

# Learning Styles and Metacognitive Awareness: How They Affect the L2 Listening Process of At-Risk Students in a Modified Foreign Language Program (MFLP)

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## Abstract

*Research on the acquisition of foreign languages by at-risk students has primarily focused on the Linguistic Coding Deficit Hypothesis (Horwitz, 2000). Recently, there has been a growing discussion regarding the effects of learning style rigidity (Castro, 2006; Castro and Peck, 2005; Corbitt, 2011; Sparks, 2006) and metacognitive awareness (Corbitt, 2013) on the acquisition of Spanish by at-risk students in Modified Foreign Language Programs (MFLPs). This pilot study seeks to expand the conversation to include a discussion on foreign language listening. MFLP and non-MFLP participants completed the Metacognitive Awareness of Listening Questionnaire (Vandergrift, Goh, Mareschal, & Tafaghodtari; 2006) and the Learning Style Survey: Assessing Your Learning Styles (Cohen, Oxford, & Chi, 2001). The data were subjected to independent sample t-tests, ANOVAs, and a linear regression analysis to determine the relationship between and differences in learning styles and perceived metacognitive listening strategy use for each group. The findings suggest that MFLP and non-MFLP students diverge in their perceived usage of metacognitive listening strategies and MFLP students have a very strong visual learning style preference ( $p < .05$ ). Pedagogical implications and recommendations for future research are discussed.*

**Key words:** *Individuals with Disabilities Education Act (IDEA); Learning Style Survey (LSS); Linguistic Coding Deficit Hypothesis (LCDH); Metacognitive Awareness of Listening Questionnaire (MALQ); Modified Foreign Language Program (MFLP); Multisensory Language Learning.*

## Background

All learners face difficulties when listening in the target language (Goh, 2000; Goh, 2002). According to Vandergrift (2004), "Listening is probably the least explicit of the four language skills, making it the most difficult skill to learn" (p. 4). For at-risk students, for example, those in a Modified Foreign Language Program (MFLP), the listening process can be quite painstaking (Ganschow & Sparks, 1986). Previous research suggested that, for MFLP students, difficulties in foreign language learning may be a result of learning style rigidity (Castro and Peck, 2005; Corbitt, 2011) and/or a lack of metacognitive awareness (Corbitt, 2013). This pilot study examined the effects of learning style preference on perceived metacognitive awareness when listening in the target language.

In the following sections, this article will describe the MFLP – a post-secondary self-contained foreign language program for at-risk students – and it will provide an overview of the research that investigates the acquisition of foreign languages by at-risk students and students with special needs. After delineating the difficulties that many MFLP students face when learning, and, in particular, listening in a foreign language, this article presents findings from previous research that suggest that there are inherent differences in actual and perceived strategy use between MFLP students and non-MFLP students and that those differences may be a result of learning style rigidity. The results of the study are then presented and the article concludes with pedagogical implications and suggestions for future research.

## **Literature Review**

### *MFLP: An Historical Overview*

In 1990, the United States Congress passed the Individuals with Disabilities Education Act (IDEA) which states, “All children with disabilities have available to them a free, appropriate public education that emphasizes special education and related services designed to meet their unique needs and prepare them for further education” (as cited in Heward, 2006, p. 19). As a result of the varied IDEA programs and mandates (e.g. Individualized Education Plan, Individualized Transition Plan, etc.) designed to facilitate K-12 success, children with special needs, who would have previously struggled in school, are succeeding, graduating and continuing their education at the post-secondary level (Arries, 1994; Heward, 2006).

According to Berberi (2008), 11.1 percent of undergraduates have one or more disabilities, which is considerably higher than the 2.2 percent reported in 1990 (Arries, 1994). Extrapolating from the National Center for Education Statistics’ most recent undergraduate post-secondary enrollment figure of 17.7 million, the data would suggest that there are approximately 1.9 million post-secondary students with special needs. And, roughly two-thirds of these students may be choosing degree paths with a one to two-year foreign language requirement (Arries, 1994). Unfortunately, departments of foreign languages are not always prepared to address this population’s very unique language learning needs (Abrams, 2008; Arries, 1999). Consequently, some universities have established the MFLP as a viable option for these students.

In August of 1990, coinciding almost exactly with the inception of IDEA, the University of Colorado at Boulder (UCB) launched the first MFLP in Latin, Spanish and Italian (Lazda-Cazers & Thorson, 2008). The UCB’s MFLP has served as a model for the creation of countless other programs throughout the United States. Administrators find these programs attractive for they minimize the need for waivers and facilitate graduation; teachers and students find them attractive for their prescribed methods and techniques that seem to facilitate success.

An MFLP offers a student with special needs and/or an at-risk student a curriculum informed by empirical research that is specifically designed to address his/her needs. There has been considerable discussion regarding the classification of students for whom the acquisition of foreign languages is incredibly difficult despite their best efforts (Arries, 1999; Mabbott, 1995; Sparks, Ganschow, & Javorsky, 1993;

Sparks & Javorsky, 1999; Sparks & Javorsky, 2000). For this article, the terms “at risk” and “special needs” are used interchangeably to refer to MFLP students (see Participants below for further information).

The MFLP uses a multisensory language learning approach (MSL), which facilitates the students’ simultaneous use of visual, auditory, and kinesthetic motor skills. Lessons are taught in the target language, with English being reserved for the clarification of grammar points. It emphasizes the explicit teaching of phonology and orthography. The MSL approaches draws on the Orton-Gillingham approach and generally consists of the following class activities: 10-15 minutes of blackboard drills that focus on phonology and grammar; followed by 2-3 minutes of oral sound drills designed to review previously studied phonemes/graphemes; 10 minutes of grammar instruction; 10 minutes of vocabulary instruction; and, 10 minutes of communicative practice (Sparks, Ganschow, Kenneweg, & Miller, 1991, p. 108). With MSL instruction, it is believed that the Linguistic Coding Deficit Hypothesis (LCDH), which seeks to explain why unsuccessful or at-risk students have such difficulty acquiring foreign languages, is lessened. The LCDH posits “native language difficulties as a possible cause of foreign language difficulties” (Sparks & Ganschow, 1993a, p. 289). Specifically, the LCDH assumes that poor phonological processing skills in the first language impede perception of novel phonological strings, spoken language comprehension and reading abilities which in turn contribute to deficits in listening comprehension, oral expression, reading comprehension, syntax, general knowledge and verbal memory in the foreign language only (Ganschow & Sparks, 1995; Ganschow, Sparks, Javorsky, Pohlman, & Bishop-Marbury, 1991; Sparks, 1995). In summary, “Students with foreign language learning problems have weaker phonological/ orthographical skills than students without foreign language learning problems” (Sparks, Artzer, Patton, Ganschow, Miller, Hordubay, & Walsh, 1998, 239).

#### *LCDH: Theory and Research*

Research conducted on the acquisition of foreign languages by students with special needs has primarily focused on the Linguistic Coding Deficit Hypothesis (Horwitz, 2000). In the early 1990s, Ganschow, Sparks and colleagues conducted a series of empirical studies with students with learning disabilities and students without learning disabilities, some of the latter who were labeled at-risk and others not. The research findings led Sparks, Ganschow, Pohlman, Skinner and Artzer, (1992) to conclude the following, “The results of these empirical studies all support the LCDH and have led us to speculate that the largest group of poor FL learners exhibits deficits primarily in the phonological component of language” (p. 32). The suggestion that at-risk students suffer from poor phonological awareness was also supported in the studies that followed (Sparks, 1995; Sparks & Ganschow, 1993a; Sparks & Ganschow, 1993b; Sparks & Ganschow, 1993c; Sparks, Ganschow, Artzer, & Patton, 1997; Sparks, et al., 1998).

In 1995, Ganschow and Sparks used a pre-test post-test design to investigate the effects of direct instruction in the phonology/orthography of Spanish on the native language skills and foreign language aptitude of at-risk and non-at-risk learners; they found that there are significant differences between at-risk and non-at-risk learners. The pre-test comparisons revealed significant between-group differences on the

phonological/orthographic measures and foreign-language aptitude tests. Post-test analyses suggested that while both groups made significant gains, the at-risk group's gains were significantly more than the non-at-risk group. These findings give credence to the claim that "at-risk" learners have poor phoneme/grapheme awareness.

Since 1995, Ganschow, Sparks and colleagues have conducted additional empirical studies (Sparks, et al., 1998; Sparks, Ganschow, Artzer, & Patton, 1997), all of which suggest that students who struggle in a foreign language, due to no fault of their own and despite their best efforts, may do so because of poor phoneme/grapheme correspondence skills. Recent studies (Castro & Peck, 2005; Corbitt, 2011) have sought to widen the research beyond that of the LCDH to include learning styles and strategy use, topics that were originally broached in Ganschow and Spark's 1986 study but rarely revisited since.

### *Learning Styles and Strategies*

As defined by Kinsella, learning styles are the, "Natural, habitual, and preferred ways of absorbing, processing, and retaining new information and skills which persist regardless of teaching methods or content area" (1995, p. 171). Research suggests that a lack of learning style flexibility or a strong preference for one style over another may preclude foreign language learning success (Castro & Peck, 2005; Corbitt 2011; Corbitt 2013). Castro and Peck (2005) investigated the effect of learning style preference on students enrolled in a MFLP Spanish class and a non-MFLP Spanish class. Using the Kolb Learning Styles Inventory (1993), Castro and Peck correlated preferred learning style data with student GPA and found that, "Students with a highly specialized learning style would find difficulties in the regular foreign language classroom. They are successful in the modified class due to the attention given to individual learning styles through strategy building and individualized learning" (2005, p. 407).

In 2011, Corbitt expanded the learning style discussion to include learning strategies, which Rubin (1975) defined as, "the techniques or devices which a learner may use to acquire knowledge" (p. 43). Corbitt conducted a pilot study that investigated the preferred learning styles of MFLP and non-MFLP students in relation to their perceived foreign language strategy use. Using the Learning Style Survey (LSS) and the Strategy Inventory for Language Learning (SILL), Corbitt found that while there were no statistically significant differences between the two groups on preferred learning style, the within groups assessment suggested that MFLP students had a significant visual learning style preference. Furthermore, the SILL data suggested that the MFLP group perceived themselves as using more metacognitive strategies than the non-MFLP group. This finding is somewhat perplexing, for the research suggests that what distinguishes more proficient students from less proficient students are both the number of strategies used and their metacognitive awareness, which Vandergrift and Goh (2012) define as, "our ability to think about our own thinking or cognition, and, by extension, to think about how we process information for a range of purposes and manage the way we do it" (p. 84). More proficient students are believed to have stronger metacognitive skills than less proficient students (Anderson, 2008; Vandergrift & Goh, 2012). Thus, are we to assume then that MFLP students, at-risk students, are more proficient at using metacognitive strategies than

their non-MFLP counterparts? Or, could it be that MFLP students do not actually use metacognitive strategies as much as they self-report, that there is a difference between perceived and actual strategy usage?

To answer the aforementioned questions, Corbitt (2013) conducted a mixed-methods study to investigate the relationship between MFLP and non-MFLP post-secondary Spanish students' preferred learning style, perceived metacognitive reading strategy use and actual reading strategy use. Students completed the LSS and, to better determine their perceived metacognitive reading strategy use, the SILL was replaced with the Survey of Reading Strategies (Mokhtari & Sheorey, 2002) which is designed to investigate students' perceived metacognitive foreign language strategy use while reading, a skill that is inherently challenging for students with poor grapheme/phoneme correspondence skills (Schneider & Crombie, 2003). The sensory/perceptual learning style data from the LSS supported previous findings (Corbitt, 2011) that suggested that MFLP students have a dominant visual learning style preference. The results from the Survey of Reading Strategies also suggested that MFLP students' perceived use of foreign language reading strategies was greater than non-MFLP students, supporting previous research (Corbitt, 2011; Porte, 1988; Vann & Abraham, 1990) that suggested less proficient students use more strategies, often haphazardly, in their attempts to learn. The think-aloud data from Corbitt's (2013) study corroborated previous findings and showed that MFLP students used more strategies than non-MFLP students, but that they used them unsuccessfully. However, with regard to metacognition, the findings from the think-aloud tasks suggested that MFLP students use less metacognitive strategies than their non-MFLP counterparts and, unlike their non-MFLP counterparts, MFLP students rarely coupled metacognitive strategies with other strategies. Further analysis of the qualitative data suggested that a possible reason for the lack of metacognitive strategy usage was the MFLP students' very rigid visual learning style preference, which contributed to the students relying almost exclusively on the use of the dictionary to extract meaning from the text.

### *Listening*

Listening is an important skill and arguably the most difficult to master (Goh, 2000; Goh, 2002; Goh & Taib, 2006; Vandergrift, 1997; Vandergrift, 2003; Vandergrift, 2004; Vandergrift & Tafaghodtari, 2010) yet it continues to receive the least amount of structured support in the L2 classroom (Vandergrift & Goh, 2012). While the use of listening activities is a staple of today's communicative classroom, these activities focus mainly on the outcome of listening and serve primarily as an evaluative tool. According to Vandergrift and Goh (2012), the activities are not necessarily designed to help students improve their listening abilities as they listen, which is essential for language learning to take place. Consequently, foreign language students are not being taught how to monitor their listening, which is a metacognitive process essential to learning. Vandergrift and Goh (2012) state, "Application of metacognitive knowledge is a mental characteristic shared by successful learners" (p. 23). However, MFLP students are, by definition, unsuccessful and struggling learners. The research conducted by Sparks, Ganschow and colleagues suggest that the difficulties unsuccessful learners have may be a result of poor grapheme/phoneme correspon-

dence skills; consequently, foreign language listening may be especially difficult for MFLP students. This study seeks to expand on the previous research by investigating that which has not yet been studied: the relationship between learning styles, perceived listening strategy use and metacognitive awareness.

### Research Questions

To better understand the relationship that exists between MFLP students' preferred learning styles and their perceived metacognitive listening strategy use in the target language, the following research questions were proposed:

1. Do MFLP and non-MFLP students differ significantly with regard to their preferred sensory/perceptual learning styles (Visual, Auditory, Tactile/Kinesthetic)?
2. Do MFLP and non-MFLP students differ significantly with regard to their perceived metacognitive listening strategy use?
3. What is the effect of learning style preference on perceived metacognitive listening strategy use for MFLP and non-MFLP students?

### Methods

#### Participants

The study was conducted in the department of foreign languages at a midsized university in the southeast of the United States. Eighty-seven students of third-semester Spanish were asked to participate in the study. Of these, 74 students (MFLP,  $n = 37$ ; non-MFLP,  $n = 37$ ) completed two questionnaires. Five students who failed to complete both questionnaires were excluded from the analysis. Forty-one females (MFLP,  $n = 18$ ; non-MFLP,  $n = 23$ ) and 33 males (MFLP,  $n = 19$ ; non-MFLP,  $n = 14$ ) participated in the study. In accordance with MFLP policy, all students had been deemed "at-risk" by the university's department of special needs. Due to the sensitivity of issues surrounding vulnerable populations, more specific information (e.g. each individual's specific type of learning disability or special need, such as dyslexia, ADHD, etc. and their test scores for admittance to the program) was not gathered; while requested, the University denied the author's request for those data.

To control for instructional variation, participants came from four classes (MFLP,  $n = 2$ ; non-MFLP,  $n = 2$ ) taught by the same instructor trained in MFLP approved practices, such as multisensory language learning (For a comprehensive description of the multisensory language learning approach, see Sparks, Ganschow, Kenneweg and Miller, 1991). Therefore, this study represents a purposeful sample.

#### Data Collection and Analysis

Data were collected over a two-day period during the students' regular class periods towards the end of the semester. On day one, students completed a short biographical questionnaire and the *Learning Style Survey* (Cohen, Oxford & Chi, 2001). On day two, students completed the *Metacognitive Awareness of Listening Questionnaire* (Vandergrift, Goh, Mareschal, & Tafaghodtari, 2006).

The *Learning Style Survey* (LSS) uses a 5-point Likert scale to measure participant responses. It consists of 110 items divided into 11 categories: How I use my physical senses (Visual, Auditory, or Tactile/Kinesthetic); How I open myself to learning situations (extraverted or introverted); How I handle possibilities (Ran-

dom-Intuitive or Concrete-Sequential); How I deal with ambiguity and deadlines (Closure-Oriented or Open-Oriented); How I receive information (Global or Particular); How I further process information (Synthesizing or Analytic); How I commit material to memory (Sharpeners or Levelers); How I deal with language rules (Deductive or Inductive); How I deal with multiple inputs (Field-Independent or Field-Dependent); How I deal with response time (Impulsive or Reflective); How literally I take reality (Metaphoric or Literal). In developing and validating this survey instrument, a factor analysis involving a sample of 350 inventories yielded the aforementioned 11 categories (A. Cohen, personal communication, April 28, 2010). Because the items are not designed to correlate, an analysis of internal consistency was not conducted for this study. The LSS was chosen because, in addition to eliciting sensory/perceptual learning style data (visual, auditory or tactile/kinesthetic), it is capable of collecting psychology type data and cognitive learning style data, which will be used to inform follow-up studies. For the purposes of this article, only the physical senses data are presented.

The *Metacognitive Awareness of Listening Questionnaire* (MALQ) was informed by Falvell's (1979) model of metacognitive knowledge (Vandergrift, Goh, Mareschal & Tafaghodtari, 2006). It uses a 6-point Likert scale and consists of 21 items divided into 5 categories: Problem solving; Planning and evaluation; Mental translation; Directed attention; and Person knowledge. Vandergrift, Goh, Mareschal, and Tafaghodtari conducted factor analysis of a very large sample ( $n = 966$ ) and a Spearman  $r$  correlation analysis of the MALQ data and listening comprehension data suggested a strong relationship between students' reported behavior and their actual behavior; for that reason, the MALQ was chosen.

For the purpose of the present study, one minimal modification was made to the MALQ survey in order to make it more suitable for students of Spanish. The word "English" was substituted for the word "Spanish" in items three, eight and fifteen to read respectively: "I find that listening is more difficult than reading, speaking, or writing in Spanish"; "I feel that listening comprehension in Spanish is a challenge for me"; "I don't feel nervous when I listen to Spanish." Statistical analyses have determined the instrument to be both reliable and valid (Vandergrift, Goh, Mareschal & Tafaghodtari, 2006, p. 432).

The two questionnaires were then converted to TeleForm documents to avoid the need for manual data input. TeleForm uses Global Positioning Systems technology to read human written responses and converts those responses to a file that can be interpreted by statistical software. The background questionnaire and the LSS were conflated into one TeleForm and administered on day one (see Appendix A), while the MALQ TeleForm document was administered on day two (see Appendix B). The data were uploaded to the Statistical Package for Social Sciences version 20 and subjected to a series of statistical analyses (see Result section).

## Results

To answer the first research question –Do MFLP and non-MFLP students differ significantly with regard to their preferred sensory/perceptual learning styles (Visual, Auditory, Tactile/Kinesthetic)? – the LSS data were subjected to three independent samples t-tests; one for each sensory/perceptual learning style: visual, auditory and tactile/kinesthetic. A Levene's test and descriptive statistics were analyzed and all assumptions were met. The findings suggest that MFLP and non-MFLP group do not significantly diverge with regard to their preferred sensory/perceptual learning styles.

Table 1

*Comparison of MFLP and non-MFLP Students' Preferred Sensory/Perceptual Learning Style*

Variable	<i>M</i>	<i>SD</i>	<i>t</i>	<i>df</i>	<i>p</i> .
Visual			.479	72	.634
MFLP	3.38	.441			
Non-MFLP	3.32	.570			
Auditory			.626	72	.533
MFLP	3.10	.413			
Non-MFLP	3.04	.475			
Tactile/Kinesthetic			-1.18	72	.244
MFLP	2.71	.465			
Non-MFLP	2.85	.578			

A mixed ANOVA with a Huynh-Feldt correction was then conducted to determine whether or not the within group's preferred learning style was statistically significant. The findings suggest that MFLP students' preferred learning style is visual and the mean differences are statistically significant,  $F(2.0, 146) = 28.25$ ,  $p < .001$ ,  $\eta^2 = .28$ .

Table 2

*Means and Standard Deviations for the Three Sensory/Perceptual Learning Styles*

Variable	<i>M</i>	<i>SD</i>
Visual	3.38	.507
Auditory	3.10	.444
Tactile/Kinesthetic	2.71	.525

To answer research question number two – Do MFLP and non-MFLP students differ significantly with regard to their perceived metacognitive listening strategy use? – the MALQ data were subjected to independent samples t-tests. Descriptive statistics and a Levene's test for equal variances were analyzed and all assumptions were met. Table 3 shows that MFLP students report more perceived use of metacognitive strategy use when listening in the target language than their non-MFLP counterparts; however, only one of the five categories was statistically significant. The findings suggest that MFLP students report a significantly greater degree of Planning and Evaluation than their non-MFLP counterparts.



Table 3

*Comparisons of MFLP and non-MFLP Students' Perceived Use of Metacognitive Listening Strategies*

<b>Variable</b>	<b>M</b>	<b>SD</b>	<b>t</b>	<b>df</b>	<b>p.</b>
Problem Solving			.331	70	.741
MFLP	4.79	.515			
Non-MFLP	4.72	.535			
Planning & Evaluation			1.98	70	.049
MFLP	3.82	.954			
Non-MFLP	3.14	.743			
Mental Translation			.607	70	.546
MFLP	4.47	.646			
Non-MFLP	4.22	.771			
Directed Attention			-1.17	70	.079
MFLP	4.01	.601			
Non-MFLP	3.81	.291			
Person Knowledge			.939	70	.351
MFLP	4.13	.926			
Non-MFLP	3.85	.878			

To answer the third research question – What is the effect of learning style preference on perceived metacognitive listening strategy use for MFLP and non-MFLP students? – a simple linear regression was run on each of the five MALQ sections: Problem Solving, Planning and Evaluation, Mental Translation, Directed Attention, and Person Knowledge. The results suggest that only one dependent variable (Planning and Evaluation) was significantly affected by a MFLP student's preferred learning style,  $F(2, 71) = 9.83, p = .003$ . MFLP students with a visual preferred learning style self-reported using more planning and evaluation strategies than students with other learning styles and these findings were statistically significant.

## Discussion

Listening is a difficult task for all, but, for MFLP students, it may be especially challenging. Previous research suggests that students who are more metacognitively aware are more proficient listeners (Goh, 2002; Macaro, 2001; Mareschal, 2002; Vandergrift, 1997; Vandergrift, 2002; Vandergrift, 2003). Findings from this study suggest that MFLP students, especially those students for whom listening is especially challenging, actually report more perceived usage of metacognitive listening strategies than their non-MFLP counterparts. On the surface, this may seem counterintuitive, but this finding is in line with previous research. According to Griffiths (2008), "Some studies have discovered that poor language learners use a great many strategies in their unsuccessful efforts to learn (for instance, Porte, 1988; Vann and Abraham, 1990)" (p. 89). This was borne out in Corbitt's 2013 study which investigated the effects of learning style preference on MFLP students' actual strategy use when reading in the target language.

The findings from this pilot study support previous research (Castro & Peck, 2005; Corbitt, 2011; Corbitt, 2013) that suggested that MFLP students have very rigid learning style preferences. An analysis of the qualitative data from Corbitt's 2013 study showed that an overreliance on the visual learning style might preclude foreign language reading success. This study, which sought to expand the conversation to include perceived listening strategy usage, justifies the need for further research.

### **Limitations and Suggestions for Future Research**

One must proceed with caution when interpreting the results of this study for two reasons: (1) While the MFLP students reported more perceived usage of metacognitive listening strategies than their non-MFLP counterparts, only the mean differences in one of the five categories was statistically significant (see Table 3). (2) While previous MALQ research (Vandergrift, Goh, Mareschal, & Tafaghodtari, 2006) suggested a significant correlation between what students self-report on the MALQ questionnaire and what they actually do, it is quite possible that, for the MFLP population, that is not the case. Corbitt (2013) found that, despite self-reporting a large amount and variety of reading strategies, MFLP students do not actually do what they say they do. Only investigating what students say they do is a limitation of this study. Future research is needed to investigate what MFLP students actually do while listening in the target language. Because strategies are for the most part unobservable, future research should consider employing introspective measures such as think-aloud tasks, stimulated recalls, and immediate recalls.

The findings from this study suggest a limited interaction between MFLP students' preferred learning style and their perceived metacognitive listening strategy usage. Previous research (Corbitt, 2013), however, had suggested that a statistically significant visual learning style preference negatively influences what strategies MFLP students use when reading in the target language. For this reason, and the other aforementioned reasons, future research will need to investigate the learning style/strategy relationship as MFLP students are performing specific tasks. Research should seek to determine what specific strategies MFLP students employ when listening in the target language and the degree to which the students' preferred learning styles either facilitate or impede comprehension and learning. Despite the aforementioned limitations, there are several pedagogical implications that teachers should consider.

### **Pedagogical Implications and Conclusions**

According to Chamot (2008), there is considerable evidence to suggest that less successful students can benefit from explicit strategy instruction. To facilitate metacognitive strategy awareness, Anderson (2008) recommends first introducing the importance of strategies to students by having them complete a survey such as the MALQ or the Strategy Inventory for Language Learning (Oxford, 1990). Anderson also recommends that teachers: 1) have students keep journals in which they articulate their strategy usage experiences, evaluate their successes and failures, and describe their plans and goals; 2) implement self-assessments for both tasks and tests; and, 3) incorporate self-recordings or think-aloud protocols so that students can verbalize their thought processes, which helps facilitate self-awareness. Schneider and Crombie (2003) also believe that verbalization is the key to promoting metacognitive awareness and recommend that teachers do the following to help facilitate the

verbalization process: Teachers should 1) model questioning strategies for the students to help promote self-reflection and self-correction; 2) use a variety of textual enhancement techniques, such as color-coding and shape-coding, to help stimulate the thought process; 3) use mnemonic devices that help students recall previously studied material; and 4) create a classroom environment in which students feel comfortable discussing their difficulties and successes.

With regard to learning style preferences, the findings from this study support previous findings that MFLP students have a strong visual learning style preference and that their least preferred learning style is tactile/kinesthetic. This does not mean, however, that these preferences are static (Castro, 2006; Cohen, 1998; Cohen & Weaver, 2006). Students can be taught to stretch their approaches to learning so that they can more easily adapt to a wide variety of activities and teaching styles. As a beginning, Cohen and Weaver (2006) recommend that teachers have their students take the LSS because it “will help them begin to understand their own approaches to learning and can give you (the teacher) information about how they learn” (p. 19). To help attenuate possible teaching style / learning style conflicts, Cohen and Weaver also recommend that teachers take the LSS, “When you have information about your students’ and your own learning style preferences, you can make the most of your students’ style preferences and help them find ways to stretch themselves to benefit most from your teaching styles” (p. 11). For MFLP students, students who have a strong visual learning style preference and are primarily taught via a multisensory approach, learning style flexibility may even be more important (Corbitt, 2013). For more information regarding styles and strategies based instruction, see the Center for Advanced Research on Language Acquisition at the University of Minnesota.

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Participant ID

**Instructions:**

For each item circle the response that represents your approach. Complete all items. There are eleven major activities representing twelve different aspects of your learning style. When you read the statements, try to think about what you generally do when learning.

Indicate your immediate response (or feeling) and move on to the next item. For each item, mark your immediate response: 1 = Never 2 = Rarely 3 = Sometimes 4 = Often 5 = Always

Part 1: How I Use My Physical Senses

	1	2	3	4	5
I remember something better if I write it down.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I take detailed notes during lectures.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
When I listen, I visualize pictures, numbers, or words in my head.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I prefer to learn with TV or video rather than other media.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I use color coding to help me as I learn or work.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I need written directions for tasks.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I have to look at people to understand what they say.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I understand lecturers better when they write on the board.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Charts, diagrams, and maps help me understand what someone says.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I remember people's faces, but not their names.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I remember things better if I discuss them with someone.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I prefer to learn by listening to a lecture rather than reading.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I need oral directions for a task.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Background sound helps me think.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I like to listen to music when I study or work.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I can understand what people say even when I cannot see them.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I remember people's names, but not their faces.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I easily remember jokes that I hear.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I can identify people by their voices (e.g., on the phone).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
When I turn on the T.V., I listen to the sound more than watch the screen.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>





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I'd rather get started than pay attention to directions.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I need frequent breaks when I work or study.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I need to eat something when I read or study.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If I have a choice between sitting and standing, I'd rather stand.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I get nervous when I sit still too long.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I think better when I move around (e.g., pacing or my tapping feet).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I play with or bite on my pens during lectures.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Manipulating objects helps me to remember what someone says.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I move my hands when I speak.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I draw lots of pictures (doodles) in my notebook during lectures.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Part 2: How I Open Myself to Learning Situations

	1	2	3	4	5
I learn better when I work or study with others than by myself.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I meet new people easily by jumping into the conversation.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I learn better in the classroom than with a private tutor.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
It is easy for me to approach strangers.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Interaction with a lot of people gives me energy.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I experience things first, and then try to understand them.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I am energized by the inner world (what I'm thinking inside).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I prefer individual or one-on-one games and activities.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I have a few interests, and I concentrate deeply on them.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
After working in a large group, I am exhausted.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
When I am in a large group, I tend to keep silent and listen.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I want to understand something well before I try it.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



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Part 3: How I Handle Possibilities

	1	2	3	4	5
I have an inventive imagination.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I try to find many options and possibilities for why something happens.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I plan carefully for future events.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I like to discover things myself rather than have everything explained to me.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I add many original ideas during class discussions.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I am open-minded to new suggestions from my peers.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I focus on a situation as it is rather than thinking about how it could be.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I read instruction manuals (e.g., for computers or VCRs) before using the device.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I trust concrete facts instead of new, untested ideas.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I prefer things presented in a step-by-step way.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I dislike it if my classmate changes the plan for our project.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I follow directions carefully.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Part 4: How I Deal With Ambiguity and Dealines

	1	2	3	4	5
I like to plan language study sessions carefully and do lessons on time or early.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
My notes, handouts, and other school materials are carefully organized.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I like to be certain about what things mean in a target language.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I like to know how rules are applied and why.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I let deadlines slide if I'm involved in other things.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I let things pile up on my desk to be organized eventually.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I don't worry about comprehending everything.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I don't feel the need to come to rapid conclusions about a topic.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



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Part 5: How I Receive Information

	1	2	3	4	5
I prefer short and simple answers rather than long explanations..	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I ignore details that do not seem relevant.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
It is easy for me to see the overall plan or big picture.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I get the main idea and that's enough for me.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
When I tell an old story, I tend to forget lots of specific details.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I need very specific examples in order to understand fully.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I pay attention to specific facts or information.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I'm good at catching new phrases or words when I hear them.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I enjoy activities when I have to fill in the blank with missing words I hear.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
When I try to tell a joke, I remember details but forget the punch line.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Part 6: How I Further Process Information

	1	2	3	4	5
I can summarize information easily.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I can quickly paraphrase what other people say.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
When I create an outline, I consider the key points first.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I enjoy activities where I have to pull ideas together.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
By looking at the whole situation, I can easily understand someone.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I have a hard time understanding when I don't know every word.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
When I tell a story or explain something, it takes a long time.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I like to focus on grammar rules.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I'm good at solving complicated mysteries and puzzles.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I am good at noticing even the smallest details regarding some task.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



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Part 7: How I Commit Material to Memory	1	2	3	4	5
I make an effort to pay attention to all the features of new material as I learn.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
When I memorize different bits of language material, I can retrieve these bits easily as if I had stored them in separate slots in my brain.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
As I learn new material in the target language, I make distinctions between speech sounds, grammatical forms, and words and phrases	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
When learning new information, I may clump together data by eliminating or reducing differences and focusing on similarities.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I ignore distinctions that would make what I say more accurate in the given context.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Similar memories blur in my mind; I merge new learning experiences with previous ones.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Part 8: How I Deal With Language Rules	1	2	3	4	5
I like to go from general patterns to the specific examples in learning a target language.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I like to start with rules and theories rather than specific examples.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I like to begin with generalizations and then find experiences that relate to them.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I like to learn rules of language indirectly through being exposed to lots of examples of grammatical structures and other language features.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I don't really care if I hear a rule stated since I don't remember rules very well anyway.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I figure out rules based on the way I see language forms behaving over time.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



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Part 9: How I Deal With Multiple Inputs	1	2	3	4	5
I can separate out the relevant and important information in a given context even when distracting information is present.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
When I produce an oral or written message in a target language, I make sure that all the grammatical structures are in agreement.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I not only attend to grammar, but check for appropriate levels of formality and politeness	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
When speaking or writing, a focus on grammar would be at the expense of attention to content.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
It is a challenge for me to focus on communication in speech or writing while paying attention to grammatical agreement (e.g., person, number, tense, or gender).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
When I am using lengthy sentences in a target language, I get distracted and neglect aspects of grammar and style.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Part 10: How I Deal With Response Time	1	2	3	4	5
I react quickly in language situations.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I go with my instincts in a target language.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I jump in, see what happens, and make on-line corrections if needed.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I need to think things through before speaking or writing.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I like to look before I leap when determining what to say or write in a target language.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I attempt to find supporting material in my mind before I start producing language.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Part 11: How Literally I Take Reality	1	2	3	4	5
I find that building metaphors in my mind helps me deal with language (e.g., viewing the language like a machine with component parts that can be disassembled.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I learn things through metaphors and associations with other things. I find stories and examples help me learn.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I take learning language literally and don't deal in metaphors.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I take things at face value, so I like language material that says what it means directly.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

