# Capítulo IV

# Learning Styles and Strategies, a Holistic Model in Initial Teacher Education

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## Introduction

Teachers are key agents for any social transformation desired locally, nationally or internationally (Rubiano, 2013; Schuck, Aubusson, Burden, & Brindley, 2018; Škugor & Sablić, 2018); as well as fundamental influence for students to achieve learning outcomes successfully (Hattie, 2008; McLean Davies et al., 2015; Vaillant & Manso, 2013). They can be considered active agents that promote specific goals in order to contribute for building a better nation for people. Consequently, teacher education (TE) is a very important aspect in which governments are devoting efforts, investment and time to improve it. At institutional levels, concerns also go to enhance the "how to" of subject matters as well as improve students' learning outcomes. Interests are also addressed to wider aspects of teaching and learning in terms of curricula, content, instructional practices, social dynamics, resources, ICT tools, and contextual influen-

ces. For the research community, interests in teacher education revolve around teachers' learning, teachers' knowledge, teachers' practices, and teachers' influential elements in decision-making, to name a few. Besides, researchers are also aware that TE is fundamentally considered a long-term process, starting in the initial programs through the on-going professional experience once teachers are graduates. However, more than ever, teachers' learning, beliefs, assumptions, and empowerment are acknowledged as key factors that influence classroom practices and, consequently, students' learning outcomes; provided other factors (socio-economic, teaching materials, etc.) are also improved to guarantee suitable learning conditions (Cochran-Smith et al., 2017). Accordingly, it is important that teacher education and, in this case, initial teacher education, moves beyond instances of the "how to" component, based on the simple equation of the linear cause-effect thinking; in other words, the assumption that theory presentation leads teachers to an understanding of that theory and, as a consequence, its effective application on their teaching practices.

Reflection in practice is important to bridge the gap between theory and contextualized practice. For this reason, this study, conducted in an initial language teacher education program, aims at involving student teachers not only in theory exposure, but also in the explicitness and reflection on learning strategies and styles preferences instruction (Cohen & Weaver, 2005) by experiencing the value of learning strategies by themselves.

The issue about linking theory and practice becomes even more complex when student teachers are facing university subjects demanding samples of teaching tasks (designing of tasks, assignments, lesson planning, etc.), which should reflect their learning about a particular set of instructional design theories. However, episodes of reflection based on their own experience as learners of those instructional settings are not necessarily considered in most of the teaching scenarios. In the case of learning styles and strategies, chances are that in most of the programs in initial teacher education, explicitness of styles and teaching of learning strategies are not part of the syllabus. In this study, the institution has a subject called "learning strategies applied to foreign language". This is part of *professional elective courses* (in-depth studies on a particular subject) in the program syllabus, which implies that not all of the students will have the chance to take it as part of their undergraduate studies. The results of this research can be considered for future curriculum adaptations that serve student teacher's better learning of classroom practices. Thus, bridging the gap between theory and

practice by having student teachers reflect on real exercises represents a learning challenge while they are encouraged to work.

For the aforementioned ideas, this study focused on having student teachers in an initial teacher education program know, be aware, and reflect on the value of using learning styles and preferences to improve classroom practices and better achieve their own, as well as future students' learning outcomes. On one hand, we consider that teachers' cognitive and metacognitive knowledge should be enhanced by being explicitly taught and reflected on their own experiences. On the other hand, teachers need to experience in order to really believe and incorporate good teaching practices into their classroom practice. For this reason, the participants identified their learning preferences under three aspects: sensory perceptual, psychological type, and cognitive using a Learning Style Survey designed by Cohen and Weaver (2005). They also compared their own perceptions as students with the results of the survey. Finally, they developed learning strategies to have evidence on results, which convey the description of their own learning styles preferences. Findings revealed that most of student teachers are not aware of what their learning preferences are, and how they work to benefit their own learning.

## Style- and Strategy-Based Language Instruction

This study was conducted under the concepts of styles and strategies instruction by authors Cohen and Weaver (2005), who proposed a "learner-focused approach to language teaching that explicitly combines styles and strategy instructional activities with everyday classroom language instruction" (p. 5). They based their proposal on the notion that students not only need to know what to learn, but also, they need to know "how" they can do their best. Student teachers are also facing difficulties to learn the languages they like in their own program. For this reason, they should be given the experience to be explicitly taught learning strategies while they are aware of their learning styles preferences. By helping these language pre-service teachers to gain a better sense of their own individual experiences as language learners, they may also gain a better sense of individual needs of their future students. Another important aspect when working with styles and strategies preferences is the acknowledgement of their responsibility as learners. It is not enough to provide a wide variety of strategies if students are not aware of their responsibility to do the things they need to do in order to succeed. Challen-

ges emerging from styles and strategies learning for student teachers are great for them to grow in motivation and, consequently, by experiencing strategies, they can gain awareness of how successful they can be for different educational settings. However, styles and learning strategies are not easily assumed by teachers in general.

## Issues in Learning Strategies Research

There are still different issues to take into account when dealing with learning strategies research and teaching. Chamot (2004) distinguishes eight issues related to language learning strategy research and training. Among those, the learning strategies identification procedures, what methodology should be used in order to obtain more information from students about the strategies they use, is one major concern. According to Chamot, most of research is undertaken on the basis of questionnaires and pedagogical interventions, which are frequent and efficient to identify students' learning styles (Cohen & Weaver, 2005) and strategies; while sources as interviews, journal and think-aloud reports are not frequently used. Consequently, more insights about how relevant strategies are, how they work, and how they are used are not significantly dimensioned today. That is one of the reasons this study will also analyze, in a second phase, by means of interviews, student teachers' own thinking and understanding of learning styles preferences and how they can be useful to improve their learning. Also, they have opportunities to see how strategies work in a real context, and how they may enhance reflections that contribute to more effective language learning behaviors. Other issues identified by Chamot (2004) are learners' characteristics, such as gender and the use of more strategies, which are not quite clear when working with them (Chamot, 2004). Research is still needed to provide more information in terms of differences in these matters.

The study and classification of learning strategies and styles have contributed to improve classroom practices, although they are not officially assumed in the curriculum of programs. With these ideas in mind, the subject "learning strategies in foreign language teaching" serves a twofold purpose: let student teachers experience the value of styles preferences combined with learning strategies in order to incorporate their use into their learning; and to provide real foundations of the benefits of incorporating them for their future classroom practices: "Research suggests that the greater the number of styles students can use, the more

successful they will be at learning a language" (Cohen & Weaver, 2005, p. 8). As it is in the case of learning strategies, their value is acknowledged: "Language learning strategies are good indicators of how learners approach tasks or problems encountered during the process of language learning" (Hismanoglu, 2000, p. 6). It is interesting though, to see the different questions the area of learning styles has to answer. We can still find claims to obtain more information: "is it reliable – that is to say, does it measure the learning styles of students consistently? Is it valid – is it really a test of learning styles or of some other quality such as intelligence or personality?" (Coffield, Moseley, Hall, & Ecclestone, 2004, p. 1).

This research was conducted at a public university in a foreign language teacher education program. Student teachers are taught theoretically about a good number of subjects related to pedagogy, language learning, teaching training and research. They also have a period of practicum for about two years and a half. However, there is a pressing need to align theory to practice through reflections conducted by students so they can incorporate more understandings of classroom dynamics. Therefore, the idea is not only to see teaching as training in how to do things, but also to understand the underlying aspects for improving learning. This entails that the didactic component of teaching training should be high in the curriculum; also, strategies for students to experience more reflective practices are desirable. Conceptualization needs to be understood in the classroom practice. In the case of learning styles preferences and learning strategies, experiencing by themselves the discovering of their own dimensions of styles, the potential they offer in terms of improving and facilitating learning, will be relevant for their future jobs; since their future students can benefit if their teachers understand the value of learning styles preferences. We hope it will provide the participating student teachers with ideas about how to embed learning and teaching strategies into everyday class activities, how to positively reinforce the effective use of strategies, and how to encourage their future students to find ways to take more responsibility for their own language learning.

With all these issues in mind, this research seeks to work on the basis of styles and integrate them with language learning strategies. In order to do so, a first step is to find out the learning style preferences of the target group of foreign language students. In order to start a process of integration, we decided to work on the Learning Style Survey, a version developed by Cohen and Weaver (2005). According to Cohen and Weaver, their version was drawn on Oxford's (1995), Ehrman and

Leaver's (1997, 2003), the E&L Questionnaire, (2001) (as cited in Cohen and Weaver, 2005). This survey was used to meet some relevant style dimensions appealing to language learning style, especially sensory/perceptual, cognitive and personality types. For the goals proposed by this study, this research was conducted in three stages. This chapter explores the results of the first stage: obtaining information about this group of student teachers' learning styles so they can eventually experience by themselves, through practice and reflection, the benefits for teaching and learning. Regarding the aforementioned challenges, the general goal for this research is to gain a better sense of using individual learning styles to improve learning.

In order to attain this goal, this research was conducted in three stages. The first stage attempted to validate the *Learning Style Survey* (Cohen & Weaver, 2005), by applying the survey to students, and then, using the categorization of the same survey so students can punctuate by themselves their own perceptions in relation to the categories expressed: sensory perceptual, psychological type and cognitive style. In a second step, students were asked to exchange results with another student so they could become researchers (analyzing a partner's results), and subjects of study (being analyzed by another partner), in order to do the comparison and the analysis of results obtained by both, survey and personal perception on the categories of the same survey. After that, they designed and implemented a learning strategy to their target case in order to corroborate one of the learning style preference provided by the results of the data collected through the survey and their own perception. In a third step, students were interviewed to obtain information about how knowing their learning styles preferences and applying learning strategies can help them in their future as professional teachers. The need to know if their insights will reflect a sense of awareness is relevant and significant, since they experienced styles and strategies learning by working in class and in real case studies coming from their classmates. In order to carry out this survey validation, the following specific goals were defined:

- Identify learning style preferences of the target students.
- Compare the results of the survey with students' own perceptions.
- Analyze the level of matching in test's results and students' perceptions.

## State of the Art

For this study, we have analyzed the different studies presented at the VIII Learning Styles World Congress 2018 concerning learning styles interests in seven different research areas requested in the Congress, which are described in the following table, as well as the number of papers that were accepted in each of these.

**Table 1.** CMEA Areas 2018

| | | |
|---|---|---|
| 1 | Educational models and higher education | 32 |
| 2 | Considerations and theorization of new trends | 11 |
| 3 | Social construction of knowledge | 5 |
| 4 | Emotional and inclusive education | 13 |
| 5 | Strategies and new technologies: Challenges | 30 |
| 6 | Influence of styles in the development of autonomy | 25 |
| 7 | Business and entrepreneurship area | 1 |

Source: Report CMEA 2018. Universidad del Atlántico.

As shown in table 1, 116 papers were accepted, and a total of 96 were presented during the three-day-event (see http://esapidex-b.org/cmea2018/es/presentacion). As reflected, there is a greater concentration of proposals in the areas 1, 5 and 6, showing that researchers' preferences go about learning styles theory and their influence on higher education, autonomy and new technologies.

In relation to the methodology implemented, studies presented used both, qualitative and quantitative approaches. A small number of guided pedagogical interventions around learning styles were presented (27% of the works submitted). Among the most used instruments we can find tests, questionnaires, and interviews, which correspond to 30%, 21%, and 10% respectively. Document analyses, and observations with field journals have percentages of 5%, and 7% respectively. As we can see, issues related to data collection instruments still lack a high percentage of think-aloud methods, journals, and interviews to give deeper insights while students are immersed in learning styles teaching experiences.

## Theoretical Framework

### Learning Styles.

In basic words, Cohen and Weaver (2005) affirm that "Learning style preferences refer to the way you like to learn". According to Ehrman (1996, as cited in Cohen & Weaver, 2005), "They are put into action by specific learning strategies" (p.8). This approach of integrating styles and strategies learning to the language teaching and learning process can be of a lot of help to improve student teachers' learning outcomes in diverse educational settings. Learning Styles have been defined on the basis of senses, psychology (personality), and cognition (Reid, 1995, as cited in Cohen & Weaver, 2005). Keefe and Ferrell (1990) inform experiences on style paradigms in terms of personality theory, which involves that learning styles are "intimately interwoven with the affective, temperamental, and motivational structures of the total human personality" (p. 57). This element added to questionnaires is now relevant to reveal more precise features of students and teachers' learning styles. This idea is added to cognitive conceptualizations, which are now believed to be interrelated with aspects of personality and affective structures. Keefe and Ferrell (1990) claim that researchers acknowledge that humans are not empty vessels, which is important for the development of learning theories. Reporting the findings of Smith et al. (1975), researchers "attribute learning styles to experience, psychological, neurological, and physiological factors; habit; training; response to personal models; and value preferences" (p. 58). In addition, Keefe and Ferrell (1990) also indicate that research has pointed interests in relating "individual differences in aptitude, including aspects of cognitive and affective style to instructional method" (p. 58) Thus, this has prompted the different components that learning entails, the interrelated aspects tracing individual differences.

Not a single approach to learning styles will be valid to state what single learning style a person is. Thus, theories have underpinned their conceptualizations on the basis of different criteria that interrelates several elements: Kolb (1984) claims that, in order to support students' learning, this should be based on their direct experience (Romero, Salinas Urbina, & Mortera, 2010) . This is an important factor for student teachers to incorporate learning styles and strategies preferences into their future as teachers; they should experience by themselves how helpful learning styles preferences applied to learning strategies can be, provided the opportunity for reflection based on intended benefits they start encoun-

tering in their real use and awareness. According to Alonso, Gallego and Honey (2007), learning styles are cognitive, affective, and physiological traits that serve as relatively stable indicators of how students perceive, interact, and respond to their learning environments. This definition, according to the authors, implies a more adjusted concept provided by Keefe (1988, as cited in Alonso, Gallego, & Honey, 1997) and includes the studies offered by Cognitive Psychology, which states the differences among people in terms of the way they get to knowledge. This is important since learning styles should be the foundation of teaching strategies and pedagogical reinforcements, so they could be the most suitable for students (Aragón & Jiménez, 2009).

What it is interesting in research, according to Bahamon, Vianchá, Alarcón, and Bohórquez (2012), in terms of learning styles areas, are those claiming that depending on the university program students choose, they will develop certain styles belonging to the subject matters imparted, as well as the way they start modifying their learning style as they advance in the program (Cancino, 2009). Researchers (Bahamón et al., 2012) also report that most used instruments until 2010 were those related to the *Cuestionario de Honey-Alonso de Estilos de Aprendizaje* (CHAEA) (Alonso, Gallego & Honey, 2007) and the Learning Styles Inventory (Kolb, 1984), especially in the Latin-American communities.

According to Pantoja, Duque and Correa (2013), what is certain, among all the complexities represented in the different models and approaches to learning styles, is that there is no single way to learn; also, that learning styles are not static and they can change or improve through time and situations. However, there are still concerns about the numerous instruments to research about:

> (…)what is the best way to channel a person's learning or the necessary didactics for it. This is because of the doubts that remain about the validity and reliability of some of the instruments developed to identify and assess learning styles. (Pantoja et al., 2013, p.99)

After their literature review, Pantoja et al. (2013) also remark important findings in relation to learning styles and the models proposed as follows: one effective approach could be through experimentation and discovering through senses, or understanding that there is existence of preferences; there is a possibility that also instructional methods, thinking processes and the way to relate with people can facilitate learning;

as well as patterns, behavior characteristics or the dominant brain side. Besides, Pantoja et al., (2013) suggest that

> Learning styles models constitute a research network that adapts classical theories to specific contexts, allowing this area to be adjusted to the particular motivations of those interested in working in-depth, mainly in the validation and adaptation processes of some existing learning style models. (p. 100)

This idea grounded the fact that the first step in this study tries to see the relation between the results of the Learning Style Survey and their own perceptions among a group of student teachers of a foreign language program, before proceeding with the implementation of learning strategies.

## Learning Strategies.

A diverse classification of learning styles and learning strategies has been provided along different decades. Advancement in this regard can be found from the simple act of describing and classifying "to experimenting with different kinds of interventions in the classroom" (Cohen & Weaver, 2005, p. 6). In general terms, research on this issue still continues on a regular basis (VIII World Congress of Learning Styles, 2018). Learning strategies also began in the 1960's with Cognitive Psychology. Joan Rubin (1975) started researching about the strategies that good language learners use in order to be successful: "identifying what good language learners report they do to learn a second or foreign language, or, in some cases, are observed doing while learning a second or foreign language" (Wenden & Rubin, 1987, p. 19). However, their interest also went to classify language learning strategies so they can be used by less successful learners. In this sense, a big number of taxonomies, especially descriptive, has been provided since (O'Malley, Chamot, Stewner-Manzanares, Russo, & Küpper, 1985important research questions related to learning strategies remain to be answered. These questions concern 1; Oxford, 1990; Wenden & Rubin, 1987).

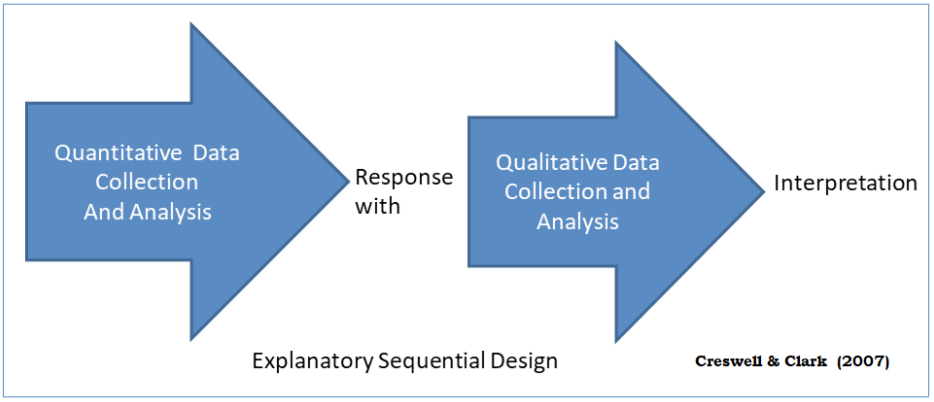
As reported by Chamot (2004), these inventories of learning strategies have been developed for specific research goals. Therefore, for instructional purposes, learning strategies need to be organized in a more comprehensible way for all teachers and students. Chamot (2004) remarks that "it is obviously desirable to have some consistency between the various language learning strategy classification systems, for otherwise both researchers and teachers can become confused by competing systems" (p.

23). The truth is that learning strategies need to be contextualized for the diverse and different characteristics of educational settings and learners.

## Methodology

The present investigation is of a mixed nature. Qualitative and quantitative data was collected to contribute to the findings from both methods. They also provided relevant information for future implications. This was carried out this way in order to achieve a discussion that describes the understanding of the phenomenon studied (Hernández, Fernández, & Baptista, 2014).

It is important to remark that participants' thoughts, behaviors and products informed what was needed in terms of data collection. For these first two stages, the survey (instrument) collected data, and the analysis resulted provided the basis to continue with the data collection and analysis of conceptions by participants in order to interpret results. The following figure depicts the methodological design (Creswell & Clark, 2007) to collect and analyze data.




### Instruments.

In relation to the instruments applied, for this first stage, a Learning Style Survey (LSS) (Cohen & Weaver, 2005) was implemented. After that, the categories of learning styles preferences searched in the survey were used to request students to punctuate how high, average, or low they consider each item of the categories expressed the way they like to do things when

learning. Results were studied individually and collectively. The present paper will discuss results in both individual and collective areas.

**Procedure.**

Before the implementation of the instrument, student teachers were explained that this activity, in addition to being part of the class activities, was one of the procedures of an investigation. Students gave their consent to be part of the study, requesting that their names were not presented and that pseudonyms were used for the case studies. They were also asked if the answers given in the questionnaire could be used as results of research analysis. They accepted the consent. This research has been endorsed by the ESAPIDEX-B Research group. This group is recognized and categorized in the Colombian system through the National Ministry of Sciences.

Subsequently, the LSS was implemented in its original version, organized from the Google application "Google forms". This test was divided into 11 parts established according to learning styles preferences. Each part of the test was composed of a series of questions that implicitly correspond to a sensory / perceptual personality type (VAK), Psychological (Personality), and Cognitive Style (See Appendix 1). The survey is composed by a total of 110 items, corresponding to 11 parts. Each part condensed the statements to answer a question. Table 2 shows what parts are surveyed in each category:

**Table 2.** Categories Surveyed in Learning Styles Preferences To General Approach To Learning

| | | | |
|---|---|---|---|
| ***Sensory/Perceptual Learning Style*** | | | |
| Part 1 | Guiding question:<br><br>How I use my physical senses | A. Visual<br><br>B. Tactile/Kinesthetic<br><br>C. Auditory | 30 items |
| ***Psychological type (personality)*** | | | |
| Part 2 | Guiding question:<br><br>How I open myself to learning situations | A. Extroverted<br><br>B Introverted | 12 items |

| | | | |
|---|---|---|---|
| Part 3 | Guiding question:<br>How I handle possibilities | A. Random-Intuitive<br>B. Concrete-Sequential | 12 items |
| Part 4 | Guiding question:<br>How I deal with ambiguity and deadlines | A. Closure-Oriented<br>B. Open-Oriented | 8 items |
| ***Cognitive Learning Style*** | | | |
| Part 5 | Guiding question<br>How I receive information | A. Global<br>B. Particular | 10 items |
| Part 6 | Guiding question<br>How I further process information | A. Synthesizing<br>B. Analytic | 10 items |
| Part 7 | Guiding question<br>How I commit material to memory | A. Sharpeners<br>B. Levelers | 6 items |
| Part 8 | Guiding question<br>How I deal with language rules | A. Deductive<br>B. Inductive | 6 items |
| Part 9 | Guiding question<br>How I deal with multiple inputs | A. Field-Dependent<br>B. Field-Independent | 6 items |
| Part 10 | Guiding question<br>How I deal with response time | A. Impulsive<br>B. Reflective | 6 items |
| Part 11 | Guiding question<br>How literally I take reality | A. Metaphoric<br>B. Literal | 4 items |

At first, students answered the survey without knowing the categories the test was composed by. This survey is structured in a series of statements that describe specific actions or behaviors complying with the category searched. For example, under the category of sensory/perceptual, it can be seen a statement like this: "I remember something better if I write it down" (Part 1, Statement 1). Students answer it by selecting the item in a scale range as follows: 0 = Never; 1 = rarely; 2 = Sometimes; 3 = Often; 4 = Always. Results were totalized by part to obtain the highest scores in each one.

In the second stage, after a period of two weeks, they were given the same survey, but this time organized by the categories (See Appendix 1) with the corresponding description of what they imply; for example, what *global* in *cognitive learning style* entails. As students of didactic and pedagogy components in the Foreign Language Program, they can recognize the characteristics of learners described per items in each category.

For the second phase, student teachers scored their perception of themselves regarding the categories raised in the table with high, average, and low. The symbols to express this were shown as plus (+) for high, equal (=) for average, and minus (-) for low. At this point, to analyze matching of perceptions and survey's results, each student exchanged his or her test with another student. Then, they proceeded to analyze the coincidences between the results of the online survey (a total of 110 items) and the evaluation of categories provided in the second stage. Subsequently, the students described the matches they obtained in each category. Students were able to confront results in terms of behaviors selected in the category version of learning styles and preferences, based on their own perceptions and the results of the online survey undertaken in the first stage.

Afterwards, a learning strategy was designed to be implemented, based on one of the results that matched in both instruments, in order to be corroborated. After the design, it was applied to the student in charge, without telling him or her which learning style was going to be corroborated. Students in both roles (researchers and objects of study) proceeded with the implementation of the activity with the learning strategy that focused on a particular learning style preference. Once this stage was finished, they wrote the observations and conclusions they reached. Also, they continued aligning the teaching and learning strategies in lesson planning, supported this time by the rationale for their decisions. A fi-

nal step was the interview that the teacher educator made to determine the level of appropriateness and reflection through the discourse of the interviewed students. So far, this paper examines in detailed the results of the first and second stages, in which survey's results and students' perceptions are analyzed.

### Limitations of The Study.

This study's findings are limited to the participants' particular conditions. However, the theoretical contributions can be valuable to pre-service teacher's learning. They can also be used to acknowledge teacher education configurations from conceptualizations that are more learner-centered, without assuming that content is not appreciated, since teacher knowledge base requires all pedagogical and subject matter, which is important to scaffold their learning.

## Context

This study was carried out in a public university in the Caribbean region, in an initial teacher education program, specifically, in a Foreign Language Program. The program consists of four main components; pedagogy, didactics, discipline, and research. The first two components are aimed at the study of pedagogy as science and the different didactic tendencies in language teaching; the third is directed towards specific subject matter knowledge of the program: English, French, and German. With regard to the research component, different research activities are studied and developed to foster the spirit of teacher research not only in the classroom, but also in practicum experience. This research was developed in the pedagogical and didactic components of the program, more specifically in the *elective subject* "Learning Strategies applied to Language Learning".

### Sample Population.

A total of 10 participants were enrolled in the professional elective course; 7 women and 3 men between ages 19 and 25, who were in varied semesters of their program (from 4th to 10$^{th)}$. This shows that the group is very diverse in terms of academic knowledge development. However, in terms of language level, it can be said that they are between B1 and B2 in English (according to the Common European Framework of Reference), which is the minimum language level required to take this course.

## Discussion

The information obtained from the aforementioned instruments was analyzed in terms of two different perspectives. The Learning Style Inventory was analyzed through individual and global graphics.

### Learning Style Preferences.

In the category of learning style preferences related to sensory/perceptual, it was observed that most of the participants in the group belong to the visual learning style. This is confirmed not only in the way they perceive and appreciate learning, but also in the various strategies used to compensate for the process by taking ownership of a series of elements necessary to learn and potentiate the learning structures to which they are exposed. These results validate the proposal stated by Syofyan and Siwi (2018) that mentions that more than 60% of the population uses strategies and visual processes for the development of learning, and that only 15% of the population uses kinesthetic strategies to this process.

In table 3, the general results of all participants in each style is presented. As mentioned in the previous paragraph, the visual style is the predominant one with a score of 41%

**Table 3.** Sensory/Perceptual Learning Style

| | | Score | Percentage |
|---|---|---|---|
| **Sensory/perceptual learning style** | A. Visual | 265 | 41% |
| | B. Tactile/Kinesthetic | 192 | 30% |
| | C. Auditory | 187 | 29% |

**Table 4.** Psychological Type

| | | Obtained Score | Max. Score | Percentage |
|---|---|---|---|---|
| **Psychological type (personality)** | A. Extroverted | 110 | 240 | 42% |
| | B. Introverted | 152 | 240 | 58% |
| | A. Random-Intuitive | 156 | 240 | 51% |
| | B. Concrete-Sequential | 151 | 240 | 49% |
| | A. Closure-Oriented | 107 | 160 | 52% |
| | B. Open-Oriented | 97 | 160 | 48% |

As evidenced in table 4, participants express being more introverted, with 58%, in the way they open up to learning situations. This means that this group of students prefer to be more independent when studying. They prefer to do it individually or working with another person, who is completely trustworthy.

Regarding the way in which the sample population handle the possibilities to understand the subjects in the language class, the majority of points were obtained in the item of "random-intuitive" with 51% which describes them as people who are inclined towards things that "can be" instead of what they are; they like to speculate and enjoy abstract thinking.

Finally, regarding the way in which students approach homework, this group is defined more as closure-oriented with 52%. These students focus more on completing tasks in order to meet the assigned deadlines and follow directions carefully (Cohen & Weaver, 2005, p. 21).

**Table 5.** Cognitive Styles

| | | Obtained Score | Max. Score | Percentage |
|---|---|---|---|---|
| **Cognitive Learning Style** | A. Global | 117 | 200 | 47% |
| | B. Particular | 134 | 200 | 53% |
| | A. Synthesizing | 150 | 200 | 63% |
| | B. Analytic | 87 | 200 | 37% |
| | A. Sharpeners | 73 | 120 | 54% |
| | B. Levelers | 63 | 120 | 46% |
| | A. Deductive | 87 | 120 | 58% |
| | B. Inductive | 64 | 120 | 42% |
| | A. Field-Dependent | 90 | 120 | 62% |
| | B. Field-Independent | 54 | 120 | 38% |
| | A. Impulsive | 82 | 120 | 49% |
| | B. Reflective | 87 | 120 | 51% |
| | A. Metaphoric | 52 | 80 | 58% |
| | B. Literal | 38 | 80 | 42% |

In table 5, participants' answers are related to the cognitive style. In this table, seven categories comprising duos of preferences are described: 1) the way of receiving the information, 2) its processing, 3) its consolidation in memory, 4) how the student involves the information with the rules of the language, 5) how it is involved with multiple inputs, 6) the student's reaction capacity, and 7) how the student takes reality. In the first category, global/particular, a 53% was obtained in the "particular" style, which means that the sample population focuses more on details and it is easier for them to remember specific information on a topic. In the second category (synthesizing/analytic), how to process information, participants prefer the "synthesizing" style (63%), which describes them as people who can summarize the material very well and enjoy guessing meanings, predicting results, and noticing similarities quickly (Cohen & Weaver, 2005).

Regarding the consolidation of information in memory (sharpener/leveler), the preferred style of this group is "sharpener", with 54%. They tend

to seek differences and distinctions in order to send the most detailed information to memory; they like to consolidate information in memory separately. They like to make fine distinctions between speech, sounds, grammatical forms and significant elements of language.

In relation to the way participants relate information to language rules and other inputs (Cohen & Weaver, 2005), the predominant styles are the "deductive" and "field-dependent" styles (with 58% and 62% respectively). They are students who like to go from general to specific and tend to deal with information in a more holistic way.

Finally, we find the categories of the capacity of reaction and the way of seeing reality. The predominant styles in these two categories were "reflective" and "metaphoric" (with 51% and 58% points). In this case, participants are characterized by thinking carefully before acting. They also learn the material more effectively if they conceptualize aspects in metaphorical terms to make it more understandable.

## Comparing Survey's Results and Student Teachers' Perception.

In relation to the level of coincidence between participants' own perceptions and the SSL survey about the categories established for sensory, psychological and cognitive preferences, this is not high. Table 6 shows the level of coincidence per student:

**Table 6.** Participants' Individual Percentage of Coincidence With Survey and Perceptions' Results.

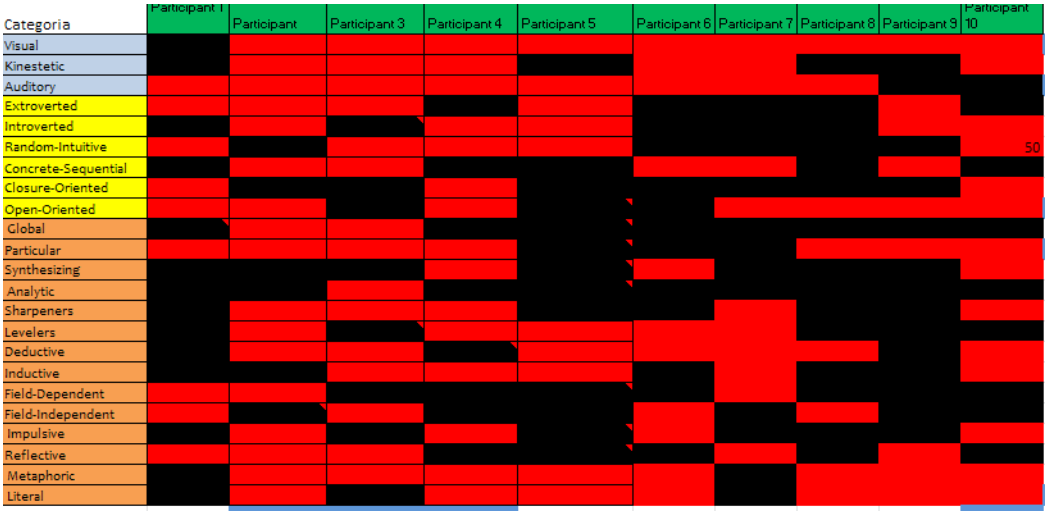
| Participants | Level of Matching |
|---|---|
| Student 1 | 39% |
| Student 2 | 74% |
| Student 3 | 65% |

| | |
|---|---|
| Student 4 | 65% |
| Student 5 | 43% |
| Student 6 | 48% |
| Student 7 | 48% |
| Student 8 | 35% |
| Student 9 | 39% |
| Student 10 | 61% |

Only one participant was relatively near to a high level of coincidence. Three more participants obtained over 60% and the rest of the participants' results were below 50%. Three of the four participants with higher levels of coincidence also perform better in terms of academic achievement, with a high level of reflection for pedagogical tasks. It was surprising though, that the participant with the highest percentage of coincidence is an average student for performing tasks; however, this does mean this participant is unable to recognize his preferences. These results can be interpreted in two ways. On the one hand, participants are not able to precisely determine their own preferences, in general categories expressed in constructs, such as global-oriented, sequential, or impulsive. While in the survey they are expressed in behaviors on a more familiar way, they find those statements easier to convey with what they do in learning environments. On the other hand, their perceptions about what they think their preferences are do not match with what they really are. However, some categories may be more difficult to associate with behaviors on a daily basis. The reason for this is that some categories presented a higher level of coincidence than others. That is the case of the sensory perceptual (visual, auditory, and kinesthetic). For students with low percentage of matching, the occurrence mismatch was in categories of psychological and cognitive types. The following table depicts the big blocks of mismatch in low level of coincidence in participants. Participants labeled 1, 5, 6, 7, 8, and 9 presented big blocks of mismatch.

**Table 7.** Overall Level Of Matching For Survey and Perception's Results.

Conventions: Match Mismatch




In relation to the preferences duos posed by the SSL, the results show that the highest percentages are shown in "visual", with 90% coincidence, "open-oriented", and "particular", with 70% of coincidence; "metaphoric" and "literal", with 80% and 70%, respectively.

**Table 8.** Results of Whole Group In Terms of Coincidence Between the Survey's Results and Perceptions.

| Category | Percentage |
|---|---|
| **Sensory style** | |
| Visual | 90% |
| Kinesthetic | 60% |
| Auditory | 80% |
| **Psychological style** | |
| Extroverted | 50% |
| Introverted | 50% |
| Random-Intuitive | 50% |
| Concrete-Sequential | 50% |

| | |
|---|---|
| Closure-Oriented | 30% |
| Open-Oriented | 70% |
| **Cognitive style** | |
| Global | 20% |

| Category | Percentage |
|---|---|
| Particular | 70% |
| Synthesizing | 30% |
| Analytic | 10% |
| Sharpeners | 50% |
| Levelers | 50% |
| Deductive | 70% |
| Inductive | 50% |
| Field-Dependent | 30% |
| Field-Independent | 40% |
| Impulsive | 40% |
| Reflective | 50% |
| Metaphoric | 80% |
| Literal | 70% |

As shown in table 8, in the sensory learning preferences, the group's highest levels of coincidence were obtained in the visual style, with 90%, reassuring once again that the predominant sensory style in this population is visual. These results reveal that participants are really aware of the characteristics of their own sensory learning style; and this could have origins in the constant exposure to activities that involve the unfolding of the senses; activities that are typical of their work as students because there is an emphasis on the four language skills for language learning.

In the psychological style group, the greatest number of coincidences was evident in the "open oriented" aspect, with 70%. Cohen and Weaver (2005) describe learners with predominance in this style as "information gatherers" who dimension games as a component of learning, due to their relationship between games and the flexibility to learn, in addition to the clarity in writing, a characteristic that is also observable in the "extroverted and introverted" aspects.

In relation to the third group of the cognitive style; the highest percentage was for the duo that describes how the participants perceive reality, so the "metaphoric" aspect obtained 80%, followed by "literal" with 70% of coincidence. Although there is this percentage difference between these two aspects, they belong to the same duo (metaphoric / literal), and it is easy for them to understand the definition of each one because in student classroom actions, these concepts are managed and used repeatedly. Two other aspects show a considerable percentage: "particular" and "deductive", each with a percentage of 70%. One possible reason that these last two have a high level of coincidence may be due to the fact that students find these terms easy to understand; however, they differ in their implementation. For the "particular" aspect, the student receives information from the particular to the global. In the "deductive" aspect, on the other hand, the approach is from general rules to specific ones. In the "deductive" aspect, the student's relationship with the language allows him or her to go from general rules to specific ones. Therefore, students do not know the particularities of each of these constructs and much less, they may not have reflected on how they better understand explanations.

## Conclusions

As in the majority of research results, in terms of sensory/ perceptual, the target population in this study was visual. These results come from the LSS inventory applied (Cohen and Weaver, 2005) and from the perceptions student teachers have about them. Results also show that their awareness of their own learning preferences is not accurate with LSS results. Evidently, statements that represent behaviors in the LSS are easier for participants to identify. However, in terms of cognitive and personality identification, students find those characteristics difficult to acknowledge in the categories.

At the level of comparison between the LSS and students' perceptions, findings reveal that students are not aware of their own learning preferences. The level of coincidences shows a 50% average. Participants find it difficult to actually identify how they work in terms of learning behaviors and thoughts. Their perceptions may end up being different of what they really are. For most of the participants, their knowledge about themselves is not accurate. That may represent that the focus of the program is on content, and not on participants' learning. Their formation may not be connected to the way they acknowledge and understand the

process of their own learning, and their learning how to teach. Reflections may not be around participant's learning. They may have been internalizing theory from the outside. Their participation as thinkers may have been ignored in teacher's educators' classroom practice. Therefore, participants were not able to fully understand the way they learn in depth. They do not focus themselves as learner-centered.

Regarding the components of the questionnaire, for these participants, the sensory style preferences are easier to identify than the psychological and cognitive ones, since the senses and the communication skills (listening, reading, speaking or writing) are the elements that are most developed in their work as student teachers in language learning. Therefore, students are more familiar with the characteristics that define their sensory learning process.

On the other hand, participants were not able to identify their own preferences in their psychological and cognitive styles. The results of the SSL showed maximum percentages in different aspects from those evidenced in their perception, showing that these two dimensions (the psychological and the cognitive) may have not been studied in depth before, so participants find it difficult to establish these types of preferences. Participants were not able to recognize them from the constructs' descriptions. They appear as external agents of processes they experience themselves, but they are not aware of their own preferences in these aspects. One of the possible causes of these results is the lack of classroom practice in which they reflect on their self-knowledge and their own psychological characteristics of preferences, since it is not common to observe the study of oneself in class.

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## Appendix 1

Cohen, Oxford and Chin (2005) Learning Style Survey

*Sensory/perceptual learning style*

| | Characteristics of learners | Support teachers can provide |
|---|---|---|
| A. Visual | Prefer charts, graphs, something to read, or a picture. | Use flash cards, videos, or other visual aids. |
| B. Tactile/Kinesthetic | Prefer aids that can be touched, manipulated, or written; and may practice language by drawing and/or tracing. | Provide hands-on experiences to understand language and culture (e.g., cultural interchanges using nonverbal communication strategies.) |
| C. Auditory | Prefer listening to lectures, conversations, tapes, etc., when learning. | Provide opportunities to listen to lectures and discussion. Recap verbally. |

*Psychological type (personality)*

| | Characteristics of learners | Support teachers can provide |
|---|---|---|
| A. Extroverted | Energized by the outside world; active, interaction-oriented, and outgoing; have broad interests; tend to reflect later (motto: "Live it, then understand it.") | Make available a wide range of social, interactive learning tasks (games, conversations, discussions, debates, role-plays, simulations). |
| B Introverted | Energized by the inner world; prefer concentration; focus on thoughts and concepts; have fewer interests, but deep ones; like to be reflective (motto: "Understand it, then live it.") | Encourage more independent work (studying, reading, or working on the computer) or one-on-one work with another person. |
| A. Random-Intuitive | Like finding the big picture; enjoy formal model-building and abstract terms; focus on the future; look for possibilities; random access (when asked for 5 examples, they give 4 or 6 instead). | Provide future-oriented activities that call for language, such as speculating about possibilities. |
| B. Concrete-Sequential | Like to work step-by-step; follow directions carefully; tend to be linear and sensory-oriented; focus on the here and now; concrete sequential (when asked for 5 examples, they give exactly 5). | Suggest that they perform tasks on a one-step-at-a-time basis and that they find ways to get feedback every step of the way (from peers, teachers, or natives outside of class). |
| A. Closure-Oriented | Decision makers; action takers; make and follow lists; want quick closure and control; have a low tolerance for ambiguity; often jump to conclusions by wanting to know answers right away; often hard working and decisive; find deadlines helpful. | Encourage learners to plan ahead and make their own deadlines. Provide them with specific directions and encourage them to ask questions. |
| B. Open-Oriented | Information gatherers; like to take in a lot of information and experience before making a decision; think learning should be fun; can make work into play; might make lists, but don't check off each item; tend to be flexible and open to change; have a high tolerance for ambiguity; see deadlines as artificial and arbitrary. | Provide opportunities for discovery learning and information gathering. |

***Cognitive Learning Style***

| | Characteristics of learners | Support teachers can provide |
|---|---|---|
| **A. Global** | Enjoy getting the main idea and are comfortable communicating even if they don't know all the words or concepts. | Help learners understand the gist of what is said or written. Help them see that the particulars are not always crucial for understanding the message. |
| **B. Particular** | Need specific examples to understand fully; pay attention to specific facts or information; good at catching new phrases or words | Help learners understand that a focus on details can lead to understanding. Provide activities where they have to fill in the blank with missing words. |
| **A. Synthesizing** | Like finding the big picture; enjoy formal model-building and abstract terms; focus on the future; look for possibilities; random access (when asked for 5 examples, they give 4 or 6 instead). | Encourage learners to summarize material, guess meanings, and predict outcomes since their ability to integrate information gives them skills for this. |
| **B. Analytic** | Like to think and analyze; prefer contrastive analysis and discrimination exercises; not always sensitive to social/affective factors (tend to avoid social and emotional subtleties); often focus on grammar rules and generalizations. | Provide tasks that allow them to pull ideas apart and perform logical analysis and contrastive tasks. Recommend a good grammar book to support their language learning. |
| **A. Sharpeners** | Notice differences and distinctions among items while committing material to memory. Store items separately and retrieve them individually and can distinguish among speech sounds, grammatical forms, and fine distinctions of meaning. | Provide plenty of time during the initial learning of material so they are not overwhelmed. |
| **B. Levelers** | Clump material to remember it by eliminating or reducing differences and by focusing almost exclusively on similarities. May ignore distinctions that promote accuracy in a social context. Tend to blur similar memories and to merge new experiences with previous ones. | Support learners' inclination to start communicating without worrying about all the niceties of language and structure. Counsel these students to style-stretch to allow for some attention to structural fine points. |
| **A. Deductive** | Like to go from the general to the specific, to apply generalizations to experience, and to start with rules and theories rather than specific examples. | Encourage learners to use grammar and other materials that lay down the rules and help them find partners who can explain the rules when the text doesn't help. |
| **B. Inductive** | Like to go from specific to general and to begin with examples rather than rules or theories. | Support learners' inclination to learn rules intuitively without focusing on the specifics. |
| **A. Field-Dependent** | Need context to focus and understand something; may take in language one part at a time. Challenged if they have to juggle features of the language at the same time (e.g., verb, tense, number agreement). | Provide tasks that focus on a few concepts at a time. For example, conversing with natives without being corrected every moment. |
| **B. Field-Independent** | Able to handle the language parts as well as the whole without being distracted. Good at juggling numerous language elements at once without dropping the ball. | Provide tasks that call for multiple checking and cross-checking without getting confused. |
| **A. Impulsive** | Process material at a high speed with low accuracy; often take risks and guesses. | Provide opportunities to speak without planning everything out in advance. |
| **B. Reflective** | Process material at a low speed with high accuracy; avoid risks and guessing. | Guide learners to prepare for high-risk tasks like speaking. |
| **A. Metaphoric** | Learn material more effectively if they can conceptualize aspects of it (e.g., the grammar system) in metaphysical terms | Provide with metaphorical examples. |
| **B. Literal** | Prefer literal representations of concepts and like to work with language material more or less as it is on the surface. | Support preference to simply use the language without any theoretical background. |

## Appendix 2

Interview Question

1. How can this experience of knowing the Learning styles and Applying Learning Strategies help into your future classroom practice and your own learning?