Learning styles controversy: ¿Are they an option for second language education?

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Artículo 1ro del Acuerdo No. 324 de octubre 11 de 1966 emanado del Honorable Consejo Directivo de la Universidad de Nariño.

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Pasto, 9 de Junio de 2016

Abstract

Key words: Learning styles, learning styles hypothesis, learning process.

Learning styles are considered crucial factors that should be taken into account by teachers in order to facilitate the learning process of students. The hypothesis about learning styles is that identifying students' learning styles and matching teaching to those styles will facilitate learning. However, the learning styles hypothesis is not supported by everybody in the field of education. On one hand, there are several experts that claim that the implementation of the learning styles hypothesis will make that the learning of the students becomes an easier, faster, and more effective process. On the other hand, there is another group of experts that say that there is not empirical evidence that proves or supports what the learning styles hypothesis proposes. There is no universal agreement on the usefulness of "the learning styles hypothesis" in the educational process. Therefore, one should be well informed before deciding to favor one side or another. In order to make this decision, it is absolutely necessary to know what learning styles are, why supporters say they are good, why opponents say they are bad, what is said about learning styles in a specific field of study, and what has been proposed as alternatives for learning styles. Accordingly, the purpose of this paper is to make the previous questions clearer by giving a general definition of the term "learning styles", reporting what proponents and opponents of "learning styles" say, comparing two studies that try to demonstrate the usefulness of the learning styles hypothesis in education, informing what is said about learning styles in the field of second language learning and teaching, and reporting about "the content's best modality", a new proposal that has emerged as an alternative for the learning styles hypothesis.

Resumen

Palabras clave: Estilos de aprendizaje, hipótesis de los estilos de aprendizaje, proceso de aprendizaje.

Los estilos de aprendizaje se consideran factores cruciales que deben ser tenidos en cuenta por los profesores con el fin de facilitar el proceso de aprendizaje de los estudiantes. La hipótesis acerca de los estilos de aprendizaje es que identificar los estilos de aprendizaje de los estudiantes y hacer coincidir la enseñanza con esos estilos facilitará el aprendizaje. Sin embargo, la hipótesis de estilos de aprendizaje no es apoyada por todos en el campo de la educación. Por un lado, hay varios expertos que afirman que la implementación de la hipótesis de los estilos de aprendizaje hará que el aprendizaje de los estudiantes se convierta en un proceso más rápido, más fácil y más eficaz. Por otro lado, existe otro grupo de expertos que aseguran que no hay evidencia empírica que demuestre o apoye lo que propone la hipótesis de estilos de aprendizaje. No hay un acuerdo universal sobre la utilidad

de "la hipótesis de los estilos de aprendizaje" en el proceso educativo. Por lo tanto, es necesario estar bien informado antes de decidir a favor de uno u otro lado. Con el fin de tomar esta decisión, es absolutamente necesario saber: ¿qué son estilos de aprendizaje?, ¿por qué los defensores dicen que son buenos?, ¿por qué los opositores dicen que son malos?, lo que se dice acerca de los estilos de aprendizaje en un campo específico de estudio, y lo que se ha propuesto como alternativas para los estilos de aprendizaje. En consecuencia, el propósito de este trabajo es hacer más claras las preguntas anteriores dando una definición general del término "estilos de aprendizaje", informando lo que afirman los defensores y opositores de "estilos de aprendizaje", comparando dos estudios que tratan de demostrar la utilidad de la hipótesis de los estilos de aprendizaje en la educación, informando lo que se dice acerca de los estilos de aprendizaje en el campo de aprendizaje y enseñanza de una segunda lengua, e informando acerca de "mejor modalidad del contenido", una nueva propuesta que ha surgido como alternativa a la hipótesis de los estilos de aprendizaje.

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Introduction

Do learning styles bring advantages or disadvantages to the learning process? That is the question that is causing a lot of dispute these days among experts in the field of education, teachers, students, schools' directors, and people in general. The reason is that there are several experts in the field of education that suggest that identifying students' learning styles and matching teaching to those styles will facilitate learning. This idea has been well received among people, and many teachers and institutions are already using learning styles as a way to promote learning and make it easier. On the other hand, opponents of learning styles say that there is not empirical evidence that proves or supports what learning styles supporters suggest. Therefore, they advise that the implementation of learning styles in teaching should be delayed until research confirms its utility. The argument around learning styles is really exciting. In this regard, Katie Lepi (2014) says that after several years of writing for Edudemic, she has to admit that one of the most controversial issues about which she and her colleagues have written is the concept of "learning styles". Every time they bring this subject up, there are several people who write to tell them they like to be reminded that all students learn in different ways. On the other hand, there are other people who write to tell them how foolish it is to think and support the idea that there are different types of learners (The Myth of Learning Styles, 2014, para. 1). As shown here, the learning styles debate is getting stronger. That means that there is no universal agreement on the usefulness of "learning styles" in the educational process. Therefore, this dispute will not cease until there is clear evidence showing that is relevant or irrelevant to talk about "learning styles" as something useful to promote students learning. Taking this into account, one should be well informed before deciding to favor one side or another. In order to make this decision, it is absolutely necessary to know what learning styles are, why supporters say they are good, why opponents say they are bad, what is said about learning styles in a specific field of study, and what has been proposed as alternatives for learning styles. Therefore, the purpose of this paper is to make the previous questions clearer by giving a general definition of the term "learning styles", reporting what proponents and opponents of "learning styles" say about the advantages or disadvantages of using them for improving the learning process in general, comparing two studies that try to demonstrate the usefulness of the learning styles hypothesis in education, informing about what is said about the usefulness of learning styles in the field of second language learning and teaching, and reporting about "the content's best modality", a new proposal that has emerged as an alternative for the learning styles hypothesis.

1. Learning styles definition

The term learning style has been defined in different ways by different authors. However, all these definitions are related to the different ways in which each individual learns. These different ways refer to the mode of instruction that students or learners prefer since this mode makes their learning easier, faster, and more effective. For example, if a student has a visual learning style; that is, he or she learns better when he or she could see the information to be learned, the mode of instruction this student will prefer is one in which information is presented visually.

It is clear that learning styles definition is closely related with the differences that each learner shows when it comes to learning. Most authors agree with this idea. For example, Riener and Willingham (2010) say, “The most popular current conception of learning styles equates style with the preferred bodily sense through which one receives information, whether it be visual, auditory, or kinesthetic” (What is a learning style, para. 2). Pashler, McDaniel, Rohrer, and Bjork (2008) state “the term ‘‘learning styles’’ refers to the concept that individuals differ in regard to what mode of instruction or study is most effective for them” (p. 105). According to Reid (1995), learning styles are “individual natural, habitual, and preferred way(s) of absorbing, processing, and retaining new information and skills” (as cited in Vaseghi, Ramezani, & Gholami, 2012, p. 442). And Fleming (2001) defined learning style as “an individual’s characteristics and preferred ways of gathering, organizing, and thinking about information” (as cited in Vaseghi et al., 2012, p. 442). As it can be seen, all these definitions of "learning styles" are somehow similar, and in some way, they overlap. Therefore, making a combination of all of them, the term "learning styles" could be defined as follows: the term "learning styles" refers to the way in which each individual or person perceives, gathers, organizes, processes, retains, and internalizes new information, using a set of strategies, characteristics, attitudes as well as physical and mental processes preferred by each one, which contribute to make of his or her learning an easier, faster and more effective process.

Having defined the term “learning styles”, let’s take a look at what supporters and opponents propose about the use or inclusion of learning styles in the learning process in general, and in the field of second language (L2) learning and teaching:

2. Proponents of the learning styles hypothesis

As mentioned above, the main hypothesis of the defenders of the use of "learning styles" is that matching the mode of instruction to the students’ preferred learning styles would facilitate learning. This hypothesis is known by the name of "The Meshing Hypothesis". Pashler, McDaniel, Rohrer, and Bjork (2008) summarize this hypothesis in the following way:

> Proponents of learning styles assert that the best instruction requires diagnosing the learners' learning styles and tailoring instruction according to those styles. This hypothesis about the instructional relevance of learning styles is known as the Meshing Hypothesis, according to which the best way to provide instruction is using a format that matches the preferences of the learner (p. 105).

In other words, according to the meshing hypothesis, the learning of a "visual learner" will be facilitated only if the presentation of the information is done using a visual format such as pictures, charts, diagrams, etc.

The "Meshing Hypothesis" is based on the idea that everybody is different, and these differences affect the way we learn. Riener and Willingham (2010) identified four areas of difference that exist between learners. First, students vary in their ability to learn certain kinds of content. This could be called talent, skill or intelligence; yet we have all seen students who master a material very easily, while there are others who have a hard time doing so. Second and not completely disconnected from the first, all students have different interests. Some of them like music, others like to solve problems, and even others are passionate about sports. These interests motivate the involvement and commitment of the students in their learning process. Third, all students bring to any learning task different levels of prior knowledge, which influences their learning. For example, if a student in a calculus course lacks basic math skills; his or her success in this course is highly unlikely. Finally, some students have certain learning disabilities, dyslexia, for example, that directly affect their learning. Clearly, not all learners are the same. (as cited in Weimer 2012, Challenging the Notion of Learning Styles, para. 3). Therefore, according to the learning styles' supporters, these differences should be taken into consideration by teachers in order to make teaching more effective.

Since the idea that everybody is different, and these differences affect the way we learn is widely accepted, even by those who oppose to the learning styles, the idea of learning styles as a way of facilitating learning has been largely widespread around the world and taken as true by many people, including experts, teachers, and school's directors. Hence, based on this truth almost universally accepted, proponents of the "learning styles" have concluded that all people learn in different ways; therefore each one has a specific "learning style" that involves a number of strategies and cognitive processes which make their learning easier and faster. This, according to the promoters of the "learning styles", implies that in order to facilitate students learning, it is necessary that the information to be learned, is presented in a format that matches the "learning styles" of students. For example, to facilitate the learning of a student whose "learning style" is "visual"; that is, that the student learns faster and easier when he or she can see the information to be

learned, it is necessary that such information is presented through graphs, diagrams, pictures or any other format that makes the information clearly visible to the student.

The wide acceptance of the idea that everybody learns in different ways and has his or her own learning style that would facilitate his or her learning explains the high popularity that learning styles have nowadays, even though there is not empirical evidence that supports them. Lots of people are saying that identifying students' learning styles and matching the teaching to those styles is essential if we want to make learning easier and more effective. For that reason, it is common in these days to hear students and students' parents all over the world saying that problems in learning are due to students' learning styles are not matched by the mode of instruction. This clearly shows that learning styles and the meshing hypothesis are being supported by a lot of people around the world; therefore, it is quite possible that their popularity grows in the coming days. A clear example of this situation is the survey conducted by Dekker et al. and cited by Newton (2015) in which it was found that 93% of UK school teachers believe that the statement, "individuals learn better when they receive information in their preferred Learning Style" is right.

Moreover, an entire industry has developed around the term "learning styles." According to Dembo and Howard (2007), and Pashler et al. (2008) the wide acceptance and diffusion that this term has had, has caused this industry to develop. This industry includes books, tapes, videos, and tests to determine the learning style of the students and even consultants who promote the use of "learning styles" in the educational process. The authors of those materials often give advice about the use and benefits of taking into account the "learning styles" in education. Dembo and Howard (2007) quote some examples of what some authors assert about it:

Nolting (2002) states, "research has shown that students who understand their learning styles can improve their learning effectiveness in and outside the classroom" (p. 46). Later in his book he also advises "Try to find an instructor who matches your learning style" (p. 57). Van Blerkom (2006) advises students:

> Understanding how you learn best can also improve your concentration. When you are working in your preferred learning mode, you probably find that you are better able to concentrate on your study tasks. Approaching a task from your preferred style results in a better fit or match – studying feels right (p. 14).

Jenkins (2005) tells students that:

> If you discover that your learning style and the instructor's model of teaching clash, speak with your instructor about it (p. 91). He goes further to suggest that if you are a left – brain (linear) learner, you can be an active listener in class. Lectures tend to

> provide information in the way that most linear learners prefer. If you are a right brain (global) learner, read any assigned material before attending a lecture or ask your instructors for a summary of what they will discuss in the next class (p. 96).

Finally, Coman and Heavers (1998) state:

> If you approach studies using your preferred learning style (s), you should be able to study for the same amount of time (or less), remember more, get better grades, raise your level of self-confidence, and reduce your anxiety as you tackle classroom life (p. 9).

Summing up, we could say that for learning styles advocates, the importance of taking into account the different learning styles of students is that by making the teaching model match the preferred mode of learning, such learning will be facilitated; therefore, students will be able to learn a greater amount of content more quickly and efficiently.

3. Opponents of the learning styles hypothesis

Before talking about the criticism that the usefulness of learning styles in the learning process has received, it is necessary to make clear that what is at issue is not the idea that all people are different and, therefore we all learn in different ways. This idea is shared by the two groups: proponents and opponents. What is in dispute is the idea that by making the teaching mode match the learning style of students, the learning of these students will be facilitated, and therefore will also be more effective. Having made this clarification, it continues with the criticism that the notion of the usefulness of learning styles in the teaching process has received.

As stated above, even though a large number of people support the notion of learning styles, in recent years there has also been a number of people who oppose the idea of learning styles and their application to teaching in order to facilitate learning. The main criticism that the meshing hypothesis has received is that there is not empirical evidence which proves the utility of learning styles in education. Riener and Willingham (2010), in an article published in the journal "Change", say, “there is no credible evidence that learning styles exist” (The myth of Learning, para. 1). They claim that the studies that have been made so far have not been able to demonstrate that matching teaching to student‘s learning styles facilitates learning. Instead, studies have shown that students learn regardless of whether or not their learning style is matched by the mode of instruction. According to Riener and Willingham (2010), there are more important factors such as interest and motivation of students and that have a direct influence on the learning process. Therefore, there is no reason for promoting the use of learning styles in the teaching and learning process.

Several authors agree with the idea that there is lack of evidence for proving the learning styles hypothesis. For example, Pashler et al. (2008) agree with Riener and Willingham (2010) that there is not enough evidence to promote the use of learning styles. They mention two studies, one conducted by Massa and Mayer (2006) and the other made by Sternberg, Grigorenko, Ferrari, and Clinkenbeard (1999), which, despite having followed the correct methodology, failed to confirm what is proposed in "The Meshing Hypothesis ". Instead, the results of these studies have shown no difference in terms of learning when teaching by using a format which matches the students' learning styles or by using a format which does not match the student preferred learning mode. Thus, they also conclude that there is no reason for promoting the use of learning styles in the teaching and learning process.

Now it is necessary to ask, ¿What results should shed a study to validate what is proposed in "The Meshing Hypothesis"? In this regard, Pashler et al. (2008) state the following: Having divided students in groups according to their learning styles (e.g. visual, aural, kinesthetic, etc.), some students should receive instruction which matches their learning style, while other students should receive instruction which does not match their learning styles (e.g. some visual learners receiving visual instruction, while other visual learners receiving aural instruction). After instruction has been provided, all students must face the same test. The results of this test must show that students who received instruction which matched their learning obtained higher scores than those students who received instruction which did not match their learning styles (p.109). If a study satisfies all these criteria, we could say that the learning styles hypothesis has been proved.

However, as pointed out by Riener and Willingham (2010) and by Pashler et al. (2008), none of the studies conducted so far have been able of satisfying all the criteria. The methodological part is not the problem. In most of the studies, group division and instruction assignation have been done correctly. The real problem that the studies have shown has to do with the results. The results have not shown that students who received instruction which matched their learning styles outscored students who did not. Instead, the results for both cases have shown to be quite similar. Therefore, without evidence, it is hasty to say that matching students learning styles improves learning.

In sum, the criticism to the learning styles hypothesis is based on the lack of evidence to validate this hypothesis. So that, the implementation of what this hypothesis says in order to facilitate the students' learning process should be delayed until we are sure that we are really benefiting students, or on the contrary, we are harming them.

4. Some studies on the learning styles hypothesis.

Many studies attempting to validate the usefulness of learning styles have been carried out in recent decades. But as said before, none of these studies has achieved its objective. Some studies have shown some relationship between the application of the learning styles hypothesis and the improvement of the academic performance of students. However, these results have not been consistent nor conclusive. Then, two studies are presented, the first is cited by Pashler et al. (2008), and conducted by Massa and Mayer (2006) who created an electronic lesson with two different help screens adapted for verbal or visual learners. They divided the learners at random; so that, some of them received instruction that matched their learning style (verbal or visual) and others didn't. And the second by Ruiz B. Trillos, J. Morales, J. (2006), which explored the learning styles of students in the second semester of the academic programs of the Technological University of Bolivar, Colombia and the possible relationship between this variable and academic achievement. Below each study is presented in more detail:

4.1.Massa and Mayer's study (2006)

Problem: Testing the ATI hypothesis: Should multimedia instruction accommodate verbalizer-visualizer cognitive style?

Participants: The sample consisted of 52 students (29 women and 23 men) belonging to the "Psychology Subject Pool" at the University of California, Santa Barbara. The average age of the students was 18 years old.

Procedure: In a set of three experiments, an electronic lesson with two different help screens adapted for verbal or visual learners was created. The learners were divided at random; so that, some of them received instruction that matched their learning style (verbal or visual) and others didn't. Additionally, they were provided either with additional printed text or diagrams and illustrations carefully developed.

Results and conclusions: Overall, the results that the researchers found showed that the students who received help screens tailored to their learning style did not perform better than those who didn't. Massa and Mayer found no support for either of these interactions despite they analyzed exhaustively nearly 20 measures of individual differences that spread along the set of three experiments proposed for Verbal and visual learning styles. The authors concluded that the results they found did not provide support for the idea that different teaching methods should be used for visual or verbal learners.

4.2.Ruiz, Trillos, and Morales' study (2006)

Problem: exploring the learning styles of students in the second semester of the academic programs of the Technological University of Bolivar, Colombia and the relationship between this variable and academic achievement.

Participants: The sample consisted of 49 women corresponding to 48.5% and 52 men corresponding to 51.5% for a total of 101 participants. The average age of the sample was 18 years old. The average GPA (grade point average) of the group was 3.69.

Procedure: The participants were applied the Honey-Alonso Learning Styles questionnaire (CHAEA). A questionnaire of dichotomous response, of individual or group application, which consists of 80 items, 20 for each learning style (active, thoughtful, pragmatic and theoretical) distributed at random. The total score obtained for each subject in each group of 20 items indicates the level reached in each of the four styles, allowing to evaluate the preferences of students in each of the styles and get, in short, their learning profile. The data were processed SPSS software, version 11.0.

Results and conclusions: The styles that were preferred in this study were: the active style for which the mean was 12.51, the theoretical style for which the mean was 12.79 and pragmatic style for which the mean was 13.76. In other words, the aforementioned styles were the ones with highest preference for the study population. And finally, we have the reflective style with a mean of 14.04. In other words, the aforementioned styles were the ones with highest preference for the study population. And finally, we have the reflective style with a mean of 14.04.

Moreover, the analysis of the results showed a positive correlation between academic performance variables, theoretical style (0.334) and reflexive style (0.245), indicating that the aforementioned styles have a direct relationship with academic performance. Likewise, a positive correlation was observed, but of little significance with the active style and the age variable. Regarding the pragmatic style, it could be observed a negative correlation and low intensity. This should alert us because between the styles with higher levels of preference were active and pragmatic.

This research reveals that the relationship between learning styles and academic performance is not constant and only applies to certain cases. Therefore, there are still serious doubts about the usefulness of implementing the learning styles hypothesis in the teaching process. This is because the results shown in the studies carried out up to date have not been conclusive and have not allowed to universalize the learning styles hypothesis as a factor that facilitates the learning of any student, under any condition, anywhere in the world.

5. Learning styles and second language learning and teaching

In the field of second language learning and teaching, it is also said that all students learn or acquire a new language in different ways. Some of them claim to learn better when they are allowed to use the new language in communication activities (kinesthetic), while others claim to learn better when they see and hear native speakers communicating in the new language (visual, auditory). For that reason, authors like Felder and Henriques (1995) and Oxford (2003) claim that learning styles are included among the principal elements or factors that determine how and how well a group of students learns a second or foreign language (L2). For Oxford, R. (2003) "learning styles are the general approaches (auditory, visual, analytical, etc.) that students use in acquiring a new language or in learning any other subject" (p. 2).

Meanwhile, for Felder and Henriques (1995) the quantity of learning that a student acquires in an L2 class depends on the student's native ability, prior preparation, and also on the degree of compatibility between the learning style of the student and the teaching style of the teacher. Here, Felder and Henriques (1995) introduce a new term: "teaching style". According to them, the term teaching style refers to the fact that every teacher has his or her own way of teaching. All teachers use different methodologies. Some of them prefer to teach through lectures, others prefer to teach through demonstrations, etc. This means that all teachers, including L2 teachers, have their own teaching style. In other words, the term teaching styles is the same as the term learning styles, but applied to teaching and teachers.

What has been said above implies that L2 learning will be favored if students receive instruction in a format that matches their learning styles. Or in the words of Felder and Henriques (1995), the success of second language learning and teaching depends to some extent on how much compatible are the students' learning styles and the teacher's teaching style. Therefore, it could be said that the matching between learning styles and teaching style is an important aspect to be taken into account if an L2 teacher wants to improve, promote and favor students' learning. The benefits of the matching hypothesis for L2 learning include: first, if second language students receive instruction in a format that matches their learning styles, students will feel more motivated, more willing to learn; and therefore, their learning will become easier, faster, and more effective. Second, if second L2 learners are aware of their learning styles, they will be also aware of their strengths and weaknesses for language learning. Thus, L2 learners could fortify their forces and work on their debilities.

On the other hand, according to Felder and Herinques (1995) citing Felder and Silverman (1988), Lawrence (1993), Oxford et al. (1991), Godleski (1984), Smith and Renzulli (1984), and Schmeck (1988), the mismatch between learning and teaching styles

in L2 learning brings negative effects to both, students' learning and teachers' competence. In the first case, if an extensive mismatch exists between the students' learning styles and the L2 teacher teaching style, students will feel bored, will be inattentive in class, will perform badly on tests, will get disappointed about the language class, and they could end up giving up and abandoning the course. In the second case, when second language teachers are confronted by low grades on tests, poor performance of their students, low attendance, uncomfortable classes, and dropouts, they tend to blame the students saying that they are lazy or that they do not want to learn. In this same case, teachers confronted by the previous situations could also doubt about their L2 teaching competence, feel that they are not doing a good job, and think that they are not good at L2 teaching. Thus, in order to avoid these problems, it is necessary that exist a match between learning and teaching styles.

According to He and Liu (2014), the purpose of matching learning and teaching styles in L2 learning and teaching is to pass from a teacher-centered approach in which the individual differences (learning styles) of the students are ignored and the students are passive in the sense that they receive knowledge mechanically under the total control of the L2 teacher; to a student-centered approach in which the learning styles of the students are taken as an important factor for promoting L2 learning. In the student-centered approach, students become more active and involved in their own L2 learning process.

5.1.What L2 teachers should do

In order to achieve the matching between learning and teaching styles, experts such us Felder and Henriques (1995), Oxford (2003), Zhou (2011), Al Faki and Saleh (2014), among others, claim that L2 teachers should: first, identify the learning styles of their students. This could be done using one of the measurement tests of the several learning styles inventories proposed by different authors in this field (Fleming 2001, Kolb 1984, etc.). Second, L2 teachers should adapt their teaching style to connect it with all the different learning styles of the students in the classroom. That is, L2 teachers should use a wide variety methodologies, design different activities, use a variety of elements and materials, etc. that address or match the learning styles of all the students in the classroom. In this regard, Zhou, M. (2011) tells that:

> Teachers should design their instruction methods to connect with all learning styles, using various combinations of experience, reflection, conceptualization, and experimentation. Instructors can introduce a wide variety of experiential elements into the classroom, such as sound, music, visuals, movement, experience, and even talking. Teachers should also employ a variety of assessment techniques, focusing on acquiring the essential language skills (p. 73).

When L2 teachers have identified the learning styles of their students and have adapted their own teaching style to connect with learning styles of their students, the matching between learning and teaching styles is occurring.

What was previously said, could lead to think that the best thing an L2 teacher can do is to provide instruction to students exclusively in their preferred mode of learning. However, authors like Felder and Henriques (1995) citing Hunt (1971) Friedman and Alley (1984), and Cox (1988) as well as Oxford (2003) assert that the idea here is that students receive instruction in a multi-style approach. That is, students should receive L2 instruction in a format that matches their learning styles, but they should also be exposed to instruction that does not match their learning styles. According to these authors, this is important because students will inevitably deal with learning situations that do not match their learning styles; therefore, the exposure to mismatched instruction will help them to cope with these situations. Nevertheless, Felder and Henriques (1995) citing Smith and Renzulli (1984) caution L2 teachers that the mismatching should be planned and controlled by them; so that, students do not receive mismatched instruction for very long periods of time because this cause students to feel stressed, frustrated, and tired, affecting negatively L2 learning.

The point is not to limit L2 students to learn in their preferred mode, but to help them to learn in different modes. In this regard, Felder and Henriques (1995) citing Stice (1978) also tells that research carried out several decades ago, support the idea that students learn more when information is presented in different formats rather than using one single format. This research also concluded that:

> Students retain 10 percent of what they read, 26 percent of what they hear, 30 percent of what they see, 50 percent of what they see and hear, 70 percent of what they say, and 90 percent of what they say as they do something (Stice 1987, as cited in Felder and Henriques 1995, p. 28).

Before concluding this section, it is necessary to make clear that learning styles are only an important aspect of L2 learning. Therefore, the matching of learning and teaching styles alone, does not guarantee the success in L2 learning and teaching. Because, as Sharp (2004) asserts:

> In the process of learning the language, there are many variables that determine the success of a language learner. Language learning success is associated with a range of factors, including age, gender, motivation, intelligence, anxiety level, learning strategies and language learning styles (as cited in Razawi et al. 2011, p. 179).

Then, thinking that the matching of learning and teaching styles is enough to be successful in the field of L2 learning and teaching is a big mistake that could affect negatively the whole L2 learning and teaching process.

Summing up, in the field of L2 learning and teaching, learning styles are considered an important factor that promotes L2 learning. According to experts in this field, the matching between the students' learning styles and teacher's teaching style will motivate students. Then, they will be more willing to learn and their L2 learning will be easier, faster, and more effective. For doing so, L2 teachers should adapt their teaching styles to connect them with the learning styles of all students in the classroom. But, according to experts in the field, this does not mean that students should receive L2 instruction exclusively in their preferred mode of learning. They should also need to be exposed to mismatched instruction that will help them to deal with L2 learning situations that do not match their learning styles. In addition, is erroneous to think that matching learning and teaching styles will automatically guarantee the success in L2 learning and teaching. As said above, in the process of L2 learning there are other important factors such as gender, motivation, intelligence, etc. that play a vital role in determining the success of it.

6. The content´s best modality: an alternative to the learning styles hypothesis

The fact that the research carried out up to now has failed to prove the usefulness of the learning styles hypothesis in education has led experts to look for new alternatives for favoring learning. That is the case of Willingham (2005), who proposes that instead of providing students with instruction that matches their learning styles, it would be better to think about the content that teachers want to present and determine and choose the best modality in which this content should be presented in order to favor the learning of the students (the content's best modality). The idea of Willingham (2005) is that choosing the best modality in which a content should be presented is more important and beneficial that matching instruction to students learning styles. First, teachers should not worry about the different learning styles of students (visual, auditory, kinesthetic, etc.). Instead, they should think about the best mode in which they should present a given content to make it more understandable, comprehensible, interesting, appealing and easier to learn for their students. For example, if teachers want their students to learn how something looks like, this content should be presented visually. On the contrary, if teachers want their students to learn how something sounds like, this content should be presented using an auditory format. This does not mean that a teacher should use only one single mode for presenting the content. He or she could use the modes (visual, auditory, kinesthetic, etc.) he or she considers necessary to present the content and make it clearer for the students.

Second, the content´s best modality has a positive effect on the learning of all students, not only on the learning of those students whose learning styles are being

matched. For instance, a teacher that tries to explain the concept of multiplication by showing his or her students three boxes, each containing two balls, is favoring the learning of all the students in the classroom, not only the learning of those students who have a visual learning style. This is because the explanation of the concept "multiplication" is clearer for all students in this way. It does not matter if they are visual, auditory, or kinesthetic learners. What matters is that the content (the concept of multiplication, in this case) is being presented in a modality that makes it more understandable and comprehensible for all the students.

Third, a mixing of modalities when presenting a given content makes that students do not get bored during a class, that students are more attentive and willing to learn, and that the class itself becomes more interesting, appealing, enjoyable, and dynamic. All these factors will obviously have a positive impact on the learning of all students in the classroom. For example, in a language class, a teacher, after having his or her students listening for twenty minutes, he or she could show them a short video, then, he or she could ask them to do some work in groups, and so on. In this way, the teacher will awake the interest of the students for the class, making the learning process easier and more effective. Finally, the right choice of the content's modality allows teachers to easily achieve the objective they want to reach with their students. For instance, if a teacher wants his or her students to learn how "the human body" looks like or how an "English vowel" sounds like, he or she should present the content in a visual or auditory format respectively.

Summarizing, the content´s best modality proposed by Willingham (2005) consists of determining and choosing the best mode or modes in which a given content should be presented in order to make it more understandable, comprehensible, and even, more appealing and interesting to all the students in the classroom. This will make learning easier and more effective for students and will help teachers achieve the objective they want to reach with their students easily.

Conclusions and recommendations

Already having an idea of what learning styles are and which are the pros and cons around this concept, it is still difficult to say if learning styles are beneficial or harmful in the educational process. Therefore, it is also complicated to decide which side to support, proponents or opponents. The reason is that both sides have some strong arguments. In the case of the proponents, the idea that everybody is different, and thus, everybody has different preferences when it comes to learning, is right. All people are unique. There are not two people who are completely the same. We are all different; then, it is obvious that we show different preferences for learning (learning styles). For example, some people learn better when we can read the information to be learned, while others learn better when they are involved in a hands-on activity. It is also true that if teaching matches the

students' learning styles, learning will be somehow favored. However, this does not mean that if teaching matches students' learning styles, the academic achievement of students will be automatically better, and the learning process will become easier and more effective. But why? First, because as opponents of learning styles state, the studies carried out up to now have not shed conclusive evidence that there is a direct relationship between matching students' learning styles and the improvement in their academic achievement. The results obtained up to date are not constant. Sometimes these results are positive, but sometimes they are negative. Therefore, we cannot generalize and say: matching students' learning styles equals to better academic achievement. Second, because as Riener and Willingham (2010) suggest, there are more important factors such as interest and motivation of students that have a direct influence on the learning process.

As said above, both sides have some good points that make quite difficult to say if learning styles are good or bad for the educational process. Thus, we cannot reject or accept completely the learning styles hypothesis. Perhaps, the best thing to do is to use the learning styles hypothesis as one of several strategies to improve students learning, but without assuming that matching students' learning styles equals to better academic achievement. Because, as seen above, the learning styles hypothesis does not work in all cases and for all people. Then, we cannot depend completely on it. In addition, as it was seen earlier in this paper, there are other factors such as motivation and interests that play a very important role in the learning process.

In the field of L2 learning and teaching, as said earlier in this paper, the learning styles of the students play an important role in promoting their learning. On one hand, the main idea is that if students receive L2 instruction that matches their learning styles, their learning will be easier and more effective. On the other hand, it is believed that the mismatch between learning and teaching styles brings negative effects, as those mentioned earlier (boredom, lack of motivation, etc.), that hinder the L2 learning and teaching process. Then, what L2 teachers should do is to identify the learning styles of their students and look for strategies, methodologies, activities, materials, etc. that allow them to address the different learning styles of their students simultaneously or sequentially. This is something similar to what the proponents of the learning styles hypothesis assert, but with the difference that experts in the field of L2 learning and teaching, claim that teaching students exclusively in their preferred mode of learning is harmful for them. According to them, the ideal thing is a combination of matched and mismatched L2 instruction that will allow students to cope with learning situations that do not only address their own learning styles, but also address other different learning styles.

The idea of the matching and mismatching hypothesis proposed by the experts in the field of L2 learning and teaching is quite interesting, and probably more promising that

the learning style hypothesis alone in the hope of making the learning and teacher process easier and more effective. Nevertheless, it still persists the problems with the lack of empirical evidence. Therefore, relying too much on learning styles during the process of L2 learning and teaching could be somehow dangerous because teachers do not know for sure if in doing this, they are benefiting and harming the students. But, despite these limitations, the combination of the matching and mismatching hypothesis, together with the consideration of other aspects (motivation, interests, intelligence, age, etc.), could bring positive results to this field. But again, the idea is not to depend exclusively on learning styles. Learning styles are only a part of the whole. There are other factors like those mentioned earlier in this paper that play an important role in determining the success of the L2 learning and teaching process.

Due to the lack of empirical evidence that supports the learning styles hypothesis, Willingham (2005) has proposed a new hypothesis, which according to him, will produce better and more profitable results than the matching between learning styles and instruction. This hypothesis is called "the content's best modality", according to which, what matters is not to make that instruction matches the students learning styles, but to determine and choose in which modality or modalities a given content should be presented to the students in order to make it more understandable, comprehensible, interesting, and appealing to them. The advantage of the content's best modality is that teachers do not have to worry about the learning styles of their students and about providing them with matched instruction. Therefore, the application of the content's best modality promotes and benefits the learning of all the students in the classroom, not only of those whose learning styles are being matched. The idea of Willingham (2005) with the content's best modality is very interesting; and if it works, it will help to overcome the limitations of lack of empirical evidence with the learning styles hypothesis. Nonetheless, this does not mean that teachers should rush to implement the content's best modality in their classes. Since this is a new proposal, research is needed to prove its utility in the learning and teaching process. What teachers could do is to help with the research, making a controlled implementation of the content's best modality in their classrooms to find out if it really works.

As a personal opinion, I could say that the learning styles hypothesis is neither as good nor as bad as the proponents and opponents of learning styles claim. In the first place, as said earlier in this paper, the mere implementation of the learning styles hypothesis does not guarantee that the learning of the students is going to be easier, faster, and more effective. Learning is a very complex process; and besides learning styles, there are other factors that play an important role in this process. It happens as Sharp (2004) and Riener and Willingham (2010) say: there are many variables that determine the success of the learning process. Among these variables, are included: age, gender, motivation, interests, anxiety, learning strategies, etc. Therefore, the implementation of the learning styles

hypothesis alone, as the proponents of learning styles assert, is not enough for promoting the learning of the students.

In the second place, the implementation of the learning styles hypothesis is not useless as the opponents of learning styles claim. As said above, learning styles, in combination with the factors previously mentioned, could bring positive effects to the learning process of the students. First, the implementation the learning styles hypothesis contributes to motivate the students and facilitate their learning. This is because when the students receive instruction in a format that matches their learning styles, they feel more willing to learn; and therefore, they learn easier and faster. Second, when the students know their learning styles, they become aware of their strong and weak points, allowing them to fortify their strengths and work on their weaknesses. But again, learning styles are only a part of the whole; and the learning styles hypothesis would work only if the other factors (motivation, interests, etc.) that play an important role in the learning process are taken into consideration.

In other words, the learning styles hypothesis alone does not facilitate the learning of the students. But in combination with the other factors that play a vital role in the learning process, the learning styles hypothesis could facilitate the learning of the students and make it easier, faster, and even more effective.

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