Employing Information Technology to Develop Autonomous English Learning Strategies

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Abstract: The deep-rooted passive learning habits formed by long-term traditional teaching methods obviously cannot adapt itself to the requirements of students' learning autonomy in information era. Through questionnaires and interviews with the students and teachers about problems with the English learners' autonomous learning strategies in the information age, the author has found out that the problems include their lack of management strategies of online learning, their unawareness of autonomous learning strategies, their lack of network cognitive strategies and their poor computer skills as well as their negative emotions. Based on these findings, the author has proposed employing information technology to develop autonomous learning strategies such as language skill learning strategies, vocabulary learning strategies and network skill training strategies.

Keywords: Information technology, strategy development, autonomous English learning, strategies

1. Introduction

The rapid development of Internet and intelligent mobile phones not only frees learners from the limitation of time and space, but also provides abundant resources for English learning and creates favorable conditions for multimodal language teaching and learning. The combination of classroom teaching and modern technology broadens the path of students' autonomous learning, and the flexible and diverse network technology has become an important way to cultivate students' autonomy in learning foreign languages.

Cottrell (1999) believes that learners who have received strategic training would consciously apply learning strategies to future language learning process. Wang (2009)'s research shows that the general trend of the use of metacognitive strategies in different groups of college English in the information technology era is that students with better academic performance have more strategies and higher frequency, and vice versa, the greater the difference in academic performance, the more obvious the difference in the use of metacognitive strategies. He (2013) observes that English autonomous learning in the network environment has gradually become one of the main ways of learning. However, the students' efficiency of network autonomous learning is low mainly due to the lack of autonomous learning ability. Wang (2011) points out that metacognitive strategies, cognitive strategies, emotional strategies, and communicative strategies are closely related to English learning effectiveness o. Training English learners on various learning strategies, especially their metacognitive strategies, can more effectively develop their autonomous learning ability and improve their learning effectiveness. In Feng's (2013) discovery, metacognitive strategy, "the ways to reasonably and effectively arrange learning time for learners" and "Learners' self-encouragement and self-reward" in emotional strategies have significant predictive power on learners' English scores. Liu (2014) applies self-learning strategy to English vocabulary teaching, which is an effective way to change the current situation of much vocabulary teaching time with low efficiency. Song (2016) finds, as an important supplementary means of the network autonomous learning mode, comprehensive use of metacognitive strategies, cognitive strategies and social sentiment strategies on the mobile teaching platform maximizes students' motivation for English through interactive teaching methods, expanding their learning horizons, enriching the autonomous learning models and improving the learning outcomes.

The findings mentioned above are valuable in enlightening us with the significance of autonomous English learning strategies. However, these findings are mainly on the stage of theoretical exploration without much empirical research, offering little operational practice. In addition, these researches focus on the teaching strategies, not on the learners' learning strategies, which does not represent learner-centered trend. After reviewing related literature and having an in-depth understanding of the theory of English autonomous learning strategies in the information age, the author has conducted a survey of the learning strategies of students in Panzhihua University, analyzed the problems with their autonomous learning strategies, and pointedly proposed employing information technology to develop learners' language skill training strategies, vocabulary learning and network skill training strategies to guide students to improve their ability to learn independently.

2. The Lack of Autonomous Learning Strategies in the Information Era

At present, many colleges and universities take classroom-based and computer-based teaching models. More than two-thirds of college English courses are self-learned in online classrooms, and self-learning and self-testing through online platforms. In such a learning mode, students and teachers who participate in English online teaching are not able to communicate effectively because they are separated from each other in the teaching process , ie, the students are in the multimedia classroom with the teachers in the direct recording classroom, or the learning content are recorded beforehand. It is impossible to ask questions and get answers and related guidance from teachers in the study, which has caused difficulty in their learning. In order to study the problems with English autonomous learning strategies, the author has carried out questionnaires to 986 students from 12 schools of Panzhihua University, followed by 83 interviews of the students and teachers. Based on the result of the questionnaires and interviews, combined with other researchers' findings, the author has summarized English learners' lack of autonomous learning strategies in the information technology era in the following aspects.

2.1 Lack of Management Strategies of Online English Learning

Cohen believes that "management strategy has a restrictive effect on the use of language learning strategies and is at the top of language learning. It includes setting goals, specifying plans, self-monitoring, self-evaluation, and self-adjustment. It can be seen that the management strategy is excellent. Inferiority directly affects learning outcomes. However, in the new learning model, many learners often fall into the details of browsing and forget the subject of learning, ignoring the main learning path. Other learners are completely subject to the temptation of audiovisual stimulation, roaming in the information of a screen with neither clear goals nor planning.

2.2 Unawareness of Autonomous Learning Strategies

The multimedia teaching model emphasizes autonomous and discovery learning. Because the learners have long accepted traditional classroom teaching before participating in English online learning, they have long been accustomed to teachers playing a leading role in their learning process. Therefore, once they are asked to study on their own, they feel that they have lost their hearts and minds in the process of learning, and they are not at a position to learn. They do not know what to learn, how and when to learn, which directly leads to low learning efficiency.

2.3 Lack of Network Cognitive Strategies and Their Poor Computer Skills

Many students' online cognitive strategies are almost blank, and computer technology is uneven, especially in rural areas, and they don't know how to use the Internet. Students with certain computer skills often fail to search for the information they need after surfing the Internet. Sometimes they don't know how to retrieve the information in the face of vast amounts of information, which wastes a lot of time and effort. According to Yue's (2002) survey of students from Zhejiang University, most of them use English on the Internet for a short period of time. Their

cognitive ability to search online English is not enough to ensure that they use the Internet to search, acquire and store the information they need. In addition, once the machine fails, most students are not actively looking for the necessary measures to analyze and solve problems, but to ignore and avoid problems.

2.4 Negative Emotions

Language learning is related to emotions. If favorable emotional factors predominate, the likelihood of success in learning will be greater. However, in the network autonomous learning, because there is no contact, continuous attention, and active participation of other students, many students think that it is no fun to deal with the cold machine; there is no real communication between the students and between the teachers and students. The whole learning process lacks human touch. On the other hand, insufficient study preparation leads to serious psychological problems for students. English network learners generally lack the necessary mental preparation for the difficulties and problems that may arise in online learning, which leads to the psychological problems of students. English network teaching content is often prepared in advance and cannot be adjusted at any time. Therefore, when the learner finds that the learning content is too difficult or the learning progress is too fast, the psychological state of excessive anxiety and self-doubt often occurs, which makes the self-confidence of learning suffer. Over time, it is easy to produce negative emotions such as rejection and tiredness of new technologies, and will lose interest in English learning and cause serious psychological problems in learning.

3. Employment of Information Technology to Develop Autonomous English Learning Strategies

Teachers can use information technology to put the guidance into a web page with a campus network link. When students need strategic guidance, they can click on the learning strategy at any time; if they have any doubts, they can consult other students or teachers in the discussion area. The following is our practice and would-be practice in Panzhihua University.

3.1 Basic Learning Strategy Navigation and Practice Dialing

Basic learning strategies include cognitive strategies, metacognitive strategies, and learning resource management strategies. Among them, cognitive strategies include rehearsal strategies, finishing strategies, and organizational strategies; metacognitive strategies include planning strategies, monitoring strategies, and adjustment strategies; learning resource management strategies include learning environment management, time management, effort management, and brain management in practice. There are also requirements and practical examples of self-study, cooperative learning and inquiry learning.

3.2 Strategy to Develop Listening, Speaking, Reading and Writing Skills

3.2.1 Listening Learning Strategy

Listening learning strategies include vocabulary strategies, listening strategies, transcript strategies, imaginary strategies, predictive strategies, background knowledge strategies, topic pre-listening strategies, auditory image strategies, collation and categorization strategies, inference strategies, selection of attention strategies, association strategies, situational strategy, interactive listening strategy, strategies concerning how to overcome Chinese interference, how to overcome psychological obstacles, and how to change listening methods, and strategies concerning speech analysis, semantic analysis, detail analysis, digital analysis, and location inference, identity inference, attitude inference as well.

3.2.2 Oral English Learning Strategies

Oral *English* learning strategies include memorization strategies, personal improvement strategies, error correction strategies, media strategies, and social communication strategies. In practice, there are also examples of overcoming disadvantages in oral practice, laying a good foundation in oral practice, practicing methods, and frequently used topics.

3.2.3 Reading Strategies

Reading strategies include vocabulary input strategy, grammar input strategy, translation strategy, dictionary use strategy, word-by-word reading strategy, repeated reading strategy, grammar analysis strategy, compensation strategy, logical grooming strategy, judgment strategy, selective attention strategy, guess strategy, context strategy, extensive reading strategy. In practice, there are also specific examples, such as intensive reading, extensive reading, SQ3R reading, sentence guessing.

3.2.4 Writing Strategies

Writing learning strategies include language input strategies, translation strategies, local structure strategies, error correction strategies, imitation strategies, and writing practice strategies. In practice, there are also specific examples such as words, sentences, consistency, coherence, expansion, and sentence composition and essay composition, graphic composition, situational composition, keyword composition, proposition composition, essays, narratives, descriptive texts, argumentative papers,.

3.3 Strategies of Vocabulary Learning

Vocabulary is one of the three major elements that make up a language. It is an important element in thinking and communication. When David Wilkins, the linguist, sums up the importance of vocabulary learning, he says, "Without grammar, only limited information can be passed. Without words, nothing can be conveyed." Therefore, vocabulary learning is one of the important contents of English learning. The vocabulary size and proficiency of a vocabulary mastered by a student is one of the yardsticks for measuring their language level. When students learn English, they generally find that words are difficult to read, difficult to remember, and difficult to write, which directly affect their interest and enthusiasm in learning English, and even their success or failure in English learning.

There are many vocabulary learning strategies. Vocabulary learning in the information technology era is different from traditional vocabulary learning. Therefore, how can vocabulary learning strategies such as memory strategies, cognitive strategies, metacognitive strategies, etc. be applied to vocabulary learning in the information technology environment?

3.3.1 Application of Memory Strategies to Vocabulary Learning in Information Technology Environment

Memory strategy is a method of linking new materials to known knowledge. Specific strategies include constructing semantic graphs, keywords, drawing structure diagrams, memorizing the part of speech, analyzing affixed roots, and image-assisted memory, the representation of the meaning of the word, grouping of words, pronunciation of words and so on. One of the most important advantages of multimedia learning and traditional learning environment is that it can combine sound, graphics, animation, graphics and video organically, so the memory strategies that students can use to learn vocabulary are much richer than those in the traditional environment. In particular, the multimedia environment can take full advantage of the role of trans-sensory channels. Because through trans-sensory channels, if learners adopting a combination of visual and verbal material content, their learning will be better. Semantic graph strategy is a graphical display process for constructing classes and relationships between classes. It is graphically represented as information, and in a personalized way, students are allowed to associate new words with known knowledge to

build a semantic network. Vocabulary learning is actually the establishment of a semantic network, especially when the learner's vocabulary increases, the organization of such a network is more important. Because the multimedia network structure can not only help newcomers learn new information, but also help to establish expert knowledge structure. The semantic graph strategy has been applied in the multimedia environment. The vocabulary learning software LEXNET-INSITU adopts the semantic graph technique.

The root affix strategy in memory strategy is considered to be beneficial to vocabulary learning and is widely used in multimedia environment. For example, the design and production of *Vocabulary Mystery Software* adopts this strategy. Translation strategy is a controversial strategy. Because although the translation strategy is very helpful in the early stages of the language learning process, it will also suspend the development of vocabulary-related language skills.

3.3.2 Application of Cognitive Strategies to Vocabulary Learning in Multimedia Environment

Cognitive strategies are directly related to individual learning tasks and are direct manipulation or transformation of learning materials including mechanical memory, memorizing word lists, note taking, use of dictionaries, flash cards, and contextual strategies. In cognitive strategies, electronic dictionaries and online dictionaries have attracted widespread attention. Lyman et al investigated the vocabulary acquisition of students using electronic dictionaries. They studied two groups of French-speaking second-language learners, with one using interactive software and the second group not using software. The software group use online dictionaries and the other use paper dictionaries with the same content. The test results suggest that the scores of the software group students are much higher than those of the non-computer group. In addition, although in traditional vocabulary learning ,learners can also understand knowledge and collocations of the vocabulary by consulting traditional dictionaries, but the cost of time and the fun of the process are not as good as those based on multimedia network technology.

This kind of technology can make learners get rid of the constraints of traditional dictionaries and authority, reasonably construct vocabulary cognition meanings that are compatible with others, and synchronize with the reality of language development, which is impossible for paper dictionaries. Compared with other cognitive strategies, context strategies, word-guessing strategies, note-taking strategies involve deeper psychological processing. Among these strategies, context strategies are widely used in multimedia environments.

3.3.3 Application of Metacognitive Strategies to Vocabulary Learning in Multimedia Environment

Metacognitive strategies are activities that language learners take to promote successful completion of learning activities such as planning, monitoring, and evaluation. They are measures taken by learners to conduct self-management and are very important strategies for vocabulary learning. Studies have shown that metacognitive strategies are very helpful for vocabulary learning. For example, students' self-management strategies play a key role in academic achievement. Successful learners can monitor their learning strategies at any time through self-reflection and evaluation, and adjust their learning behaviors that may lead to deviations. Metacognitive strategies have also been applied in the Collins system, including planning, monitoring, and self-evaluation strategies.

3.4 Network Skill Training Strategies

Experiments in multimedia teaching in English show that students who have received advanced computer operation training can achieve better learning results. Therefore before the class, students should be trained in computer technology from word processing to online search, so that they can understand the basic path and method and learn English better by computer, thus realize the combination of extracurricular self-study and classroom teaching, and that of human-computer communication and interpersonal communication in the classroom.

4. Conclusion

In summary, English teaching in information era, with its openness, interactivity, autonomy and flexibility, has incomparable advantage over that of traditional English teaching. The deep-rooted passive learning habits formed in the long-term traditional teaching mode obviously cannot adapt itself to the requirements of teaching in information era which demands students' learning autonomy. The overall trend of the use of metacognitive strategies in the network learning environment is that students with better academic performance have more strategies and higher frequency, and vice versa. The greater difference in academic achievement, the more obvious the difference in the use of the metacognitive strategy is. The paper examines the English learners' problems with their autonomous learning strategies in the information era, including their lack of management strategies of online learning, their unawareness of autonomous learning strategies, their lack of network cognitive strategies and their poor computer skills, and their negative emotions, then pointedly proposes   language skill learning strategies, vocabulary learning strategies and network skill training strategies.

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