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**Exploring the Relationship between Teaching and Learning Styles
in Teaching English as a Foreign Language**

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Abstract

The aim of this paper is to explore the relationship between learning styles of Croatian EFL learners and their teachers' teaching styles. The first part of the paper brings the theoretical overview of both types of styles. The most popular division of learning and teaching styles is, according to sensory preferences, into visual, auditory, tactile, kinesthetic, group, and individual. In the second part, the research on the relationship between learning and teaching styles of Croatian EFL learners and teachers is presented. The results showed that students preferred auditory learning style, while teachers preferred visual and individual teaching styles. Therefore, there was a mismatch, which seemed to affect students' achievement.

Key words: learning styles, teaching styles, mismatch, Croatia, EFL

1. Introduction

MacMillan English dictionary defines learning as a process of gaining knowledge and experience through, for example studying. Language learning, especially first language learning is one of the most fascinating human developments and abilities (Lightbown and Spada, 1993). Second language acquisition (SLA), equally fascinating, is a general term for the process of learning another language (L2), after the native tongue has been learned. It is the study of acquisition of a non-native tongue; the study of how learners build an entirely new language system with only limited exposure to it (Gass and Selinker, 2008). The term SLA can refer to acquisition of an L2 in a classroom environment, "as well as more 'natural' exposure situations." (Gass and Selinker, 2008:7) Foreign language learning (FLL), on the other hand is a process of learning a non-native language in the environment of one's native language, and is generally done in a classroom.

Both SLA and FLL are complex processes, influenced by a variety of factors. Lightbown and Spada (1993) list, among others, age, motivation, aptitude, personality characteristics, intelligence, and language learning styles. Zoltan Dörnyei (2005) refers to these factors as individual differences (ID) and lists some more (e.g. learning strategies). He defines them as "dimensions of enduring personal characteristics that are assumed to apply to everybody and on which people differ by degree" (Dörnyei, 2005: 4). The aim of this paper is to explore one of these IDs, namely learning styles. In particular, the relationship between learning and teaching styles in EFL classroom will be investigated. The topic of IDs, especially learning styles interested me greatly, because they can influence the learning process to a great extent, and therefore have to be taken into consideration when teaching. People tend to forget that not all of us are the same, but differ greatly even in the smallest details. Moreover, since along English, I study philosophy, the topic of perception, in my opinion, is one of the most interesting things in philosophy.

The first part of this paper provides the overview of theories regarding learning and teaching styles, as well as research findings on these topics from different parts of the world. The second part brings results of a quantitative research on learning styles of Croatian secondary school EFL learners, as well as their teachers' teaching styles.

One of the most important researchers on learning styles, Joy M. Reid (1998) defines them as internally based characteristics that are often not perceived or consciously used by learners, for the intake and comprehension of new information. Many other researchers studied learning styles and offered their definitions that will be presented in the next section, but they are all similar to Reid's. As Dörnyei (2005) points out, learning styles refer to personal preferences that are bipolar; they represent a continuum from one extreme to the other (e.g. some students are more visual than the others). Some authors (Kinsella, 1995, as cited in Dörnyei, 2005) stress that the concept of learning styles presents a value neutral approach to understanding differences among students from diverse cultural and linguistic backgrounds.

It is important to differentiate between learning styles and learning strategies. Riding (2000, as cited in Dörnyei, 2005) states that while learning styles have a psychological basis, and are relatively fixed, learning strategies may be learned and developed over time to cope with new

situations and tasks. Reid (1998) adds that learning strategies are external skills used consciously to improve learning (e.g. note taking).

As students have their own learning styles, it is logical to assume that teachers have their teaching styles. Teaching styles are teachers' "natural, habitual and preferred ways of teaching new information and skills in the classroom" (Peacock, 2001:7). They refer to a variety of ways teachers teach their learners. Some authors (Oxford et al, 1992, Chu et al, 1997, as cited in Peacock, 2001) suggest that teachers' teaching styles reflect their own learning styles, or the way they were taught. The idea of matching or mismatching teaching and learning styles is not new. A lot has been written on this topic, and different authors oppose or support matching, as there are those who believe that teachers should teach in a variety of ways, regardless of learners' learning styles (Alkhatnai, 2011).

Research on learning styles of Croatian EFL learners showed that the learners preferred auditory learning style, which is followed by visual. Most favored teaching styles, on the other hand, were visual and individual. The research has, therefore, uncovered a mismatch regarding teaching and learning styles. The difference in styles somewhat affected the students' achievement. However, learners whose learning styles were in accordance with teaching styles of the teachers, achieved better in the course.

2. Learning Styles

One of the most extensively researched area regarding learning are, as Alkhatnai (2011) states, learning styles. They have been studied in relation to various factors, such as learners' culture, achievement, attitudes etc. As it was already mentioned, Reid (1998) defines learning styles as internally based learner traits that are often not perceived or consciously used by learners- for taking in and comprehending new information. Students retain their preferred learning styles regardless of their teachers' teaching styles, and may develop other learning styles over time. Dörnyei (2005: 121) describes learning styles as "a blueprint of the habitual or preferred way the individual perceives, interacts with, and responds to the learning environment." They refer to personal preferences, and are not yet another way to differentiate between talented and untalented learners. He stresses that these definitions make intuitive sense since every learner is unique and different from the rest, and can approach the same learning task in different ways. However, there are not innumerable approaches, but they can be categorized. Gavin Reid (2005) states that learning styles are influenced by a student's culture, the classroom, and overall school climate, classroom dynamics, curriculum, and teaching styles.

Before going into further detail about learning styles, it is important, as Dörnyei (2005) stresses, to differentiate between cognitive and learning styles since they are not interchangeable. Some authors (e.g. Rayner, 2000, as cited in Dörnyei, 2005) point out that learning styles are individuals' approach to learning that incorporate two levels: cognitive and learning activity. The first level is internal, stable and relates to the way a person thinks or processes information. The latter is more external, unstable, and is connected with a learner's adaptation to the environment. Cognitive styles therefore lie within the domain of learning styles. Dörnyei (2005: 124) defines them as "individual's preferred and habitual modes of perceiving, remembering, organizing, processing, and representing information." It is evident that they are free of all situational and environmental interferences. The notion, however, has received a lot of criticism, with the main problem being that the research was not able to prove them to be an independent theoretical concept, but too dependent on measuring instruments. Dörnyei (2005) states that there have been numerous instruments for measuring cognitive styles, providing conceptualizations and definitions that did not fully overlap which led to an overall confusion in the field. Nevertheless, he names Richard Riding's taxonomy of cognitive styles, as the one that overcomes the shortcomings of its predecessors, with two superordinate style dimensions: Wholist-analytic and Verbal-imagery. Wholist-analytic dimension refers to whether individuals tend to organize information as a whole or in distinct parts of the same whole. Wholists, therefore have an overall perspective of a situation, and appreciate the total context, but at the same time, they can easily lose sight of the details. On the other hand, analytics see a situation as a combination of various details. They can separate a situation in its parts, and easily get to the heart of the problem, but their downside is that they might not get a balanced view of the whole. Verbal-imagery style dimension regards the way information is represented, and the focus of attention. Verbalizers are individuals who are outgoing, active and prefer to represent information verbally, while imagers are focused inward, passive and tend to think in mental images. However, most people are, as Dörnyei (2005) points out in between the two extremes, and able to benefit from the advantages of the both.

2.1. Defining Learning Styles

The topic of learning styles has attracted a lot of attention among SLA and FLL researchers. There are many other definitions of learning styles by various theorists, some which are listed by Peacock (2001) (see Table 1).

Table 1: Five definitions of learning styles (adapted from Peacock, 2001).

Keefe (1979):	Cognitive and affective traits that are relatively stable indicators of how learners perceive, interact with, and respond to the learning environment.
Reid (1987):	Variations among learners in using one or more senses to understand, organize, and retain experience.
Willing (1988):	Natural, habitual, and preferred ways of learning...a clear, comprehensible and coherent set of likes and dislikes.
Spolsky (1989):	Identifiable individual approaches to learning situations.
Rossi-Le (1995):	The preferred mode of perceiving, organizing and retaining information.
Reid (1995)	Natural, habitual, and preferred way(s) of absorbing, processing and retaining new information and skills.

Moreover, Reid (1987, and 1995, as cited in Peacock, 2001) proposed five hypotheses about learning styles which will be further examined.

H1: all students have their own learning styles and learning strengths and weaknesses.

H2: a mismatch between teaching and learning styles causes learning failure, frustration and demotivation.

H3: learning styles (if unchecked) persist regardless of teaching methods and materials.

H4: learning styles can be adapted because they are partly habit rather than biological attributes.

H5: learning will be improved if students become aware of a wider range of styles and stretch their own styles.

The first two hypotheses received much attention, and theoretical support, from Peacock (2001), as well as from other researchers, and were tested in research presented below. As Peacock (2001) reports, students generally favor kinesthetic and tactile learning styles, and disfavor group style. When it comes to the second hypothesis, many authors claim that mismatches between teaching and learning styles occur, and have negative effects on students' learning, and attitudes to the class, as well as to English. Peacock (2001) lists various authors who claim that matching teaching and learning styles improves learning, behavior, motivation, and gives all students an equal chance to achieve. More on the influence of matching or mismatching of teaching and learning styles on students' attitudes and achievement is presented in the following sections.

2.2.Learning Style Theory

Many researchers have developed their own theories about learning styles as well as their categorizations. Some authors (e.g. Oxford and Anderson, 1995, as cited in Dörnyei and Skehan, 2005) postulate that learning styles have six interconnected aspects: cognitive, affective, executive, social, psychological, and behavioral. Cognitive aspect relates to preferred or habitual patterns of mental functioning; affective aspect concerns values, beliefs, and attitudes that affect what an individual pays attention to during learning; executive aspect is connected with the degree to which a person seeks order, organization, closure, and manages the learning process; social aspect refers to the preferable extent of involvement of other people while learning; psychological aspect concerns learner's sensory and perceptual preferences, and behavioral aspect is connected with learner's active seeking of satisfaction of learning preferences. They also claim that individual learners have a combination of at least twenty different style dimensions, eight of which are important for second language learning. These include global vs. analytic learning styles, field dependent vs. field independent, feeling vs. thinking, impulsive vs. reflective, intuitive-random vs. concrete-sequential, closure-oriented vs. open, extroverted vs. introverted, visual vs. auditory vs. hands-on (kinesthetic/tactile).

Global learning style i.e. global learners focus on the material they have to learn, as a whole. As Dörnyei (2005) points out, they see the big picture and follow instincts. Reid (1998) adds that they learn more effectively through concrete experience and interaction with others. On the other hand, analytic learners tend to work their way through the material step by step in order to understand it better (Dörnyei, 2005). Moreover, as Reid (1998) states, they prefer to work alone.

When it comes to research on field dependence-independence (FD/I) Dörnyei (2005) names Herman Witkin as its initiator. FD/I were first associated with visual perception; it was noticed that people can be "categorized in terms of the degree to which they were dependent on the structure of the prevailing visual field." (Dörnyei, 2005: 136). FD people are highly dependent of the field, and they cannot separate the details from the whole. On the other hand, FI people are free of the influence of the field, and can easily notice even the smallest details. Some authors (Johnson, Prior, and Artuso, 2000 as cited in Dörnyei, 2005) found that FI learners perform better than FD learners on cognitive tasks. However, since L2 learning is a complex process, some authors (Johnson et al, 2000, as cited in Dörnyei, 2005) claim that FD learners are more successful in communicative tasks. They learn better when they can put facts in a context, and they are sensitive to human relationships (Reid, 1998). FI learners prefer analyzing facts, and are good at separating essential from inessential.

According to Dörnyei (2005), the main trait of impulsive learning style is rapid reaction, whereas reflective learning style is characterized by thinking things through before giving a response. Reflective learners prefer having time to consider other options. It cannot be claimed that these are abilities, but real learning style dimensions both of them having its advantages and disadvantages.

Intuitive-random learning style is described by some authors (Oxford, 1993, as cited in Dörnyei, 2005) as a preference for thinking in an abstract, future oriented way, and willingness to rely on imagination and perception. Students who prefer concrete-sequential learning style are more

concerned with facts, and prefer them over relying on intuition. They like facts organized in a logical way.

When it comes to closure oriented and open learning styles, some authors (Oxford, 1993, as cited in Dörnyei, 2005) state that closure oriented students need clarity and prefer to plan ahead. They favor following instruction, and avoid improvisation. Open students prefer to be spontaneous, and prefer flexible situations without fixed deadlines.

Dörnyei (2005) describes the basis of Kolb's learning style model as the interchange of two main dimensions, concrete-abstract thinking, and active-reflective information processing. Without going into details about these dimensions, only learning styles that emerge from their combinations will be further discussed. Divergers (concrete and reflective learning style), as Reid (1998) sums up, enjoy perceiving concretely and process information reflectively. Dörnyei (2005) describes them as preferring concrete situations where the need for the generation of ideas is present. They prefer brainstorming, and they learn best through concrete experience, looking at concrete situations from different points of view in a reflective manner. Divergers are emotional when dealing with people, and have broad cultural interests. Convergents (abstract and active learning style) think abstractly and like producing new ideas and theories. Reid (1998) explains that they learn more effectively when they can perceive abstractly and actively process information. This does not mean, as Dörnyei (2005) points out, that they are detached from the real life, but they like to use active experiments to test their theories and schemes in practice. Convergents are better at solving technical problems, than those that are social in nature. They prefer experiments, simulations, and working on laboratory assignments. Assimilators (abstract and reflective learning style) are characterized by abstract thinking, assimilating different observations in a reflective manner. They prefer understanding a wide range of information, and logically and concisely ordering them. Assimilators are more interested in abstract ideas, and find it more important that a theory is logically sound than that it has practical value for other people. Accommodators (concrete and active learning style) prefer concrete experience, active experimentation, and risk taking. They are typical hands-on learners, following their 'gut' rather than logically analyzing facts.

It is impossible to discuss learning styles without mentioning the Myers-Briggs Type Indicator (MBTI). Dörnyei (2005) explains that this widely popular personality type inventory is based on Jung's theory of three bipolar types: extraversion-introversion, sensing-intuiting, and thinking-feeling. Myers and Briggs added the fourth dichotomy, judging-perceiving, and constructed the inventory. The MBTI is also used in L2 studies to determine learning styles. Extraversion-introversion duality refers to where people prefer to focus, the outer world of people and experience, or the inner world of abstract concepts. Reid (1998) concisely puts that extraverted learners learn effectively through concrete experience and interaction with other people, whereas introverted learners favor working individually and value independence. Sensing-Intuition dichotomy refers to how people perceive the world and gather information (Dörnyei, 2005). Sensing relates to what is real, and experienced through the senses. Sensing individuals are interested in what is observable, while intuitive person relies on his or her intuition. Intuitive people prefer the abstract over the concrete. Thinking-feeling refers to the ways people arrive at conclusions and make decisions. While thinking types try to exclude everything that is

subjective, and follow rational principles, feeling types are guided by their concern for others. Thinking types prefer to base their decisions on logic, whereas feeling types are highly compassionate. Finally, judging-perceiving duality refers to how people deal with the outer world and take action. Reid (1998) explains that students who prefer judging learn best by reflection, analysis, deduction, and processes that involve closure. Students who prefer perceiving learn more effectively through negotiation, feeling and inductive processes where closure is postponed.

As well as theories, researchers of second language acquisition and foreign language learning have developed various instruments to measure learners' strengths in each of these styles which will be discussed in the following paragraphs. However, it is important to reiterate that learning styles occur on a continuum (Dörnyei, 2005), so individual students can be for example more or less field dependent.

2.3. Assessing learning styles

Some authors (Given and Reid, 1999, as cited in Reid, 2005) claim that there are about one hundred learning style instruments, while others (Coffield et al, 2004, as cited in Reid, 2005) found 71. According to previously mentioned authors, these batteries focus on factors that influence the learning process such as modality preference, personality type, social variables, cognitive processes, movement and laterality, and emotional factors. Dörnyei (2005) points out that all of them are self-report questionnaires, following the same format: respondents indicate their answers by marking one of the options on a rating scale. Since mostly they have not been submitted to standardization processes that are required of instruments that are used in psychological research, they vary in reliability and validity. This fact, however, is not of great importance, because these batteries are mainly developed and used to raise students' awareness about learning styles, as well as to establish their learning style preferences. Some authors (Coffield et al, 2004, as cited in Reid, 2005) categorized these instruments based on the extent to which the authors of the instruments considered learning styles to be a fixed trait. On one end they placed theorists who believed learning styles to be fixed and inherited, and on the other, authors who focused on motivation and environmental factors to influence learning styles. Somewhere in the middle, they placed authors who acknowledged the external factors and those that believe that learning styles present a combination of a persons' self and experience. Dörnyei (2005) lists the following instruments as the ones most popular and widely used: Kolb's *Learning Style Inventory*, Rebecca Oxford's *Style Analysis Survey* and *Learning Style Survey*, *The Ehrman and Leaver Construct*, Skehan's *Conceptualization of a Learning Style Construct*, and Joy M. Reid's *Perceptual Learning Styles Preference Questionnaire*.

2.3.1 Kolb's Learning Style Inventory (LSI)

Dörnyei (2005) describes the first instrument Kolb developed as consisting of nine items that described learners. Each of them asked learners to order four words in a way that best illustrated their learning styles. One word in each item matched one of Kolb's learning modes: concrete experience (feeling), reflective observation (watching), abstract conceptualization (thinking), and active experimentation (doing). Later on, Kolb replaced single words with twelve short statements. His theory that the 'abstract' and 'concrete thinking' categories were at the opposite

ends of a continuum was proved in the initial validation of the inventory. However, Dörnyei (2005) points out a couple of problems with the test. Firstly, it is similar to the Myer's-Briggs Type Indicator which is mainly a personality test. Secondly, respondents are asked about their typical behavior associated with each style rather than about their style itself.

2.3.2. Rebecca Oxford's *Style Analysis Survey (SAS)* and *Learning Style Survey (LSS)*

Style Analysis Survey was, according to Dörnyei (2005) constructed by an expert in second language acquisition and it has primarily been used with second language learners, even though the items in the test are non-subject-specific. The SAS consists of five parts with 110 items. The first part is concerned with how students use their physical senses when studying; second part-how they deal with other people; third-how they handle possibilities; fourth-how they approach assignments; fifth-how they deal with ideas. Respondents mark their answers on four-point scale ranging from 'never' to 'always'. The *Style Analysis Survey* is a user-friendly instrument, with self-scoring sheet and explanations for each style.

The *Learning Style Survey* is an improved version of the SAS, constructed by Cohen, Oxford and Chi in 2001 (as cited in Dörnyei, 2005). They increased the breadth of the battery by adding several other learning style dimensions, without changing the total number of items. Secondly, they wanted the SAS to be more focused on language related issues than the previously published batteries were. This was achieved by adding second-language-specific items, along with non-language specific ones.

2.3.3. *The Ehrman and Leaver Construct*

Leaver and Ehrman (2003, as cited in Dörnyei, 2005) have researched learning styles since the 1990s, and devised a learning style questionnaire that is based on a completely new understanding of learning styles. Their theory supposes a number of style dimensions subsumed under a construct. There is only one superordinate style dimension with two poles-ectasis and synopsis. The main difference between the poles is that an 'ectenic' learner prefers and requires conscious control over the learning process, while a 'synoptic' learner does not. The complete test consists of ten subdimensions, and many of them are similar to the *Learning Style Survey*. Ehrman and Leaver (2003, as cited in Dörnyei, 2005) provided a very detailed explanation of each of the subdimensions. The *Ehrman and Leaver Construct* includes following subscales: field dependent-independent and field sensitive-insensitive, random-sequential, global-particular, inductive-deductive, synthetic-analytic, analogue-digital, concrete-abstract, leveling-sharpening, and impulsive-reflective.

2.3.4 *Skehan's Conceptualization of a Learning Style Construct*

Dörnyei (2005) describes Skehan's approach to learning styles as unique, since his research started in the field of linguistics. Skehan claims that there are two types of learners: 'analysis oriented' and 'memory oriented'. Analysis oriented students develop organized representations of a language, constantly restructure their interlanguage system, and strive for accuracy. On the other side are memory oriented learners who try to associate large clusters of words with their

meanings. Unlike analysis oriented learners who use complex analytic systems for effective communication, memory oriented students store a wide range of lexical examples in their memory and use them when need be. These two dimensions seem like abilities, so students can be characterized as having high or low levels of them.

2.3.5 Reid's *Perceptual Learning Style Preference Questionnaire*

Joy M. Reid's *Perceptual Learning Style Preference Questionnaire* (PLSPQ) was, according to Dörnyei (2005), the first learning style measure widely used in the second language studies. The PLSPQ consists of thirty randomly ordered sentences for each of the learning styles: visual, auditory, kinesthetic, tactile, group, and individual learning. Even though Reid is a second language researcher, and the instrument has been used on the learners of English as a second language, the items are non-language specific, since they do not mention any subject matter. The questionnaire uses five point scale items ranging from 'strongly agree' to 'strongly disagree' (5-strongly agree, 4-agree, 3-undecided, 2-disagree, 1-strongly disagree). It is user friendly, with a self-scoring sheet, along with explanation for each style and suggestions for learners. Example sentences for each learning style are following:

- a) Visual preference: I learn more by reading textbooks than by listening to others.
- b) Auditory preference: I learn better in class when the teacher gives a lecture.
- c) Kinesthetic preference: When I do things in class, I learn better.
- d) Tactile preference: I enjoy making something for a class project.
- e) Group preference: I learn more when I study with a group.
- f) Individual preference: When I study alone, I remember things better.

Reid categorized learning styles as major, minor and negligible (Juris et al, 2009). She defined major style as the student's preferred style; the style using which students perform the best. Minor learning styles, according to Reid (1998) represent the areas where students can operate well since successful students can learn in several different ways. Negligible, or as Peacock (2001) states, negative learning style is the one that makes learning more difficult for the student. Reid (1998) suggests that students direct their learning to their stronger styles, or practice skills to strengthen their negligible styles. After solving the questionnaire, the numerical value is assigned to the corresponding learning styles. The numbers are then multiplied by two, determining the major, minor and negligible learning styles. Scores between 38 and 50 determine the major, 25-37 minor, and 0-24 negligible learning style preference. If a student for example, scored 43 on visual style preference, his/her major learning style is visual, and so on.

2.4. Perceptual learning styles

The most commonly known learning style classification, according to Dörnyei (2005), is the division of learning styles into sensory preferences or perceptual modes. These include visual, auditory, kinesthetic, and tactile perceptual channels through which students take in information. Reid was (as cited in Vaseghi et al. 2012) the first to study perceptual learning style preferences among non native speakers of English i.e. students of English as a second or foreign language. Some authors (e.g. Keefe, 1987, as cited in Alkhatnai, 2011) postulate that perceptual modality is

placed within the cognitive domain of learning styles. Moreover, perceptual response is both cognitive and affective, meaning that preferred response is a biased initial reaction to information. Alkhatnai (2011) claims that since every learner is different than the other, their perceptual modalities also vary, and students can have more than one preferred modality. Some authors (Swassing and Milone, 1979, as cited in Alkhatnai, 2011) explicated how it is possible that older students have a dominant modality supported by a secondary one, taking age into consideration, and asserting that children may have one dominant modality. Studying perceptual learning style is, according to Tight (2007, as cited in Alkhatnai, 2011) important because of several reasons. First of all, they represent one of the crucial parts in the learning process. They are very intuitive, so some people can claim for themselves to be more visual, while others can be more auditory. Lastly, they are easily recognized among students, so teachers can adapt their lessons to cater to different styles.

2.4.1. Visual learning style

Visual learning style is the most frequently preferred learning style among students. Some authors (e.g. Oxford, 1995, as cited in Dörnyei, 2005) claim that about 50-80% people describe themselves as visual. Visual learners absorb information most efficiently through the visual channel. They like reading information, highlighting important parts in different colors, looking at objects or pictures and so on. These facts however, should not be overly generalized, since some authors (e.g. Kinsella, 1995, as cited in Dörnyei, 2005) point out that they might be overwhelmed with extensive written material. Moreover, they might require less verbal presentation of information through pictures, graphs, charts, films, videos etc. If large amounts of information are presented to them orally, their understanding can be raised with handouts, taking notes or other visual aids. Reid (1998) points out that they are successful at studying alone with a book.

2.4.2. Auditory Learning Style

Auditory learning style, according to some researchers (e.g. Reid, 1995, and Garrett, 1991, as cited in Alkhatnai, 2011) is the least popular among learners. It is also the most difficult way of learning. Auditory learners learn most efficiently through auditory input such as lectures, audiotapes, discussions, reading passages out loud, explanations and so on (Dörnyei, 2005). Reid (1987, as cited in Peacock, 2001) speculates that around 90% of secondary school teaching, which includes teacher-student talk and discussions, is directed towards auditory learners. Reid (1998) suggests that auditory learners should read out loud, or by moving their lips in order to remember information better. They can also make tapes, of themselves reading out loud, or others, and listen to them when studying, teach other students or talk with their teachers.

2.4.3. Kinesthetic Learning Style

Kinesthetic learning style, according to Dörnyei (2005) refers to total body experience while learning. Students who prefer this style like walking around while learning, and find that helpful for learning new information. Because of this, they need frequent breaks, and if they sit motionlessly while learning, they become restless. Reid (1998) states that kinesthetic learners learn best when they can be physically involved, and actively participate in classroom activities

and tasks. Various authors (e.g. Hinkleman and Pysock, 1992, as cited in Alkhatnai, 2011) claim that the best suited activities for kinesthetic learners include should incorporate a combination of stimuli, such as role-playing, drama, acting, or, as Reid (1998) points out, an audio tape combined with an activity. Reid (1987) concluded that in all the studies she conducted on ESL students, kinesthetic modality was the most dominant preference.

2.4.4. Tactile Learning style

Tactile learning style is associated with learners who prefer learning through touch (Alkhatnai, 2011). They prefer hands-on approach, and manipulation of objects (Dörnyei, 2005). Tactile learners take pleasure in making collages, posters, building different types of models, and other forms of artwork. They also enjoy conducting lab experiments. This sensory preference is often mixed with kinesthetic modality, or the terms are used interchangeably (Alkhatnai, 2011). Reid (1998) asserts that hands-on approach relates only to tactile modality, while kinesthetic modality preference refers to total body movement. Moreover, she advises tactile students to take notes, or write instructions to remember information, as well as to be physically involved in class related activities.

2.4.5. Group Learning Style

Along with sensory preferences, Reid (1987) added two more learning style preferences: group and individual. Students that prefer group learning style, as Reid (1998) explains, prefer working with at least one other student or in groups of different sizes. They are more successful, and likely to finish tasks when working with others. The stimulation they receive from group work helps them to learn and understand new information better.

2.4.6. Individual Learning Style

Students that prefer this modality, as Reid (1998) claims, learn best when they can work alone. They can focus, understand information, and make progress better when they work by themselves. Therefore, individual work in the language learning process suits them optimally.

3. Teaching Styles

Since students have their own, individual learning style, there is no reason to doubt the existence of teachers' teaching styles. Teaching style construct is not new, but surprisingly little has been written about it. Various researchers provide their theories about what teaching styles are, what they represent, how they form, and what teachers should do regarding their teaching and their students' learning styles. These topics, as well as some others will be discussed in the chapters that follow.

3.1. Defining Teaching Styles

As opposed to extensive literature on learning styles, Peacock (2001) notices that less has been written on teaching styles. He also observes that they have not even been defined. For the purposes of his study, Peacock defines second language teaching styles as "natural, habitual, and preferred way(s) of teaching new information and skills in the classroom." (Peacock, 2001: 7).

Teachers have their own teaching styles that can be identified. Some authors (e.g. Oxford et al, 1992; Chu et al, 1997, as cited in Peacock, 2001) claim that teachers teach the way they learned or were taught, while others (Kinsella, 1995; Jordan, 1997, as cited in Peacock, 2001) suggest that teachers imitate the teachers they admired. Even though teachers may teach in a variety of ways, their teaching style depends on their preferred learning style (Goodwin, 1995 as cited in Alkhatnai, 2011).

Reid (2005) stresses that teachers need to become aware of their learning styles i.e. teaching styles in order to cater to diverse learning styles of their students. According to Alkhatnai (2011), the idea of trying to accommodate for all learning styles has raised some problems. Some authors (e.g. Coffield et al, 2004, as cited in Alkhatnai 2011) state that it is hard to imagine teachers changing their teaching style to cater to thirty different learning styles.

3.2. Classification of Teaching Styles

As it has already been mentioned, both Reid (2005) and Alkhatnai (2011) stress the importance of teachers' identifying their teaching styles. Many researchers have developed different classifications, as well as instruments to measure these styles. (Alkhatnai, 2011)

Some authors (e.g. Grasha, 1996 as cited in Alkhatnai, 2011) categorize teaching styles in four groups; formal authority, demonstrator, facilitator, and delegator. Teachers that prefer the formal authority teaching style, concentrate on providing and controlling the flow of information. Building a relationship with learners is, for those teachers, of secondary importance. The demonstrator or personal model teaching style is characterized by instructors' demonstration of what is expected from learners. The teacher is the model, and invites students to follow his or her example. The third teaching style, facilitator, places the responsibility on students to take the initiative and achieve results. Teachers that use this style promote active learning, and student collaboration through group activities and problem solving. Teachers that prefer the fourth, delegator teaching style, tend to place much control and responsibility on the students. Students are asked to work independently or in groups, and manage different interpersonal roles.

Alkhatnai (2011) describes the *Teaching Style Inventory* (TSI), developed by the Center of Occupational Research Development in 2005. The TSI divides teaching styles into four quadrants. Quadrant A (Cognitive-Processing) describes a teacher who likes his or her students to process information through symbols, and have them work individually. Quadrant B (Interaction-Cooperative) teacher also prefers students to learn via symbols, but work as a group. Quadrant C (Interaction-Individual) instructor prefers his or her learners to work individually on computers, manipulating variables in interactive applications. Finally, quadrant D (Cognitive-Enactive) teacher has a preference for group work of his or her students through laboratory projects.

In order to determine teaching styles of the teachers participating in his study, Peacock (2001) modified the PLSPQ. The modified PLSPQ asked teachers about their teaching styles using the same six categories and descriptions as the original questionnaire. The change was in that the teachers had to respond to each statement as it applied to their teaching, using a 5-point scale (always, often, sometimes, rarely, never). The same scoring system as for the students' questionnaire was used to calculate the results, and divide styles into major, minor, and negligible categories.

Other researchers, like Cheng and Banya (1998), Juris et al (2009) and Sabeh et al (2011) used the PLSPQ without changing it, but adding a questionnaire about general information about the respondent (age, gender, etc.), to learn about teaching styles of teachers participating in their studies.

3.3. Relationship Between Teaching and Learning Styles

Based on the work of a number of researchers, Alkhatnai (2011) presented three possible approaches showing how teachers should deal with a variety of learning styles in their classrooms:

- a) Matching: teachers should identify learners learning styles, and adapt their instruction to them.
- b) Mismatching: teachers should identify the learning styles, and then gear the instruction towards the opposite preference of the learner as to strengthen these weaker preferences.
- c) The third approach does not include identifying learning styles, but instruction should include different methods that accommodate most, if not all, of the learners' preferred learning styles.

Some authors (Felder and Silverman, 1988; Lawrence, 1993; Oxford et al, 1991, and Schmeck, 1988, as cited in Felder and Henriques, 1995) claim that when there are mismatches between teachers' teaching styles and students' learning styles, consequences can be serious. Students can become bored, inattentive, do poorly on tests, get discouraged about the class or even give up the class altogether. Teachers, on the other hand, according to Felder and Henriques (1995) can become overly critical of students and themselves, and even question their own teaching competence. Based on the ideas of several authors, presented in Felder and Henriques (1995), matching teaching and learning styles in foreign language instruction can considerably enhance

students' achievement, attitudes and behavior. Moreover, they stress that this does not mean that teachers should constantly use the modes the students prefer, but they should balance methods of instruction. They offer the following techniques to cover various learning styles: motivate learning, balance concrete and conceptual information, balance structured and more open-ended activities, use visual aids, drill exercises, combine reflective and active exercises, use group work, and balance inductive and deductive presentation of materials. They do not expect teachers to use all these techniques in one course, but to pick several they feel most comfortable with and try them out, and they will develop a teaching style that is effective for the students and feels natural to them. Dunn and Dunn (1979) also support matching learning and teaching styles. They claim that their research has proved that when teaching methods complemented learners' characteristics, students became more motivated, and achieved better. Therefore, they advise teachers to match instructional resources with students' characteristics, and expand their teaching styles in order to promote learning and decrease tension in the classroom. In his study on teaching and learning styles, Peacock (2001) also proved that a mismatch between the two leads to frustration, and seriously affects students' learning.

Researchers who preferred a mismatch (Rush and Moore, 1991; Kosower and Berman, 1996, as cited in Alkhatnai, 2011) claim that it helps students overcome their weaknesses, and it stimulates learning and flexibility in the learning process. Other authors (Vaughn and Baker, 2001, as cited in Alkhatnai, 2011) favored a mismatch for a completely different reason: they claim that a match in teaching and learning styles may lead to boredom and inefficiency with students.

The third group of researches (e.g. Ford and Chen, 2001; Felder and Brent, 2005; Manner, 2001; and Nilson, 1998, as cited in Alkhatnai, 2011) supported the idea of teaching in a balanced way as to accommodate for all learning styles, without actually trying to identify them.

4. Research on Perceptual Learning Styles and Teaching Styles

Joy M. Reid was the first researcher of perceptual learning styles among non-native English speakers. For this purpose she designed the PLSPQ, and found that non-native speakers learning style preferences differed significantly from those of native speakers' i.e. native speakers of English had different learning style preferences than learners from other language backgrounds learning English. Reid (1987) analyzed eight language backgrounds (Arabic, Spanish, Japanese, Malay, Chinese, Korean, Thai, and Indonesian) as well as English, and found that most of the respondents preferred kinesthetic as major learning style. There were variations among the language groups, Japanese and native speakers of English being less kinesthetic than Spanish, Arabic, Chinese, Korean, and Thai speakers. All in all, her research paved the way for other theorists to explore learning styles of second language and foreign language learners of English.

Cheng and Banya (1998) studied the learning styles of 140 cadets at the Chinese Military Academy, and teaching styles of 35 Taiwanese teachers using the PLSPQ. There was no need to modify the questionnaire since some authors (e.g. Oxford et al, 1992; Chu et al, 1997, as cited in Peacock, 2001) claim that teachers teaching style is a reflection of their learning styles. The results of the students' questionnaires were quite interesting because they did not show a significantly strong preference for any learning style. Cheng and Banya (1998) speculate that these findings are related to their culture, and expectations to be moderate in everything. Reasons aside, both students and teachers showed preferences for auditory, tactile, and individual learning. Teachers, however, favored considerably more auditory teaching style than the students did the equivalent learning style.

Vaseghi et al. (2012) name several studies from the 1990s, conducted on students of English as a second language, using the PLSPQ, which obtained results corroborating Reid's findings.

Matthew Peacock (2001) carried out a research that employed the PLSPQ and interviews to investigate Reid's two major hypotheses: "all students have their own learning styles and learning strengths and weaknesses." and "a mismatch between teaching and learning styles causes learning failure, frustration, and demotivation." (Peacock, 2001:2) The subjects of his research were 206 EFL students and 46 EFL teachers (Western and Chinese) at the Hong Kong University. He discovered that the preferred learning styles were kinesthetic and auditory, and the least favored ones were group and individual. To study the teaching styles, he modified the PLSPQ, as to apply it to the teaching, and learned that teachers also preferred kinesthetic, as well as group and auditory styles. The least popular teaching styles were tactile and individual, and the Western teachers disfavored auditory style. Therefore, he found a mismatch regarding auditory and group styles. Interviews with the students revealed that 72% of the students were frustrated by the mismatch, and 76% claimed that it seriously affected their learning. When he checked correlation between learning styles and proficiency, Peacock (2001) found that students who preferred group style were less proficient. He also studied teachers' and students' agreement on Reid's two hypotheses, and learned that both students and teachers agreed with them.

Sabeh et al (2011) conducted a research on learning and teaching styles in an American affiliated Lebanese university. 103 students and five of their teachers participated in this study. Results showed that the Lebanese students preferred visual, tactile, kinesthetic, and auditory learning

styles. All teachers showed a major preference for kinesthetic and individual, and large proportion of them preferred visual and tactile teaching styles. The match between learning and teaching style occurred with 52% of the students. The results showed that a match had impact on the students' achievement.

Mubarak Alkhatnai (2011) studied, among other things, perceptual learning styles of Saudi EFL learners. Majority of students in his research described themselves as intermediate EFL learners. The preferred learning styles of his participants were tactile (major learning style of 25% of the students), auditory (19%), and the least favorite was individual (9%).

Juris et al (2009) researched learning and teaching styles of 254 Bolivian learners and 9 of their teachers. They created a target group of 55 students and nine teachers. The results were the following: focus group students preferred kinesthetic and tactile learning styles, followed by auditory, and the least popular was visual. Teachers favored tactile learning style, along with kinesthetic and visual. Group and individual styles were the least favored among teachers. Even though kinesthetic and tactile learning styles were preferred by both learners and teachers, the order of preference is different between the groups, and there was a difference in third predominant style as well (students-auditory, teachers-visual).

Finally, Dankić and Ahmetspahić (2009) studied the learning styles of Bosnian EFL students. They tested Reid's first major hypothesis on 154 subjects from high school in Maglaj, Bosnia and Herzegovina. For the purpose of their study, Dankić and Ahmespahić (2009) translated the PLSPQ to Croatian. Their results indicated that there are differences in learning style preferences of Bosnian students. Their preferred learning styles were auditory, kinesthetic, and tactile. Students showed negative preference for visual learning style. Dankić and Ahmetspahić (2009) also found that male students had major preference for group style, while female students had negative preference for the same style. This research is important because it included learners of Croatian ethnicity thus making it comparable to the present study. This study may confirm or challenge Dankić and Ahmetspahić's (2009) results.

5. Research on Learning Styles of Croatian EFL Learners and Teaching Styles of Their Teachers

Research on EFL learners' learning styles, especially one employing the PLSPQ, and EFL teachers' teaching styles in Croatian context could not be found. The present quantitative study aims at filling this void.

5.1. Aim

The aim of this study is to explore the relationship between Croatian EFL learners' learning styles and their teachers' teaching styles. The following areas were investigated:

- a) Learning styles of Croatian EFL learners
- b) Their teachers' teaching styles
- c) The possible match between learning and teaching styles i.e. the relationship between teaching and learning styles and students' achievement in the course
- d) Teachers' opinions on Reid hypotheses

In her first hypothesis, Reid (1987, and 1995, as cited in Peacock, 2001) stated that all learners have their learning styles, strengths and weaknesses. She also hypothesized that a mismatch between teaching and learning styles causes learning failure, frustration and demotivation. Following Reid's hypothesis, it might be logical to assume that if teachers' teaching styles match students' learning styles, students will achieve more in the course. If teachers teach in the way that learners find adequate with regard to their learning styles, the whole learning process will be somewhat facilitated, and learners will have higher grades. This paper aims at testing these two hypotheses in Croatian context.

5.2. Sample

A total of 125 students from Županja's secondary schools participated in this study. 22 students attended the technical vocational school and 103 the grammar school (Opća and Matematička gimnazija). All students were Croatian, between 16 and 17 years old, and took English as an obligatory course. Along with students, 4 EFL teachers also participated in this study. They were all female, and had between 11 and 24 years of work experience as teachers.

5.3. Instruments and Procedure

- a) Learning styles

The data on learning styles of Croatian EFL learners were collected using Reid's PLSPQ. As Peacock (2001) points out, this questionnaire was used in many studies, and aroused considerable interest. With its 30 items, the PLSPQ covers six learning style preferences: visual, auditory, tactile, kinesthetic, group and individual. According to Peacock (2001) the problem with the PLSPQ might be the fact that it does not give concrete examples of activities for each style dimension, which can lead to uncertainty. For the purpose of this study, and to avoid possible misunderstandings, the questionnaire was translated to Croatian. The purpose of the questionnaire is to help students identify the way(s) they learn best. The example statements and their Croatian equivalents for each style are listed below.

Visual style: "I understand better when I read instructions." ("Bolje razumijem kad pročitam upute.")

Auditory style: "When the teacher tells me the instructions, I understand better." ("Bolje razumijem kad mi nastavnik/ica daje usmene upute.")

Kinesthetic style: "I understand better in class when I participate in role-playing." ("Bolje razumijem kad mogu sudjelovati u igranju uloga u razredu.")

Tactile style: "I learn better when I make something for a class project." ("Naučim više kad nešto radim za razredni projekt.")

Group style: "I learn more when I study with a group." ("Više naučim kad učim u grupi.")

Individual style: "When I study alone, I remember things better." ("Bolje upamtim stvari kad učim sam/a")

Students were asked to respond to each statement as it applied to their study of English, using the following five point scale: 5) strongly agree (u potpunosti se slažem), 4) agree (slažem se), 3 undecided (niti se slažem, niti se ne slažem), 2 disagree (ne slažem se), 1) strongly disagree (uopće se ne slažem). Results were calculated using SPSS, and learning styles were classified as major, minor, or negligible. Furthermore, five statements were added to the questionnaire, as was the case in Peacock's study, to collect students' views on whether they wanted their teachers to do the following:

- 1) have a more traditional, teacher-centered role
"Želim da naš nastavnik/ca ima tradicionalnu ulogu (nastavnik/ca predaje, učenici samo slušaju)."
- 2) correct their errors
"Želim da mi nastavnik/ca ispravlja pogreške."
- 3) provide them with a model.
"Želim da mi nastavnik/ca bude uzor (model ponašanja)."
- 4) provide plenty of in-class discussions.
"Želim da nam nastavnik/ca omogući što više rasprava u nastavi."
- 5) encourage them to become independent learners.
"Želim da nas nastavnik/ca ohrabruje da bi postali nezavisni."

The same five point scale was used to gather students' opinions on the above statements. The complete questionnaire is available in the appendix section.

b) Teaching styles

In order to establish teaching styles of four EFL teachers participating in this study, the PLSPQ was modified and translated to Croatian. The items in the original questionnaire were modified to apply to teachers' teaching. Example sentences for each teaching style are as follows:

Visual style: "Pri poučavanju zapisujem pojmove na ploču kako bi ih učenici bolje naučili."

Auditory style: "Pri poučavanju učenicima dajem usmene upute kako bi me bolje razumjeli."

Kinesthetic style: "Pri poučavanju učenicima rado dajem nešto da izrađuju."

Tactile style: "Pri poučavanju učenicima zadajem zadatak da nešto izrade (plakat, makete...)."

Group style: "Pri poučavanju koristim grupni rad kako bi učenici najviše naučili."

Individual style: "Pri poučavanju učenicima dajem vremena da sami nešto uče kako bi to bolje zapamtili."

Like in the students' questionnaires, teachers were also asked to mark their agreement with five statements regarding their beliefs about what learners wanted from them as teachers. Moreover, teachers were asked to express their agreement with Reid's hypotheses on learning styles. Questionnaire on teaching styles used in this study is also presented in the appendix section.

As it was stated in chapters before, the theories on the origin of teaching styles vary. While some authors (e.g. Oxford et al,1992; Chu et al, 1997, as cited in Peacock, 2001) claim that teachers teach the way they preferred to learn or the way were taught, others (Kinsella, 1995; Jordan, 1997 as cited in Peacock, 2001) advocate the theory that teachers imitate the teachers they admired. Nevertheless, teachers' teaching style depends on their preferred learning style (Goodwin, 1995 as cited in Alkhatnai, 2011). These were the main reasons why the PLSPQ was employed in this study.

Before collecting the data, both students and teachers were told that the questionnaires were anonymous, and that they would be included in the study only if they granted their permission. The data were collected in May 2013. First of all, quantitative scores for both students' and teachers' questionnaire data were calculated. The results were then analyzed, and will be presented in the next section.

c) The relationship between teaching and learning styles and students' achievement

Due to the small sample of teachers participating in this study, complex statistical analyses like correlation could not be conducted. Therefore analysis of variance was used. Significance was set at $p < 0.05$. After calculating major, minor and negligible learning and teaching styles, students were divided into three groups with regard to the matching with the teaching styles. The first group consisted of students that had two major learning styles that matched two major teaching styles. The second group students agreed with their teachers in one major learning i.e. teaching style. Students from the third group did not have a major learning style that matched their teachers' teaching styles. After dividing students into these three groups, variance analysis was used to check whether there is a statistically significant difference in students' grades among these groups of students.

5.4.Results

The following sections bring forward the results of the research on teaching and learning styles of Croatian EFL teachers and learners.

5.4.1. Learning styles

Table 2 brings results of the overall findings regarding learning styles of all participants included in this study i.e. the mean values of each learning styles obtained with the PLSPQ. As it can be seen, the most representative and popular learning style of Croatian EFL learners is auditory, which is followed by visual. All the other learning styles (tactile, group, individual, and kinesthetic) were rated as minor. However, group learning style seems to be the least favorite among students. None of the learning styles was marked as negligible. The results on learning style preferences are quite interesting, since it seems that there is not a great difference between minor learning styles, but students combine them equally.

Table 2: Scores on the Perceptual Learning Styles Questionnaire

	Visual	Tactile	Auditory	Group	Individual	Kinesthetic
Mean	36.38	32.56	37.78	28.21	34.16	33.76

The distribution of perceptual learning styles among Croatian learners is most evident from the following chart. It can be seen that 57.6% of the students demonstrated a major preference for auditory learning style, while 40.80% of them marked it as minor. Second most represented learning style was visual (51.20% of the students' major learning style), followed by kinesthetic and individual (37.6%). As it was mentioned above, most, if not all, students have more than one major learning style preference.

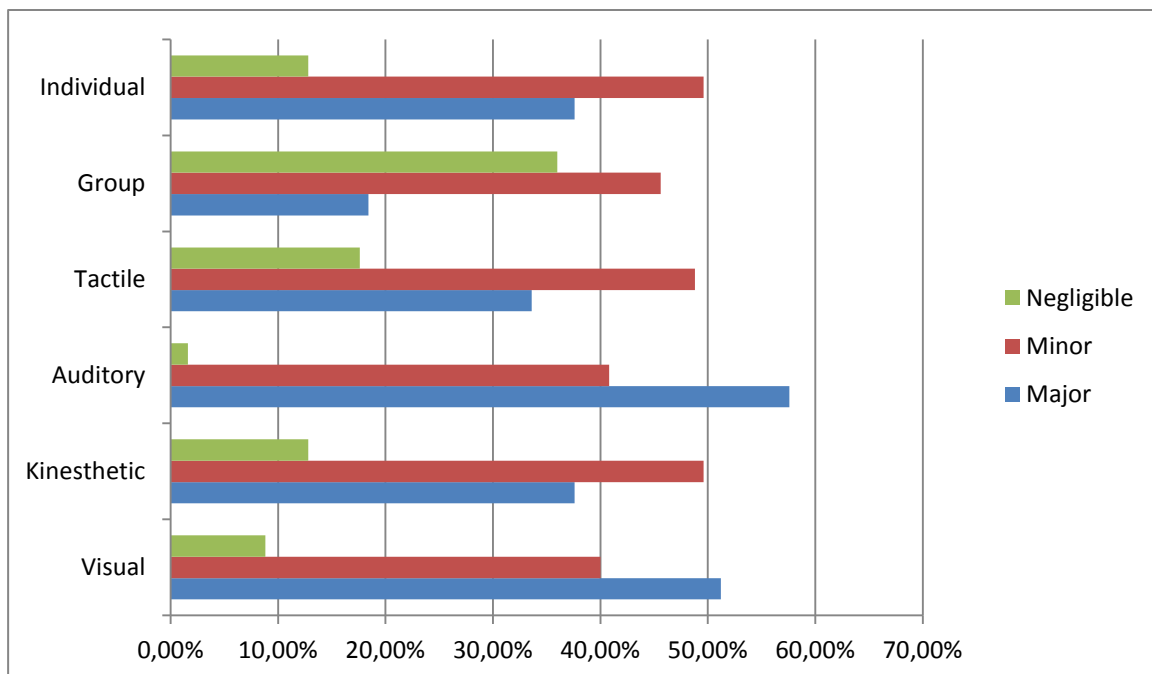


Figure 1: Distribution of learning styles of Croatian EFL learners

Like Peacock (2001) suggested, the table with statements regarding students' beliefs on what they want from their teachers' teaching, was added along with the PLSPQ. The research has

shown that students do not agree strongly with any of the statements. However, the second statement ("I want my teacher to correct my errors") and the fifth ("I want our teacher to encourage us to become independent learners.") received the most support from the students, whereas students least favored the first statement ("I want my teacher to have a more traditional, teacher-centered role.")

Table 3: Students' opinions on teaching styles

Statement	Min.	Max.	Mean
"I want my teacher to have a more traditional, teacher-centered role."	1	5	2.73
"I want my teacher to correct my errors."	1	5	4.25
"I want my teacher to provide us with a model."	1	5	3.56
"I want our teacher to provide us with plenty of in-class discussions."	1	5	3.82
"I want our teacher to encourage us to become independent learners."	1	5	4.18

5.4.2 Teaching styles

Since only four teachers participated in this study, the results cannot be generalized. The results were calculated manually, by using the arithmetic mean for each teaching style, which is presented in the table 4. Styles were then divided into major (scores between 38 and 50), minor (25-37) and negligible (0-24). The preferred teaching style of four Croatian EFL teachers proved to be visual, followed by individual. As was the case with the learning styles, teachers also classified all other styles as minor, without a negligible one. The least favorite teaching styles were tactile and group. The results on all teaching styles are presented in the table below.

Table 4: Results on teaching styles

	Visual	Auditory	Tactile	Kinesthetic	Group	Individual
Mean	40	36	28.5	35.5	31.5	37.5

The distribution of all six teaching styles studied in this research is presented in the chart below.

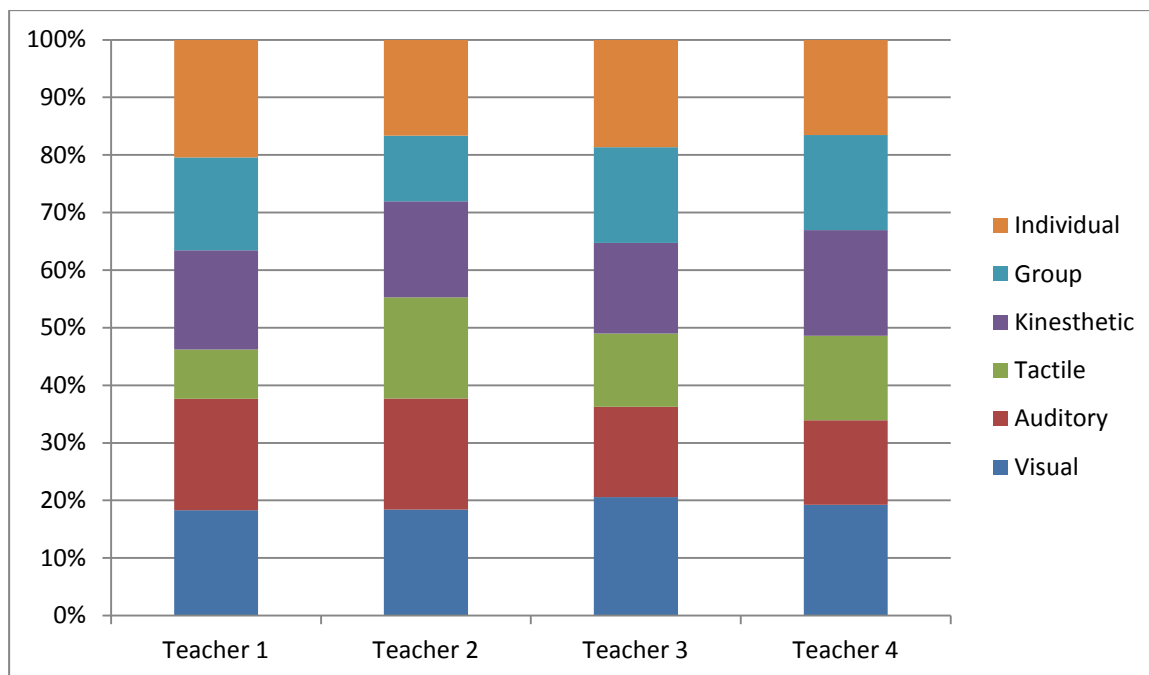


Figure 2: Teaching styles of Croatian EFL teachers

Since there were only four teachers participating in this study, it is difficult to make general assumptions about teaching styles of Croatian EFL teachers. However, three of four teachers marked visual and individual learning styles as their major.

The results on teachers' beliefs on what students' wanted from the teaching were also calculated using the arithmetic mean. They also differed from the students'. Whereas students responded that they wanted their teachers to correct their mistakes, teachers thought differently. Moreover, teachers agreed strongly with the third statement ("Students want their teacher to provide them with a model."), while students were indifferent regarding the same. However, both students and teachers expressed agreement with the last statement.

Table 5: Teachers' beliefs on what their students want from teaching

Statement	Min.	Max.	Mean
"Students want their teacher to have a more traditional, teacher-centered role."	1	5	2.75
"Students want their teacher to correct their errors."	1	5	3.25
"Students want their teacher to provide them with a model."	1	5	4.5
"Students want their teacher to provide them with plenty of in-class discussions."	1	5	4
"Students want their teacher to encourage them to become more independent."	1	5	4.75

Teachers were also asked to express their agreement with Reid's five hypotheses about learning styles, on a five point scale ranging from strongly agree (5) to strongly disagree (1). For the purpose of this study, the hypotheses were translated to Croatian. The results are presented in the table below.

Table 6: Teachers' opinions on Reid's hypotheses (1987, and 1995, as cited in Peacock, 2001)

Hypothesis	Min.	Max.	Mean
"All students have their own learning styles and learning strengths and weaknesses."	1	5	4.5
"A mismatch between teaching and learning styles causes learning failure, frustration and demotivation."	1	5	3.75
"Learning styles (if unchecked) persist regardless of teaching methods and materials."	1	5	3.25
"Learning styles can be adapted because they are partly habit rather than biological attributes."	1	5	4
"Learning will be improved if students become aware of a wider range of styles and stretch their own styles."	1	5	4.75

As it can be observed from the table, teachers mostly agree with all the hypotheses, expressing strong agreement with the first and the last one.

5.4.3. The relationship between teaching and learning styles and students' achievement

As the results from tables 2 and 4 show, this research has revealed a mismatch between teaching and learning styles. While students preferred auditory learning style, their teachers favored visual and individual teaching styles. Only one teacher had major preference for auditory learning style. However, the mismatch is not so great, since visual learning style is the second favorite among students.

To observe the possible differences in students' achievement, three groups of students were created, regarding the match between two, one, or none teaching and learning styles. Statistics showed that if teachers and students had the same two major teaching/learning styles, students' grades were higher. If there was a one, or none match between teaching and learning styles, students' grades were lower. Thus, if learning and teaching styles match, students achieve better in the course which can be seen from the table below (N-number of students in the study; Mean-mean grade of the students whose learning styles match 0, 1, 2 teaching styles).

Table 8: Match between teaching and learning styles

Match	N	Mean
0	28	3.46
1	75	3.57
2	22	4.23
Total	125	3.66

As the table above shows, when teaching and learning styles are in accordance with one another, students' grades are higher

However, the chart below illustrates these findings most efficiently.

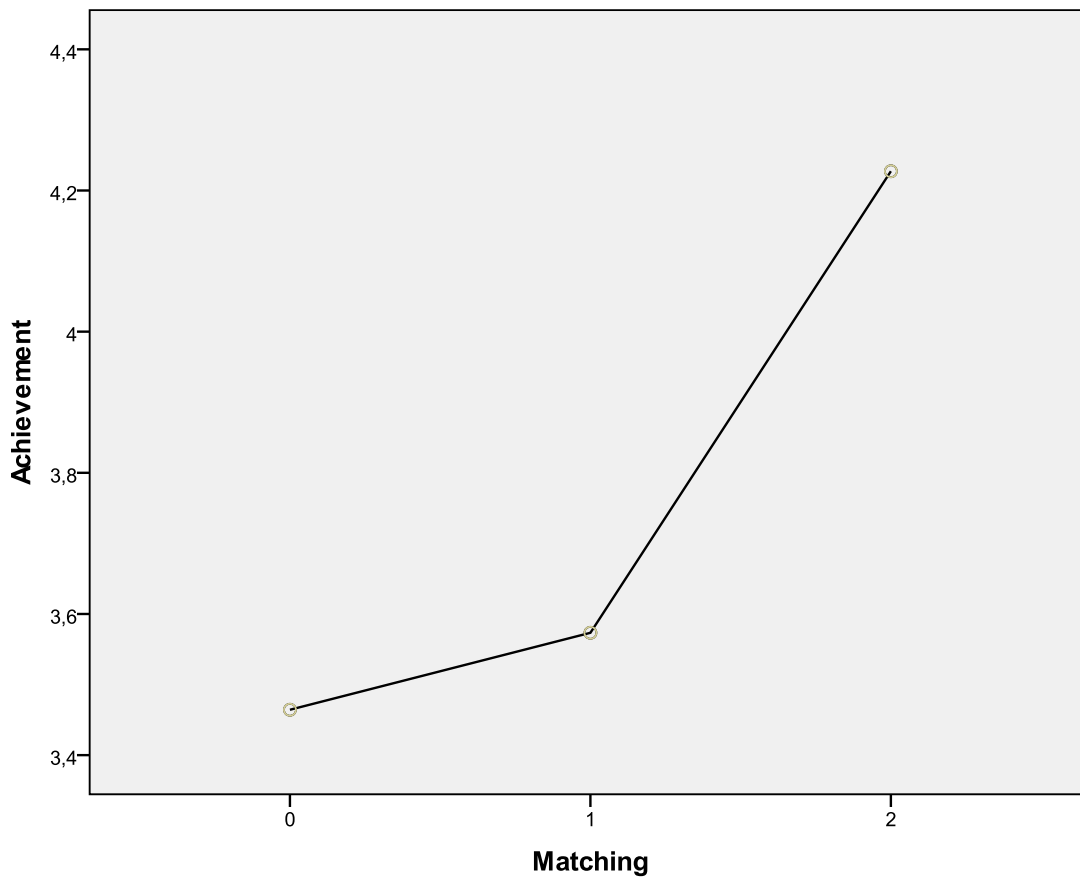


Figure 3: The relationship between teaching and learning styles and students' achievement

The figure above clearly demonstrates that the accordance in styles and students' achievement are dependent on one another; they are proportional.

As it was stated before, in order to explore the role of the mismatch between teaching and learning styles in students' achievement in the course, analysis of variance was used. A significant difference ($p < 0.05$, $df = 2/124$) in achievement among students whose learning styles did not match their teachers' teaching styles was revealed.

Table 7: Analysis of variance

	Sum of squares	Df	Mean Square	F.	Sig.
Between groups	8.713	2	4.357	3.661	.029*
Within groups	145.175	122	1.190		
Total	153.888	124			

As it was stated before, all teachers had at least two major teaching styles, so the relationship between students' achievement, and accordance between two, one, or none teaching and learning styles was checked. A one-way between-groups analysis of variance was conducted to explore the relationship between teaching and learning styles and students' achievement, as measured by the PLSPQ. The students were divided in three groups with regard to their accordance with their teachers' teaching styles (Group 1: 2 major learning styles matched 2 major teaching styles; Group 2: 1 major learning style matched major teaching styles; Group 3: 0 learning styles matched major teaching styles). The results have shown that there is a statistically significant difference at the $p < 0.05$ between students' achievement with regard to the matching between learning and teaching styles [$F=3.661$; $df=2/124$; $p=0.029$].

After establishing the differences in students' achievement in the course with regard to the accordance in teaching and learning styles, Scheffe's post hoc test was conducted to verify where exactly these differences lie. The results presented in the table below show that there is a statistically significant difference ($p=0.046$) in the achievement of students whose two major learning styles match two major teaching styles, as compared to the students whose learning styles do not match their teachers' teaching styles at all (groups 1 and 3). In other words, students whose both major learning styles match both major teaching styles have higher grades than the students whose learning styles match zero teaching styles. Moreover, students whose two major learning styles match two major teaching styles have higher grades than students with only one match in styles (groups 1 and 2, $p=0.035$). However, a statistically significant difference in students' success between groups of students whose major styles are in accordance with one or none teaching styles (groups 2 and 3, $p=0.996$) was not found.

Table 10: Results of Scheffe's post hoc test

(I) Match	(J) Match	Mean Difference (I- J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
0	1	.022	.245	.996	-.58	.63
	2	-.662	.310	.046	-1.43	.11
1	0	-.022	.245	.996	-.63	.58
	2	-.684*	.260	.035	-1.33	-.04
2	0	.662	.310	.046	-.11	1.43
	1	.684*	.260	.035	.04	1.33

Therefore, if teachers and students had the same two major teaching/learning styles, students' achievement was better i.e. their grades were higher. Likewise, if there was a one, or none match between teaching and learning styles, students' grades were lower. Consequently, when students' learning styles matched teachers' teaching styles, they achieved better in the course i.e. had better grades. This finding corroborates Felder and Henriques (1995) claim that a match in teaching and learning styles enhances students' achievement.

The mismatch in styles aside, both students and teachers generally agree on the five statements regarding teachers' and students' beliefs about teaching.

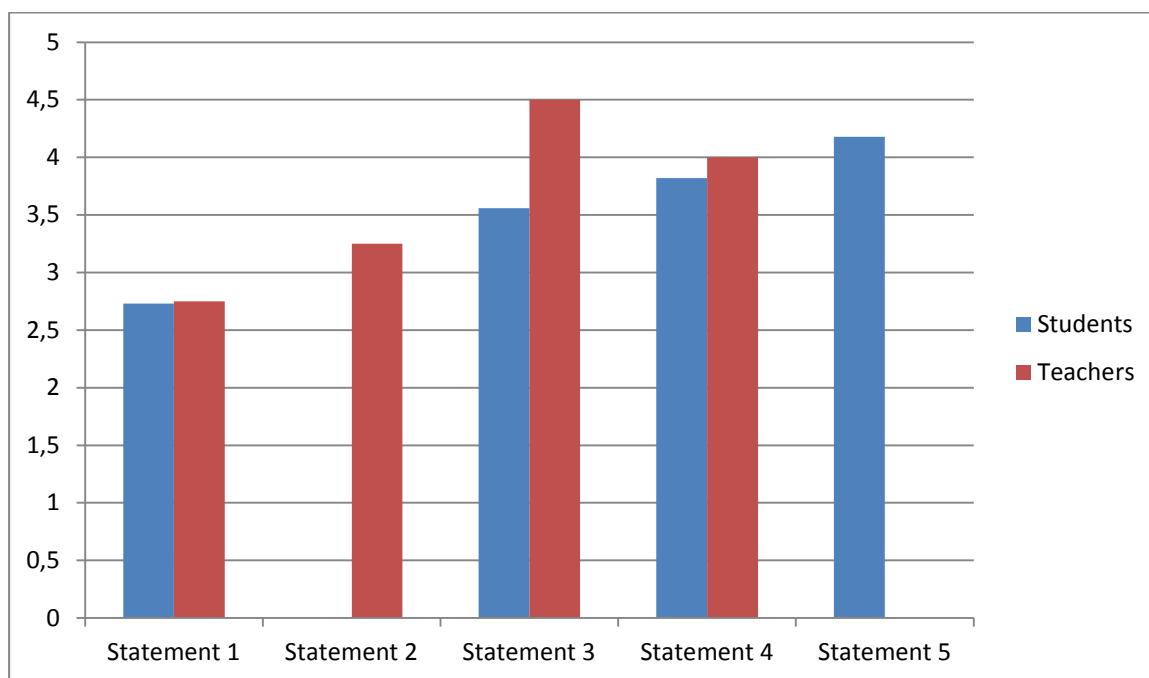


Figure 4: Students' and teachers' beliefs about teaching

5.5. Discussion

Reid's first hypothesis that students have their own learning styles was proved to be generally true, not only in this research, but also in the previous studies listed above. Learners in the present study had identifiable learning style preferences that differed among individual students. The results of learning style preferences from this research differ from those conducted in Asian context, which is in accordance with Reid's (1987) claim that learners from different language backgrounds have different learning style preferences. The results also differ from research results from Arabic countries, as well as from Bolivia. However, as it was assumed, Croatian EFL learners had similar learning styles to learners from Bosnia and Herzegovina. Both groups of students preferred auditory learning styles, while minor learning styles somewhat differed.

As it was presented in the section above, this research revealed a mismatch regarding teaching and learning styles. Students' whose learning styles matched their teachers' teaching styles had generally higher grades. This finding is not that surprising, because when teachers' conduct their lessons in a way that suits their students, their learning is made easier. However, before jumping to conclusion about Croatian teachers' favoring students who have the same learning style as their teaching style, it is important to stress that students in general have high grades (the average grade being 3.66) and that only four teachers participated in this study.

When it comes to statements regarding students' beliefs on their teachers' teaching, and interesting finding has come to light. Croatian students have expressed a strong desire that their teachers should correct their errors (the mean grade they gave this statement was 4.25/5). However, Harmer (2001) claims that teachers should not interrupt their students during fluency-

focused exercises to correct their mistakes. In exercises focusing on accuracy, it is part of teachers' functions to point out and correct their students' mistakes. This statement, however, did not specify when error correction should occur, but it is evident that students find it desirable. Moreover, when it comes to these statements, as can be seen from figure 4, students' and teachers' views on the third statement (*I want my teacher to provide us with a model.*) differ. One of the causes for this difference might be the translation to Croatian. But a more likely cause is lack of students' understanding of what is meant by the word 'model'.

6. Conclusion

Learning in general and language learning specifically are some of the most fascinating human abilities. Second language acquisition and foreign language learning are both complex processes, influenced by a wide range of factors, one of them being learning styles. This paper explored the relationship between learning and teaching styles of Croatian EFL learners and their teachers. In the first part of the paper, theoretical framework of learning and teaching styles has been presented. Different researchers offered their definitions of learning styles, however, Reid's (1998) has been quoted several times since hers is the most widely accepted, and her questionnaire was used in this research. Unlike the extensive literature on learning styles, considerably less has been written on teaching styles. When it comes to the relationship between teaching and learning styles, Alkhatnai (2011) presented the ideas of various researchers that offer three possible approaches to dealing with the learning styles in the classroom. The aim of the present study was to explore the Croatian EFL learners' learning styles and their teachers' teaching styles. The majority of Croatian learners' preferred learning styles were auditory, followed by visual, and the favorite teaching styles were visual and individual. There was a mismatch regarding teaching and learning styles, and it seemed to have an effect on students' achievement. Students whose two major learning styles matched two of their teachers' major teaching styles had higher grades than students whose learning styles matched zero or one teaching styles. This claim however, cannot be taken as universal because of the small sample of teachers.

There are more than a few limitations of this study, the primary one being the number of teachers participating. Since there were only four of them, the results cannot be generalized, and more complex analyses, like correlation could not be conducted. Moreover, in order to avoid misunderstandings, the PLSPQ was translated to Croatian. Like with every translation, some subtleties might have gotten lost, and the questionnaire might have not been as reliable as the original, since reliability of the questionnaire was not checked. The same problem lies with the questionnaire for teachers: it has been translated and modified (by the author of this paper), but was not validated. The comparison of learning styles results between learners from grammar school and technical vocational school could not be made due to the small sample of students from the latter school.

Since this study revealed a mismatch regarding teaching and learning styles, there are implications for both learners and teachers. Firstly, learners should take responsibility for their own learning outside the classroom, since only they know for sure which styles suit them best. Teachers, on the other hand, should identify their own teaching styles, as well as their students' learning styles. Only after that can they try to accommodate for various learning styles in their classrooms. Since Croatian learners, as this research has shown, are good at combining different learning styles, the teachers' tasks will not be that difficult. Teachers should teach in a balanced way, not favoring any learning style, but presenting new information and materials in a number of ways. Both Peacock (2001) and Felder and Henriques (1995) offer concise overviews of a balanced teaching style. Some of the advice they offer include motivational exercises, balancing concrete and abstract information, using visual aids, and so on. They do not expect teachers to use all these techniques in one course, but to pick several they feel most comfortable with and try

them out, and they will develop a teaching style that is effective for the students and feels natural to them. It is impossible to cater to all the styles in one lesson, but the emphasis is on raising awareness of the existence of these styles, and trying to accommodate for at least two of them when presenting new information. Teachers should also involve students in lesson planning, especially if the students are older, and give them more autonomy as they do exercises in class. Students should also have more control over their own learning, and support from their teachers to become more independent.

In future research, besides studying teaching and learning styles, it might be beneficial to study students' opinions on their teachers' teaching styles. In other words, teaching styles questionnaires should be distributed to students, and they should assess their teachers' styles. This might bring some interesting results, since all people are subjective when it comes to them, and this way, students could help to establish realistically what their teaching styles are. Also, the relationship between teaching and learning styles and students' achievement should be further studied, and besides the PLSPQ, future studies should also include interviews with the students. Moreover, as Peacock (2001) suggests, more research should be done on the third Reid's hypothesis, regarding the persistence of learning styles. She postulated that learning styles persist regardless of teaching methods and materials. Therefore, the present study might be repeated after a period of time to check whether both learning and teaching styles changed.

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8. Appendices

Appendix 1

Upitnik za ispitivanje stilova poučavanja

Upute:

Ljudi uče na različite načine. Primjerice, neki ljudi prvenstveno uče osjetilom vida (nazivamo ih vizualnim tipovima), drugi sluhom (auditivni tipovi); neki ljudi najviše vole učiti kroz iskustvo i/ili neposrednim pristupom zadacima (kinestetički ili taktilni tipovi); neki ljudi uče bolje kada rade sami, dok drugi radije uče u skupinama.

Stilovi poučavanja usko su povezani s perceptualnim stilovima učenja. Matthew Peacock je definirao stilove poučavanja kao prirodne, preferirane i naviknute načine poučavanja novih informacija i vještina.

Ovim upitnikom želimo utvrditi Vaše stilove poučavanja. Upitnik je u potpunosti anonimn, a Vašim ćemo se podacima isključivo koristiti u svrhu izrade diplomskog rada i bit će prikazani kao dio cjelokupnog istraživanja. Molimo Vas da u potpunosti odgovorite na svako pitanje i time prinesete pouzdanosti i kvaliteti istraživanja.

Molimo Vas da odgovorite na tvrdnje kako se odnose na **Vaše poučavanje engleskog jezika**.

Na svaku tvrdnju odgovarajte brzo, bez previše razmišljanja. Molimo Vas da ne mijenjate odgovore nakon što ste ih jednom odabrali. Molimo Vas da koristite kemijsku olovku pri ispunjavanju upitnika.

U prvom se dijelu upitnika nalazi upitnik za perceptualne stilove poučavanja. U drugom je dijelu pet tvrdnji koje se odnose na Vaše mišljenje o tome što učenici žele od poučavanja. U trećem se dijelu nalaze hipoteze o stilovima učenja Joy M. Reid.

Dob:

Spol:

Koliko dugo poučavate engleski jezik:

I. Dio

Na sljedećoj ljestnici, procijenite navedene tvrdnje vezane uz Vaše poučavanje engleskog jezika. Brojevi imaju sljedeće značenje:

- 1- Nikada
- 2- Rijetko
- 3- Ponekad
- 4- Često
- 5- Uvijek

1.	Pri poučavanju učenicima dajem usmene upute kako bi me bolje razumjeli.	5	4	3	2	1
2.	Pri poučavanju učenicima rado dajem nešto da izrađuju.	5	4	3	2	1
3.	Pri poučavanju učenike raspoređujem u skupine jer se tako napravi više posla.	5	4	3	2	1
4.	Koristim grupni rad u poučavanju i dobivam bolje rezultate.	5	4	3	2	1
5.	Pri poučavanju koristim grupni rad kako bi učenici najviše naučili.	5	4	3	2	1
6.	Pri poučavanju zapisujem pojmove na ploču kako bi ih učenici bolje naučili.	5	4	3	2	1
7.	Pri poučavanju učenicima dajem usmene upute, kako nešto učiniti, da bi bolje učili.	5	4	3	2	1
8.	Pri poučavanju zadajem učenicima zadatke kako bi kroz praktičan rad bolje učili.	5	4	3	2	1
9.	Na nastavi govorim većinu vremena jer učenici na taj način bolje pamte, nego kad sami čitaju.	5	4	3	2	1
10.	Pri poučavanju učenicima dajem da sami pročitaju upute kako bi ih bolje zapamtili.	5	4	3	2	1
11.	Pri poučavanju učenicima dajem zadatak da naprave model nečega kako bi to bolje naučili.	5	4	3	2	1
12.	Pri poučavanju učenicima dajem da sami pročitaju upute kako bi ih bolje razumjeli	5	4	3	2	1
13.	Pri poučavanju učenicima dajem vremena da sami nešto uče kako bi to bolje zapamtili.	5	4	3	2	1
14.	Pri poučavanju od učenika tražim da naprave projekt za nastavu.	5	4	3	2	1
15.	Pri poučavanju od učenika tražim da rade pokuse/ eksperimente.	5	4	3	2	1
16.	Pri poučavanju crtam crteže kako bi me učenici bolje razumjeli.	5	4	3	2	1

17.	Pri poučavanju držim duge govore jer će tako učenici bolje naučiti.	5	4	3	2	1
18.	Pri poučavanju učenicima dajem zadatke, koje samostalno rješavaju, kako bi bolje naučili.	5	4	3	2	1
19.	Kad poučavam učenicima zadajem da igraju različite uloge kako bi bolje razumjeli.	5	4	3	2	1
20.	Pri poučavanju puno govorim kako bi učenici bolje učili.	5	4	3	2	1
21.	Pri poučavanju dajem zadatke za dvoje ili troje učenika koje rješavaju kao grupa.	5	4	3	2	1
22.	Pri poučavanju učenicima zadajem zadatak da nešto izrade (plakat, makete...).	5	4	3	2	1
23.	Pri poučavanju koristim rad u skupinama.	5	4	3	2	1
24.	Pri poučavanju učenicima zadajem zadatke za čitanje, kako bi bolje učili.	5	4	3	2	1
25.	Pri poučavanju učenicima zadajem projekte na kojima radi cijeli razred.	5	4	3	2	1
26.	Pri poučavanju pokušavam aktivirati sve učenike.	5	4	3	2	1
27.	Pri poučavanju učenicima zadajem zadatke, koje trebaju samostalno riješiti, kako bi bolje radili.	5	4	3	2	1
28.	Pri poučavanju učenicima dajem da individualno rade na projektima.	5	4	3	2	1
29.	Pri poučavanju radije dajem zadatke za čitanje iz udžbenika, nego što držim duga predavanja.	5	4	3	2	1
30.	Pri poučavanju učenicima zadajem zadatke za individualno rješavanje kako bi bolje radili.	5	4	3	2	1

II. Dio

Na sljedećoj ljestvici označite Vašu suglasnost s navedenim tvrdnjama. Brojevi imaju sljedeće značenje:

1- Uopće se ne slažem s navedenom tvrdnjom.

2- Ne slažem se s navedenom tvrdnjom.

3- Niti se slažem, niti se ne slažem.

4- Slažem se s navedenom tvrdnjom.

5- U potpunosti se slažem s navedenom tvrdnjom.

1. Učenici žele da njihovi nastavnici imaju tradicionalnu ulogu (usredotočenu na nastavnika).	5	4	3	2	1
2. Učenici žele da nastavnici ispravljaju njihove pogreške.	5	4	3	2	1

3. Učenici u nastavniku žele vidjeti uzor (model ponašanja).	5	4	3	2	1
4. Učenici žele da im nastavnik omogući što više rasprava u nastavnom procesu.	5	4	3	2	1
5. Učenici žele da ih nastavnici ohrabruju kako bi postali nezavisni.	5	4	3	2	1

III. Dio

Na sljedećoj ljestvici odredite Vašu suglasnost s tezama Joy M. Reid. Brojevi imaju sljedeće značenje:

- 1- Uopće se ne slažem s navedenom tvrdnjom
- 2- Ne slažem se s navedenom tvrdnjom
- 3- Niti se slažem, niti se ne slažem
- 4- Slažem se s navedenom tvrdnjom
- 5- U potpunosti se slažem s navedenom tvrdnjom

H1: Svi učenici imaju svoje stilove učenja, kao i jače i slabije strane.	5	4	3	2	1
H2: Neslaganje između stilova učenja i stilova poučavanja vodi do neuspjeha u učenju, frustracije i gubitka motivacije.	5	4	3	2	1
H3: Stilovi učenja (ukoliko nisu utvrđeni) ustraju bez obzira na nastavne metode i oblike nastavnog rada.	5	4	3	2	1
H4: Stilovi se učenja mogu prilagođavati jer su dijelom stvar navike, a ne biološki atributi.	5	4	3	2	1
H5: Učenje će biti uspješnije ukoliko učenici postanu svjesni šireg raspona stilova učenja te prošire svoje stilove.	5	4	3	2	1

HVALA NA SUDJELOVANJU!

Appendix 2

Upitnik o stilovima učenja

Upute:

Ljudi uče na različite načine. Primjerice, neki ljudi prvenstveno uče osjetilom vida (nazivamo ih vizualnim tipovima), drugi osjetilom sluha (auditivni tipovi); neki ljudi najviše vole učiti kroz iskustvo i/ili kroz neposredan pristup zadacima (kinestetički ili taktilni tipovi); neki ljudi uče bolje kada rade sami, dok drugi radije uče u skupinama.

Ovim upitnikom želimo utvrditi način(e) na koje ti najbolje učiš odnosno način(e) na koje voliš učiti.

Upitnik je u potpunosti anonimn. Molimo te da u potpunosti odgovoriš na svako pitanje.

Molimo da odgovoriš na tvrdnje kako se odnose na TVOJE UČENJE ENGLESKOG JEZIKA.

Na svaku tvrdnju odgovaraj brzo, bez previše razmišljanja. Molimo da ne mijenjaš odgovore nakon što si ih jednom odabrao/la i da koristiš kemijsku olovku pri ispunjavanju upitnika.

Naznači u kojoj se mjeri slažeš s navedenim tvrdnjama prema sljedećoj ljestvici:

5- U potpunosti se slažem s navedenom tvrdnjom

4- Slažem se s navedenom tvrdnjom

3- Niti se slažem, niti se ne slažem s navedenom tvrdnjom

2- Ne slažem se s navedenom tvrdnjom

1- Uopće se ne slažem s navedenom tvrdnjom

Dob:

Spol (zaokruži): m / ž

Godine učenja engleskog jezika:

Uspjeh u učenju engleskog jezika (ocjena na kraju prošle školske godine):

Ocjena koju misliš da ćeš imati iz engleskog jezika na kraju ove školske godine:

5-u potpunosti se slažem; 4-slažem se; 3-niti se slažem,niti se ne slažem;

2-ne slažem se; 1-uopće se ne slažem

1.	Bolje razumijem kad mi nastavnik/ca daje usmene upute.	5	4	3	2	1
2.	Na nastavi volim učiti kroz praktičan rad.	5	4	3	2	1
3.	Napravim najviše posla kad radim s drugima.	5	4	3	2	1
4.	Više naučim kad učim u skupini.	5	4	3	2	1
5.	Za vrijeme nastave najbolje učim kad radim s drugima.	5	4	3	2	1
6.	Više volim kad su informacije prikazane na ploči nego kad ih samo slušam.	5	4	3	2	1
7.	Nešto naučim bolje kad mi netko u razredu kaže kako to trebam napraviti.	5	4	3	2	1
8.	Bolje učim kroz praktičan rad na nastavi.	5	4	3	2	1
9.	Bolje pamtim stvari koje čujem u razredu nego ono što pročitam.	5	4	3	2	1
10.	Bolje slijedim napisane, nego usmene upute.	5	4	3	2	1
11.	Više naučim kad mogu načiniti model (maketu) nečega.	5	4	3	2	1
12.	Bolje razumijem kad pročitam upute.	5	4	3	2	1
13.	Bolje upamtim stvari kad učim sam/a.	5	4	3	2	1
14.	Naučim više kad nešto radim za razredni projekt.	5	4	3	2	1
15.	Volim učiti kad mogu eksperimentirati u razredu.	5	4	3	2	1
16.	Bolje učim kad crtam (crteže) za vrijeme učenja.	5	4	3	2	1
17.	Na nastavi bolje učim kad nastavnik/ca drži predavanje.	5	4	3	2	1
18.	Kad radim sam/a, učim bolje.	5	4	3	2	1
19.	Bolje razumijem kad mogu sudjelovati u igranju uloga u razredu.	5	4	3	2	1
20.	Bolje učim kad slušam nekoga u razredu.	5	4	3	2	1
21.	Volim raditi na nekom zadatku s još dva ili tri učenika.	5	4	3	2	1
22.	Kada nešto napravim vlastitim rukama, duže se sjećam naučenoga (npr plakat iz gramatike).	5	4	3	2	1
23.	Volim učiti s drugima.	5	4	3	2	1
24.	Bolje učim kad čitam, nego kad slušam nekoga.	5	4	3	2	1
25.	Volim izrađivati nešto za razredni projekt.	5	4	3	2	1

26.	Najbolje nešto naučim u razredu kad mogu sudjelovati u aktivnostima vezanim za to.	5	4	3	2	1
27.	U razredu radim bolje kad radim sam/a.	5	4	3	2	1
28.	Volim raditi sam/a na projektima.	5	4	3	2	1
29.	Više naučim kad čitam iz udžbenika nego kad slušam predavanja.	5	4	3	2	1
30.	Volim raditi sam/a.	5	4	3	2	1

Naznači u kojoj se mjeri slažeš s navedenom tvrdnjom prema sljedećoj tablici:

5- U potpunosti se slažem s navedenom tvrdnjom

4- Slažem se s navedenom tvrdnjom

3- Niti se slažem, niti se ne slažem

2- Ne slažem se s navedenom tvrdnjom

1- Uopće se ne slažem s navedenom tvrdnjom

1.	Želim da naš nastavnik/ca ima tradicionalnu ulogu (nastavnik/ca predaje, učenici samo slušaju).	5	4	3	2	1
2.	Želim da mi nastavnik/ca ispravlja pogreške.	5	4	3	2	1
3.	Želim da mi nastavnik/ca bude uzor (model ponašanja).	5	4	3	2	1
4.	Želim da nam nastavnik/ca omogući što više rasprava u nastavi.	5	4	3	2	1
5.	Želim da nas nastavnik/ca ohrabruje da bi postali nezavisni.	5	4	3	2	1

HVALA NA SUDJELOVANJU!

Sažetak

Cilj ovog rada je istražiti povezanost stilova učenja hrvatskih učenika engleskog kao stranog jezika, te stilove poučavanja njihovih nastavnica. Prvi dio rada sadržava teorijski pregled obaju stilova. Najpoznatija podjela stilova učenja i poučavanja je prema osjetilima: vizualni, auditivni, taktilni, kinestetički, grupni i individualni. U drugom dijelu, prikazani su rezultati istraživanja stilova učenja i stilova poučavanja hrvatskih učenika engleskog jezika i njihovih nastavnica. Učenici preferiraju auditivni stil učenja, a nastavnice vizualni i individualni stil poučavanja. Prema tome, postoji neslaganje među stilovima koje, čini se, utječe na uspjeh učenika.

Ključne riječi: stilovi učenja, stilovi poučavanja, neslaganje, Hrvatska, engleski kao strani jezik