

Links between Cognitive Styles and Learning Strategies in Second Language Acquisition

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Abstract. In modern society, learning a second language, like English, has been prevalent and nearly all learners have been applying the past learning experience of their teachers, other advisors or other learners directly, but not sufficiently considered their own characteristics to seek for a more efficient approach. This article presents and clarifies the links between learners' cognitive styles and some general learning strategies. In this paper, cognitive styles are mainly discussed, including field independence (FI) & field dependence (FD) and holistic-analytic & verbaliser-imager. This paper illustrates that learners with different cognitive styles possess their unique learning effects when the same strategy is applied, like meta-cognitive strategy and also when learners are learning a specific part of language, like vocabulary, they prefer to adopt different learning strategy willingly. Some resembling findings can be conducted when referring to verbaliser and imager cognitive styles. Therefore, the paper strongly indicates that individual difference is an essential factor to be taken into account when second language acquisition is concerned, especially the difference in cognitive styles. In the future, the study of personal variations tends to help potential learners to increase leaning effects.

Keywords: Cognitive styles, Learning Strategies, Second language acquisition, Field independence (FI) & field dependence (FD).

1. Introduction

Second language acquisition has been long studied to improve the learning efficiency and efficacy. Generally, teaching methodology or pedagogy has always been the focus of studies on this field. However, in recent decades, an increasingly number of scholars have been conducting research in cognitive styles as well as learning styles. A comprehensive and broad research review on cognitive psychology has demonstrated that individual cognitive differences are exhibited in either ways to address various issues or other similar and relevant activities [1]. Cognitive styles are typical ways that individuals adopt to perceive, think and finally deal with various issues in their life. It is important for students to be clear about cognitive styles and language learning strategy to better learning process, apart from teaching methods. Adopting the more appropriate strategies in second language acquisition, students can easily accumulate an increasingly larger vocabulary, and improve all skills of learning, speaking, reading as well as writing.

The term of cognitive styles was first mentioned by Allport [2], illustrating an individual's habitual or typical way to address issues, think about the world, master certain knowledge by memory. In the past years, considerable studies have been made in this field and cognitive styles. There are various terms, for example, the range of classifications [3], verbalizer against imager [4], right-left brained [5], Holist-analytic as well as verbal-imagery [6], and so forth. There has been a great amount of research on cognitive styles, while not many papers are on how cognitive styles and language learning work together.

This paper mainly discusses the interaction between cognitive styles and learning strategies to help improve learners' efficacy of language acquisition. Firstly, the dominant classification of cognitive styles is explained in details, as well the performance of learners with distinctive cognitive styles and the assessment methods. Then, six learning strategies developed by Oxford University are illustrated and the connections between cognitive styles and learning strategies learners have applied are

explained. The remainder of this paper tells the benefits of cognitive styles for learning a second language.

2. Cognitive styles

2.1 Definition of Cognitive Styles

Various definitions have been proposed by previous scholars. Tennant [7] referred to cognitive styles as an individual's feature and a continuous approach to processing and organizing messages or information. Riding, Glass, and Douglas [8] put forward that cognitive style was certain fixed feature that a man possesses and it was stabilized and a relatively internal feature. According to Sternberg & Grigorenko [9], cognitive style or information-processing style refers to cognitive features which are maintained over both a long period and a series of activities that take control of how individual acquires, processes and interprets information habitually. Among these definitions, the author tends to believe that cognitive style is a personal feature of how information is processed, thought and ordered.

2.2 Classification, Performances and Measurement

Cognitive style is generally regarding individual differences in thinking styles, including receiving, processing and delivering information, which exerts great impact on attitudes, values as well as social interactions. Based on various definitions of cognitive styles, extensive work has been done in this field and cognitive styles are also categorized in different ways.

2.2.1. Field Dependent (FD) & Field Independent (FI)

Witkin and his partners [10] referred to a couple of fundamental ones: Field Dependent (FD) and Field Independent (FI). This division of cognitive styles is possibly the most well-known. As Witkin explained, field dependence-independence are deeply connected with cognitive behavior and interpersonal behavior.

Many studies have indicated the impacts of variations of FI and FD on how learning is conducted and how successful the learning goes. Studies show that FD learners are considered to be holistic and demands help from their surroundings while FI people follow series and sequences and have self-plans to tackle a great variety of issues. FD learners are likely to obtain achievements or successes which were defined externally, whereas FI learners are prone to make some goals achieved, which were set and designed by themselves [10]. Studies have demonstrated that FD learners have less likeliness to impose a significant organization on a situation that is short of structures and also less capability to master conceptual materials when some vague cues are provided [10]. Later, another two scholars proposed that FI learners have general preference to form their own structure by analyzing information rather than accept some implicit structure in some given materials to learn. Witkin and other scholars [10] deemed that field independent learners tend to intrinsically be ambitious and self-motivated, mostly enjoying individualized learning, while field dependent learners tend to heavily enjoy extrinsic motivations, preferring learning in cooperation with other partners.

A testing system called GEFT short for The Group Embedded Figures Test [11] is commonly applied, measuring or distinguishing the cognitive learners of FI from those of FD. In the measurement, subjects observe the information, such as a set of simple figures, and then form the bigger complicated figure in independence. This result is that the learners with a strong tendency to use external information are less competent to distinguish an built-in figure from a well-organized field and these are categorized into FD learners and those who tended to count on internal factors and had the ability to tell an built-in figure from a perfect ordered field are classified into the group of FI learners.

2.2.2. Differences in Wholist-Analytical & Verbaliser-imager Styles

Riding and Cheema [12] have classified cognitive styles into two sorts: the holist-analytic as well as verbal-imagery. The holistic learners tend to regard a circumstance as a whole; however, the analytic learners tend to view that situation as a collection of sections or components and often focus on one or two parts separately.

This classification of styles is generated from the work of Witkin [10] to describe the habitual ways for individuals to process information. Analytics are prone to divide information into its separate parts; however, wholists have the tendency to take a comprehensive picture of one specific topic. According to Schmech [13], extreme analytics tend to have a great concentration, locating and memorizing details, who are extremely fancy operating some projects with many different procedures and have preference to complete a task step by step and to have a systematic scheme to organize everything in a sequence instead of dealing with the projects at random. Their personal critical and logical thinking are outstanding and incompatible.” By contrast, according to Schmech, people with a global view take scanning as a focus, forming some global impressions instead of more precisely explained patterns, and these people have more intuitive thinking, and are more likely to take action on impulse and more gifted at finding out similarities rather than differences. Additionally, Verbalisers are prone to make use of words to present information and imagers choose to picture information to form a deeper understanding or more detailed processing of the given information [14].

The Cognitive Styles Analysis [6] were used to make assessment about an individual’s cognitive style and the final result is illustrated and scored with the help of a personal computer, indicating whether a subject belongs to the Wholist or Analytical type as well as the verbaliser or imagers in terms of figures showing a person’s: (i) performance in the verbal pattern and the imagery pattern; (ii) balance his preferences to view the whole and the parts. An inventory of paper and pencil (the Cognitive Styles Index) was created by Heyes and Allinson [15], mainly applied to judge whether individuals’ cognitive styles are innate or analytic.

3. links with learning strategies

Learning style is universally regarded as cognitive, affective as well as physiological feature, relatively unchangeable indicators of the approaches by which learners recognize, affect, and react to the environment for learning [16]. Language learning styles and strategies are among the main functional factors, playing a greatly influential and decisive role in the performance of students’ second foreign language (L2) acquisition.

Over the past studies, six major learning strategies for second language acquisition were named by Oxford [17], including meta-cognitive strategies, cognitive strategies, memory-related strategies, social strategies, affective strategies, compensatory strategies. Cognitive strategies include the strategies for how learner’s reason and analyze some situations, and those related to note-taking and doing summaries, synthesizing information, doing outlines and re-constructing information to form a stronger knowledge mind-map, put the knowledge into practice in naturalistic surroundings, conducting formal practice about structures and sounds, by which language materials are manipulated and grasped directly by learners. Meta-cognitive strategies are adopted to manage the learning process, for example, recognizing personal preferences for learning style and demands, designing learning plans for an L2 task, collecting and organizing materials, setting up a study space and a schedule, managing errors, and assessing success in tasks as well as in learning strategy. Memory-related Strategies refer to learning and retrieving information in order, through many media, like images, sounds or their perfect combination, or by gestures, some other mechanical tools like flashcards or location to connect one L2 concept or theory with another. Compensatory strategies, also termed as communication strategies, are aimed to compensate for missing knowledge for learners, like hazarding a guess from the in the listening and reading contexts, making use of synonyms or having discussions about the missing word to improve skills of speaking and writing, applying pause words or gestures in speaking. Affective strategies, mainly including recognizing one’s anxiety and other

emotions or moods about learning, sharing feelings, granting awards to oneself for good performance, and taking deep breaths or having a positive self-talk, can be utilized to enhance L2 leaning proficiency. Finally, social strategies involve cooperating with others when attempting to grasp a second language by deepening understanding of the target language, such as English, and its cultures or customers, for instance, requiring confirmation, seeking clarification of a confusing point, having a conversation with a native-speaking partner and so forth. These strategies, if effectively employed by the learners with distinguished cognitive styles, can stimulate learning process to be easier and faster, as well as more efficient and effective.

3.1 FI and FD learners and Learning Strategies

Some recent studies have been aimed to study the impacts of different strategies on the second language learning of FI and FD learners. They proved that there were close ties between cognitive styles and learning strategies.

One learning strategy work well on Field-independent learners, but bad on the other and vice versa. According to a study on the impacts of the training of meta-cognitive strategies on how the reading comprehension vary between FI and FD learners, which was designed by Mehdi Sheykhi and Zohre Mohamadi [18], field dependent learners performed better than field independent learners in reading comprehension after meta-cognitive strategies are adopted by both groups of learners. By contrast, in another study, by Mania Nosratinia and Shirin Adibifar in 2014 [19], where the effects of meta-cognitive strategies on FI and FD learners' writing are discussed, it was indicated that field independent learners stand out int terms of performance, compared with field dependent learners, even though both the FD and FI students in the experimental group win higher scores on the writing post-test and performed better than the control group.

In the meantime, two types of learners of FI and FD have the tendency to employ different strategies to learn different parts of languages, such as vocabulary or grammar. In a newly-conducted experiment on the vocabulary learning strategies between FI and FD learners [20] in Arak University, FI learners tend to make use of cognitive and meta-cognitive strategies when involving in vocabulary learning, while for FD learners, social strategies are more frequently used. In another study by Tjandra and Emilia [21], different reading strategies are introduced by learners with different cognitive styles when reading the same materials. FI learners have the tendency to adopt cognitive strategies like the power of analysis or the ability of structural organization (deduction) and transferring strategies; by contrast, FD learners have the preference to using strategies about understanding under contexts, such as imagery.

3.2 Wholist-Analytical&Verbaliser-imager Styles and Learning Strategies

Riding and Douglas [8] referred to the fact that the imager learners present more splendid performance than the verbalizers under the condition of both texts and pictures, and imagers can make better use of graphs to present their feedback or answers than the verbalizers, while the verbalizers are more excellent in the textual conditions, in comparison with learners focused on images or pictures.

Based on this distinctiveness, second language learners with imagers and verbalizers cognitive styles are definite to make a different choice about learning strategies. Certain study has provided sound evidence for these differences. According to a study on meta-memory and individual differences [22], multi-memory modes are adopted based on individual differences and individuals can be trained effectively to have their super memory mode to improve their learning efficiency.

4. The advantages of identifying cognitive styles for learning

Based on cognitive differences, it is imperative for learners to distinguish their own cognitive styles according to certain assessment and then implement more effective and reasonable learning strategies to fully develop their potentials in second language learning. When the individual knows the personal cognitive style, this style will be integrated in the process of learning so that she/he will

learn more easily and fast and will gain great success in language learning. However, if a person is educated in an ineffective strategy, language learning becomes more frustrating and depressing. It is important that individuals receive language education in a way that is suitable for their thinking styles.

Meanwhile, the knowledge of one's cognitive style also provide hints or clues to the students as to why different students have learned the same language in a different way from others. This knowledge can also benefit controlling the process of learning. With the knowledge of learners' cognitive styles and learning strategies, they become noticeable about their learning process as well as their merits and demerits when engaged in learning a new language. Manifestly, learners can shift and change their methods, without others' help. Generally, learners build up their own confidence and learn how to learn. When students become more conscious of their own learning, their perspectives on learning new skills or knowledge will be modified as well.

It is important for both learners and teachers to be more conscious about what is their cognitive style and what is the best and most suitable strategy to learn. If educators or learners themselves can assume that cognitive style is influential in their study, learners can become more effective in their second language acquisition and simultaneously, teachers can provide more justifiable solutions to students' problems. Consequently, students ought to be available to make assessment about their own cognitive style and then further adopt and diversify their learning preferences. Friedman and Alley [23] indicate that the guidance from teachers can play an essential motivating role in students identifying and utilizing their preferred learning strategies to realize a higher learning effects. In a research conducted by Rebecca L. and other scholars [24], in the learning process of a language, teacher-student mismatch in cognitive styles shows a lower learning efficiency. To be more precise, a global teacher is in obvious conflict with analytic students and an analytic teacher is in mismatch with global students. The result shows that a great many analytic students are more confused about the learning materials and less productive when the global teacher adopted some activities, like role plays or free-style production.

5. limitation and future direction

This paper is expected to arouse teachers' awareness of learners' differences to adjust their teaching styles to manage the complexities of a class of students with different cognitive styles.

Also, it is undeniable that the variables that affect second language learning are complex. In the past studies, these factors generally included the role of motivation, the relationship of teachers and students, the local cultural influence and other situational variables [24]. However, cognitive style was not sufficiently studied about its impact on second language learning and teaching. This paper aims to raise scholars' consciousness of the further study on cognitive styles and learning strategies, even as well as teaching styles in the future.

Though this paper is providing a certain indication between cognitive styles and learning strategies, there are still some limitations undoubtedly. To top it all, although it is a fact that various studies have been carried out on cognitive styles as well as learning styles or strategies, a majority of studies focus on only one subject or one part of the language learning and most of learners just adopted one or two strategies when learning a second language. However, it is still not known whether the combination of all strategies can benefit the learners more. In the meantime, different psychologists classify cognitive styles in different ways, this article mainly studies FI learners and FD learners and most of many other types of cognitive styles are not discussed enough in this article. Therefore, more research is needed to do to improve L2 acquisition in the future.

6. Conclusion

This article focuses on illustrating the internal links between learners' thinking styles and general strategies of learning to improve learners' second language acquisition effects. Uniqueness or specialty in cognitive styles should be taken into consideration in second language acquisition.

Cognitive styles can provide guidance for the learners to be clear about the different stages of learning and determining a better learning strategy to have a better study effect. Although it is not easy to discover or define the cognitive process of acquiring a second language, the clearer about the cognitive styles, the clearer about the language learning. Although learning strategies are so versatile, learners can find out the most feasible ones according to the assessment of cognitive styles. This article mainly indicates that learners with different cognitive styles (FI and FD) tend to have different learning results when applying the same strategies and also when learners with diverse cognitive styles tend to adopt self-fit learning strategies when acquiring a certain language skill. This article also shows that based on another classification of cognitive styles (verbaliser and imager, holistic and analytic), the same result can be found that learners with different styles prefer to make different choices about learning strategies. This paper is of great essence to guide the L2 learners and teachers to pay closer attention to learners' thinking or cognitive styles instead of only focusing on pedagogy or teaching materials. In practice, learners and teachers can firstly adopt assessment of cognitive styles and then further design and implement teaching and learning process. Schools can also benefit from this research to redesign curriculum or reorganize the classes to seek for a more effective way to fully develop students' potential accordingly. Although some limitation about how to combine learning strategies and cognitive styles is still existing, in the future, more research is expected to carry on about this field to address this problem.

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