they did find that learners established as visual learners outperformed auditory learners on both visual *and* auditory tests and point out that most education systems rely heavily on text. We are probably doing a disservice to learners, particularly learners who have an auditory preference for receiving material, if we don't help *all* learners to become proficient at working with text. Indeed, learners themselves when assigned to a particular learning style may feel that they are unable to learn using any other style, something that is clearly not true. Learners with an auditory preference can, and need to become good at working with text, just as learners with a visual preference can and need to become good at working with aural information when required by the situation. In language teaching it has also been found that learners with a preference for text outperform learners with other preferences in vocabulary learning tests, regardless of how they are taught – yet more reason to consider how to present information in the most suitable mode depending on the type of information (Garrett, 1992; in Tight, 2010).

For language teachers, it seems clear that listening is best taught through listening, while reading is best taught through text. Variety in the classroom has been shown to be desirable, but basing this variety around learners' sensory preferences is not the way to plan for this. We need to also consider the concept of cognitive overload. Cognitive load refers to the amount of mental effort required to complete a task and the theory argues that if the cognitive load is too high the learner will not be successful in learning (see Sweller, 2017). Studies (for example, Butcher, 2006; Mayer *et al.*, 2001) have shown that when a learner receives too

much information simultaneously, such as complex diagrams, together with a written text, that is also accompanied by a spoken text, precisely what a language teacher might do to attempt to cater to all three VAK learning styles when presenting new language to learners, this does not, in fact help the learner, but may make the task too difficult.

4.2 Commercial interests

It is also important to mention here the commercial interests that have become involved in the promotion of perceptual learning styles as a worthwhile teaching intervention. Some schools spend a lot of money on learning style assessments and training in how to use them, and how to subsequently translate the information gathered about learners into teaching practices that cater to learners' preferences. Pashler *et al.* (2009), describe learning assessment classification instruments that are charged per student as well as certification programs for teachers offering training in how to use the results of the classification of students' learning styles in the way they teach (p. 107). The International Learning Styles Network, for example, has 23 centers in 11 countries of the world (including Sweden and Denmark in Europe) and offers assessment at \$5 per student. Those selling these assessment instruments and trainings are understandably uninterested in engaging in discussions about the research and evidence that does not support the use of their products and when the investment has been made by the school or the school district, efforts will be made to convince teachers to use them.

4.3 Teacher education

In the research mentioned above, carried out amongst English language teachers, it was found that the idea of learning styles was an accepted part of most teacher education programs and concluded that this is one of the ways that the learning styles myth is perpetuated. 91% of teachers who said they had received 'brain-based' ideas during their teacher training said that this input has influenced their teaching (Lethaby & Harries, 2016). Teacher education surely has a responsibility not to promote practices that don't have empirical support and to actively encourage and advance teaching strategies and interventions that *do* have evidence to back them up. There are numerous teaching

strategies that exist that have time and again been shown to be effective (for example, distributed (spaced) and interleaved practice, low stakes and no-stakes practice testing, see Dunlosky *et al.*, 2012). These are clearly strategies that have applications for language teaching, such as re-cycling previously-introduced vocabulary and language, devising games and other activities to encourage learners to test themselves and their classmates on previously learned material. The level of prior knowledge of the learner has been established as one of the most (if not *the* most) important differentiating features that make a difference in how well learners will learn (see, for example, Clark, 2014). Teacher education needs to focus on strategies that help teachers to take advantage of prior knowledge in language learning, such as using pre-tasks effectively, or using what the learner knows already about her mother tongue to support the learning of the new language.

4.4 Classroom time

The final argument against the practice of differentiating learners through the assessment of learning styles is a practical teaching issue. We have limited time and limited resources for teaching language, often with national educational institutions demanding fast results within these parameters. Why then are we wasting time and effort on a practice that does not have an evidence base to support its effectiveness after more than 30 years since its widespread use in language teaching began?

5. Conclusion

Of course teachers want to be sensitive to learners' individual needs, but it seems that considering preferred perceptual learning styles is not an effective way to do this and indeed, may even in some cases be detrimental to learning. Kirschner, argues that "it is our solemn duty to carry out research and report on good science ... and guard against the spreading of pseudoscience, myths, and outright lies". (2017: 170-171 in Lethaby & Mayne, 2018). Dekker *et al.* (2012) have recommended that neuroscience be included in initial teacher education. This sounds like a helpful idea to guard against the spread of misinformation and disinformation about how the brain works and in order to encourage teachers to look at more evidence-based teaching strategies to include in their teaching practice. Teachers

are undoubtedly interested in neuroscience and other kinds of research and its applications to classroom teaching, but at the moment many of us lack access to the latest information and the opportunity to be involved in translating new findings to classroom practice. There does exist empirical evidence for what works in the classroom, but we need to connect the dots and get language teachers and teacher educators working together with researchers and research with the ultimate goal of helping learners to learn more effectively, based on evidence not just intuition.

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