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Intentional forgetting, anxiety, and EFL listening comprehension among Chinese college students

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ABSTRACT

Intentional forgetting refers to impaired memory arising from an instruction to forget unwanted material. Intentional forgetting yielded with a list-method task is often interpreted as evidence for retrieval inhibition. This paper presents a study on the relationships among intentional forgetting, anxiety, and EFL listening comprehension among Chinese college students. Two experiments were conducted in which participants with different anxiety levels and EFL listening comprehension abilities finished list-method tasks of intentional forgetting with different experimental designs. The results indicated that intentional forgetting was negatively related to anxiety, but it bore no direct relation with EFL listening comprehension when the confounding effects of intentional remembering and anxiety were controlled. It is argued that the role of intentional forgetting in different learning activities should be considered in a domain-specific way and that certain strategies might be used to control emotions triggered in SL/FL learning.

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1. Introduction

Language learning situations are especially prone to anxiety arousal (e.g. Bailey, Onwuegbuzie & Daley, 2000; Price, 1991). As pointed out by Horwitz, Horwitz and Cope (1986), oral classroom activities are most problematic and anxiety-provoking for SL/FL learners, and the main sources of anxiety appear to be listening and speaking. Language anxiety always poses problems to SL/FL learners by interfering with ongoing cognitive performance (e.g., Eysenck, 1979; MacIntyre & Gardner, 1994a; 1994b), thus inhibiting their ability to process incoming language and short-circuiting the process of acquisition. A negative relationship between anxiety and learning achievements has been revealed in many studies involving all four language skills: speaking (e.g., Liu, 2006), listening (e.g., Elkhafaifi, 2005; Kim, 2000; Mills, Pajares & Herron, 2006; Song, 2005), reading (e.g., Argaman & Abu-Rabia, 2002), and writing (e.g., Cheng, 2004).

Although the effect of anxiety on cognitive activities in SL/FL has been increasingly recognized, few studies have paid attention to the possibility that one's cognitive capacity may contribute to managing anxiety response in SL/FL learning. It has been well documented that cognitive processes can affect emotions. For example, Garnefski, Kraaij and Spinhoven (2001) attach great importance to cognitive regulation of emotions and argue that regulation of emotions through cognitions is inextricably associated with human life. Van Weelden (1997) claims that human memory reproduces emotions as well as cognitive information. Alexander, Goodman, Schaaf, Edelstein, Quas and Shaver (2002) argue that many of the principles governing memory for non-stressful events also apply to memory for stressful experiences. Furthermore, Rehm and Naus (1990) emphasize the central role of memory in cognitive functioning and emotions and provide a memory processing framework to account for various aspects of depression. Barry, Naus and Rehm (2005) also put forward a revised memory model of emotion, which highlights the importance of both encoding and retrieval considerations to understanding the relationship of memory and depression.

In this study, we adopted a cognitive approach to emotion, and gave special attention to whether intentional forgetting, which is believed to reflect the function of retrieval inhibition in memory control (e.g. Anderson, 2005; Soriano & Bajo, 2007), plays a part in regulating anxiety in SL/FL learning. According to Anderson (2005), people have certain capacity to suppress unwanted memories, and inhibitory control processes can be recruited to stop or override memory retrieval and thereby to exclude unwanted memories from consciousness. This function of inhibition, as summarized in Joormann (2005), performs a central role in depression, and some cognitive and affective symptoms might be explained through underlying dysfunctions of inhibitory processes. In fact, some emotional problems have been found to be related to weakened control over thoughts (Nixon et al., 2008; Rachman, 1997), and the incidence of unwanted intrusive thoughts is linked to the efficiency of inhibition (Brewin & Beaton, 2002; Moulds & Bryant, 2005). It is proposed that reducing the chance that certain memories will come to mind might be an elusive but valuable cognitive skill in depression, especially when the memories are unhappy ones (Hertel & Gerstle, 2003). Meanwhile, the efficiency

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of retrieval inhibition is also found to play a role in certain cognitive activities, such as in employee selection (Oien & Goernert, 2003), working memory (Andres, van der Linden & Parmentier, 2004; Soriano & Bajo, 2007), and Mathematics and Chinese learning (Shen, Song & Bai, 2001).

To date, there is little information available in the literature about whether retrieval inhibition is involved in SL/FL language learning situations. To fill this gap, we conducted the present study focusing on the relationships among intentional forgetting, anxiety and EFL (English as a foreign language) listening comprehension among Chinese college students. For Chinese EFL learners, listening is a major barrier to successful learning that always causes them deep anxiety (Yan & Horwitz, 2008), which, in turn, exerts a strong negative impact on their listening performance (Song, 2005; Yan & Detaramani, 2008). As a good deal of previous research on anxiety has been conducted in SL/FL settings in the United States and Canada, it is important to extend the work on anxiety to the Chinese context considering its huge number of learners and their tremendous efforts to learn English.

1.1. Intentional forgetting

Just as a stimulus may spread activation to a prepotent response, a retrieval cue may activate a strongly associated item in memory, causing it to be retrieved. However, associated memories are not always to be retrieved: sometimes, one may wish to recall a memory associated to the cue; other times, one may wish to avoid retrieving it altogether because it is unpleasant or unwanted. Actually, people are able to stop themselves from thinking about unwanted memories. The mechanism of retrieval inhibition, according to Anderson (2005), can be recruited to fulfill this function, which is well demonstrated in the effects of intentional forgetting.

The term intentional forgetting refers to impaired memory arising from an instruction to forget the unwanted material. Two experimental paradigms are widely employed to observe the effects of intentional forgetting: item method and list method (Anderson, 2005; Bjork, Bjork & Anderson, 1998). In an intentional forgetting study using the item method, subjects typically view a series of items or words, each followed, either simultaneously or after a delay, by an instruction cuing them to remember or to forget the word for a later test. After all of the words have been presented, memory is tested with either a recall or a recognition test. This item-by-item instruction manipulation yields a sizeable recall deficit for the to-be-forgotten items compared to the to-be-remembered items that occurs on both recall and recognition tests.

In the basic procedures of the list method, subjects are presented with lists of items (e.g., common words, typically 10–20 words) to remember, with the items presented one at a time. After a certain number of items have been presented, the presentation is interrupted with a cue either to forget the preceding items (thereby constituting the forget–remember condition), or to keep on remembering the preceding items (thereby constituting the remember–remember condition). After the "forget" or "remember" instruction is given, subjects continue to study the second part of the list. Once all the words have been presented, memory is tested. The test may require recall of the first part, the second part, or both parts of the list.

The list method often yields three basic and robust effects: (1) impaired recall for precue items under the forget–remember condition, compared to that under the remember–remember condition; (2) improved recall for postcue items under the forget–remember condition, relative to that under the remember–remember condition; and (3) superior memory for postcue items compared to precue items in the subjects who are under the forget–remember condition. All these effects are generally restricted to recall tests, with little effect observed in recognition (Anderson, 2005; Bjork & Bjork, 1996; Bjork et al., 1998).

1.2. Intentional forgetting and retrieval inhibition

Although there are some similarities between the item method and the list method, and originally it was thought that the processes started by the cue to forget are the same in both, there is accumulating evidence that this is not the case. Item method is increasingly believed to induce differential encoding and rehearsal of to-be-remembered and to-be-forgotten items (Bjork et al., 1998). For instance, subjects may rehearse words shallowly (e.g., by subvocal repetition) until they receive the cue. Then, they either stop rehearsing the word in the case of the forget instruction, or elaborately encode the word in the case of the remember instruction (Anderson, 2005). By contrast, the effect produced with the list method has led researchers to attribute it to retrieval inhibition. It is assumed that in a list-method experiment, though the to-be-forgotten information is suppressed, it leaves its strength in memory unaffected, thus ruling out the possibility of differential encoding. Findings from the following three aspects provide strong support to this assumption. First, when measured by a recognition test or a word-fragment completion task, subjects' memory for to-be-forgotten items remains unimpaired as in the case of to-be-remembered items (e.g., Bjork & Bjork, 1996). Second, in a relearning paradigm, to-be-forgotten items are relearned as readily as to-be-remembered items (e.g., Geiselman & Bagheri, 1985). Last, the proactive interference of to-be-forgotten items that is blocked by the forget instruction can be reinstated at full strength (e.g., Bjork & Bjork, 1996). In recent years, list method has been recruited in many studies of various fields to indicate retrieval inhibition (e.g., Oien & Goernert, 2003; Payne & Corrigan, 2007; Racsmány & Conway, 2006; Wessel & Merckelbach, 2006).

To sum up, in an intentional forgetting experiment with list method, subjects concentrate on inhibiting the retrieval of previously learned information under the forget–remember condition while trying to keep previously learned information retrievable under the remember–remember condition. Consequently, their recall for the information learned under the forget–remember condition is severely impaired compared with that learned under the remember–remember condition, indicating the occurrence of intentional forgetting as a function of retrieval inhibition. Meanwhile, their recall for the information learned under the remember–remember condition remains unaffected, reflecting their full capacity for retrieving information from memory. So in the present study, we labeled it as "intentional remembering", as opposed to the conception of intentional forgetting.

1.3. Limitations to occurrence of intentional forgetting

Despite the fact that people are able to intentionally forget previously learned information, there are certain limitations to this ability. According to Bjork et al. (1998), one limitation is the timing of the instruction to forget. A forget instruction is most effective if it is given right after the to-be-forgotten information has been presented. If the cue to forget is delayed until after additional information has been displayed, there is less forgetting effect taking place (Roediger & Tulving, 1979). Another condition is that new learning should occur after the forget instruction is given. The instruction to forget itself is not sufficient to inhibit the retrieval of the to-be-forgotten information, and a resetting of the learning process prompted by the presentation of new information is critical for the inhibition of the prior to-be-forgotten information to occur (Bjork et al., 1998).

1.4. Research questions

The present study focused on the relationships among intentional forgetting, anxiety, and EFL listening comprehension among Chinese college students. Specifically, the following three research questions were addressed:

(1) Is there any relationship between the efficiency of intentional forgetting and anxiety in EFL listening? According to Macintyre

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