

ANIMACY AS A COGNITIVE STRATEGY IN THE ACQUISITION OF PSYCH ADJECTIVES BY MIDDLE SCHOOL STUDENTS

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ABSTRACT

We conducted an experiment on how middle school students acquire psych adjectives, which confirmed animacy as a cognitive strategy as observed in Zhang 2003 and Zhang et al 2004. Learners began to formulate such a strategy around low-intermediate level. Teaching based on SSHM with animacy helped learners get more sensitive to zero CAUS in V-ing adjectives and unlearn the “side-effect” of the strategy, the rejection of the correct animate subjects with V-ing adjectives.

1. Introduction

English psych adjectives are derived from psych verbs such as *amuse and surprise*, and there are two types of adjectives, one taking -ed and the other -ing as the affix, as shown respectively in *amused* and *amusing*. These adjectives describe emotion and act as predicatives in a sentence¹. Psych adjectives assign the theta role of Experiencer to the Noun Phrase (NP) that experiences the emotion described by the predicative. In cases like “The children are amused by the clown”, the Experiencer appears in the subject position while in other cases “The clown is amusing to the children” it appears in the object position of the preposition *to*. The

irregular mapping of Experiencer between V-ed and V-ing adjectives poses a learnability problem for all ESL or EFL learners (Burt, Dulay & Krashen 1982, Celce-Murcia & Larson-freeman 1999, Chang 1987, Chen 1996, Zhang 2003). Psych adjectives are always a testing point of adjectives in Matriculation English Test (MET), and they have been tested in MET for quite a number of years, probably because they are among the first and second 1000 most frequently used words in the General Service List of English Words by Michael West (1983). In other words, middle school students are supposed to be able to use these adjectives in their speech and writing accurately. However, in reality errors with psych adjectives abound in the speech and writing of middle school students, as shown in (1) to (3). What (4)

¹ They may act as prenominal modifiers too, as in “an exciting trip”, which is not the focus of this study.

shows is that these errors will not easily go away.

(1) *I am very interesting in the concert.
(Yang, a middle school student.)

Intended: I am very interested in the concert.

(2) *The Christmas gifts were excited to the children. (Li, a middle school student.)

Intended: The Christmas gifts were exciting to the children.

(3) *David was disappointed to his parents. (Zhao, a middle school student.)

Intended: David was disappointing to his parents.

(4) *Mum always told me “The man/whoever *satisfied* what he has enjoys a happy life.” (Zhong, an English-major sophomore, Zhang 2003)

Intended : Mum always told me “The man/whoever is satisfied with what he has enjoys a happy life.”

Burt, Dulay and Krashen (1982) called these errors global errors, errors that native speakers find annoying and intolerable because they hinder proper communication. In other words, no matter how hard we try, they remain as one of many frustrating areas of teaching. How do beginning to intermediate learners of English acquire the knowledge as to what determines the mapping of Experiencer into subject and object position?

This problem has been paid much attention to recently (Chen 1996, Juffs 1996,

Zhang 2003 among others) not only because of its theoretical value but also of its teaching reference. Previous studies have shown that the linguistic difference between V-ed and V-ing adjectives lies in the fact that V-ing adjectives encode a covert and phonologically null CAUS while the V-ed counterparts do not (Pesetsky 1995, Chen 1996, and Zhang 2003). The acquisition of psych predicates is shown to boil down to a process of developing sensitivity to this argument-changing morphology zero CAUS in psych verbs and V-ing adjectives (Chen 1996, Zhang 2003). That implies that the learner’s confusion over the two forms of adjectives will only disappear when they have acquired the zero CAUS and its consequences in V-ing adjectives. This paper reports a study that investigates into how middle school students acquire psych adjectives.

2. Animacy of Subject NP and L1 Influence

Our study tackles the learnability problem in the framework of Semantic Salience Hierarchy Model (SSHM for short) (Zhang 2003), specifically Semantic Salience Hierarchy with Animacy which states Zero CAUS is more salient with inanimate Causer than with animate Causer. This is because with the former, only the stative reading is possible, while with the latter, two readings are possible, i.e., agentive and stative (Zhang, 2003), as shown in (5):

(5) a. John’s recent behavior is worrying to his mother.

b. John is worrying to his mother.

c. John's mother is worried about John.

It shouldn't be very difficult to find that in (5a) it is *his mother* who is the Experiencer or who is worried about something since it is the only animate being in the sentence. However, it would be very difficult for L2 learners to decide who the Experiencer is and who the Target of emotion is in (5b) since both arguments are animate. (5c) is probably the easiest since the presence of *about* would render *worried* non-causative past participle. An experimental prediction is that the zero CAUS in Object Experiencer (OE for short) V-ing adjectives would be recognized earlier when the Causer is inanimate than when it is animate. In other words, animacy may be a helpful clue to the recognition of zero CAUS in OE V-ing adjectives.

A cognitive strategy based on the animacy of subject Noun Phrase (NP for short) was observed in college students (Zhang 2003), in middle school students (Zhang et al 2004). However, we still don't know at what stage this strategy is formulated and whether teaching psych adjectives based on Semantic Salience Hierarchy with Animacy would make a difference in the acquisition of psych adjectives by middle school student. Another issue is the role L1 setting Chinese plays in the endeavor.

2.1 L1 Influence: The Role of Pseudo-Passive Construction

Chinese and English share a configuration for psych adjectives, namely the adjectival construction or pseudo-passive structure as shown in (6). The V-ed adjectives are similar to the general category of Chinese psych predicates, non-causative adjectives.

(6) Dui zhe ge xiaoxi, wo (gandao) hen zhenjing.
(对这个消息, 我(感到)很震惊。)

To this CL news, I (feel) very shocked
'I was/felt shocked at the news.'

Does Chinese have the equivalence of V-ing adjectives that embody the affixation of zero CAUS to the root forms? Rarely. The examples we can think of are related to the remaining monosyllabic causative verbs in Chinese, but are often used as nominals or pronominal modifiers.

(7) a. Ta de zhe yi biaoxian hen jingren.
(他的这一表现很惊人。)

he DE this CL performance very shocking people

'This performance of his is very surprising/shocking (to people).'

b. Ta you jingren de biaoxian.
(他有惊人的表现。)

He has shocking people DE performance

'He has a surprising/shocking performance.'

(8) a. Zheli de jingse hen yiren.
(这里的景色很怡人。)

Here DE scenes very pleasing people

'The scenes here are very

pleasing/pleasant (to people).’

b. Zheli you yiren de jingse. (这里有怡人的景色。)

Here have pleasing people DE scenes.

‘Here are scenes pleasing to people.’

This brings us to the generic Experiencer *ren*. The Chinese counterparts of V-ing adjectives are periphrastic constructions with the fixed Experiencer *ren*, *hen shi/ling ren* ... (causing people to be V-ed adjectives). The difference between the verbal structure and the adjectival structure lies in the position of the modifier *hen* “very”, i.e., in the adjectival use *hen* precedes or modifies the whole *shi/ling* predicate while in verbal use it immediately precedes the psych predicate and only modifies the caused state, as exemplified in (9). Although the generic Experiencer is fine for both adjectival and verbal structures, it is generally associated with the adjectival structure while a specific Experiencer is commonly related to verbal structure. The generic term *hen shi/ling ren*... can give rise to productive uses of adjectives that describes a psychological state experienced by people in general.

(9) a. Zhongguo zuqiu dui 2001 nian de biao xian shi qiumi **hen** zhenfen. (中国足球队 2001 年的表现使球迷很振奋。)

China football team ’01 year DE performance make fans very excited

‘The Chinese football team’s performance in 2001 made its fans excited.’

b. Zhongguo zuqiu dui 2001 nian de

biaoxian **hen** shi ren zhenfen. (中国足球队 2001 年的表现很使人振奋。)

China football team 2001 year DE performance very make people excited

‘The Chinese football team’s performance in 2001 is very exciting.’

To recapitulate, of the two psych adjectives, VedAs and VingAs, Chinese and English have the adjectival/pseudo-passive (be + VedAs) construction in common. Despite a few exemplars of V-ing adjectives, the productive equivalent form for V-ing adjectives in Chinese is the periphrastic adjectival structure *hen shi/ling ren* ... “causing people to be... .” Inserted in the slot are V-ed adjectives or pure adjectives. This has implications for the learning of psych adjectives: Chinese learners will be more accurate with V-ed forms than with V-ing adjectives, while manifesting confusion of the two adjectives in their IL development.

Specifically, we formulated three hypotheses:

Hypothesis 1 (H1): Students are more accurate with V-ed adjectives than with V-ing adjectives.

H2: Students are more accurate with V-ing adjectives –AS than with V-ing adjectives +AS.

H3: Teaching based on SSHM will make a difference in learners’ sensitivity to the zero CAUS in V-ing adjectives.

H1 was based on L1 influence, and H2 on Semantic Salience Hierarchy with

Animacy, while H3 was formulated to test the effectiveness of teaching.

3. Method

3.1 Participants

Two groups of senior middle school students (total number: 80) participated in the study. The Experiment Group came from one class in Senior One of a general middle school. All 50 students in that class participated in the experiment, but 10 students who didn't finish the test properly were not included in the subsequent analysis. The Control Group were students of the same grade but from a different school, one of the key middle schools of Xi'an. They were chosen to see if the teaching of psych predicates based on SSHM would have any facilitating effect on the acquisition of psych predicates. Again 40 participants from the class were included in the study. A cloze test with 40 blanks was administered to both groups and the result revealed that the two groups did not belong to the level because the Control Group outscored the Experiment group ($t=3.053$, $p=.004$). Thus, any difference in the Experiment group may be attributed to the effect of teaching.

3.2 Instrumentation

10 V-ed adjectives and their V-ing counterparts, both derived from the same verbs, *amaze*, *annoy*, *bore*, *disappoint*, *excite*, *interest*, *move*, *surprise*, *tire*, and *worry* were chosen as the adjective tokens.

A Grammaticality Judgement Task (GJT)

was designed to investigate the participants' internal representations of psych adjectives. Factors involved in the recognition of zero CAUS were investigated by putting psych adjectives in different structures. If the participants were sensitive to zero CAUS, they would be able to distinguish the V-ing adjectives that encode it from the V-ed adjectives that do not.

There was one type of structure for each V-ed token, two types of structures for each V-ing token and a control item, OE verb, in the GJT. Animacy was incorporated in the structures. The information about these of structures with examples is given in Table 1.

Table 1: *Coding of Structures with Example*

Structure	Example
V-ed Adj	Tom was amazed at Tom's fast speed.
V-ing +AS	Tom was amazing to John.
V-ing -AS	Tom's fast speed was amazing to john.
OE Verb	What he did amazed me.

Note: +AS =animate subject, -AS = inanimate subject

3.3 Procedure The GJT was administered to Experiment group as the pretest in the second week of May 2003. Then, teaching of psych predicates was conducted and immediately afterwards the students were asked to take the GJT test again as the Immediate test. About four months later, when the participants were in the third week of their Senior Two, the same test and a cloze test were administered the third time. This test was categorized as the Delayed test. Two weeks later, the same GJT and cloze test were administered to the

Control group. It was assumed that two-weeks time lag would not make a difference in either their language proficiency or the area of the research.

4. Results and Discussions

For the Experiment group, we conducted 3 (Test) x 3 (Structure) repeated measures and the results generated effect among three tests

Table 2 *Means and Standard Deviations for Test and Structure*

Structure	Pretest		Immediate Test		Delayed Test		Control Group	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
V-ed Adj.	1.22	(.37)	1.45	(.41)	1.05	(.46)	.67	(.52)
V-ing adj. +AS	-.08	(.64)	.69	(.71)	.23	(.66)	-.09	(.64)
V-ing adj. -AS	-.15	(.56)	1.26	(.46)	.38	(.80)	.31	(.63)

Of the Pretest, Sheffe test showed significant effect for the pair between V-ed adjectives and any of the V-ing adjectives ($p < .001$), but no effect between animate and inanimate V-ing adjectives ($p = .86$), providing evidence for H1 concerning L1 influence.

However, for the Immediate Test, Sheffe test showed significant effect ($p < .0001$) for either the pair between V-ed adjectives and V-ing +AS, or the pair between two V-ing adjectives forms, but not for the pair between V-ed adjectives and V-ing -AS ($p = .32$). This indicates that teaching did make a difference since participants abandoned their rejection and accepted the two V-ing adjectives, while the effect was more remarkable for V-ing +AS than V-ing -AS adjectives.

The results of Delayed Test modeled that of the Pretest in that there was significant effect between V-ed adjectives and either of

($F(2,117) = 55.275, p < .0001$), among three adjectives ($F(2,117) = 112.961, p < .0001$) as well as for the interaction between test and structure ($F(4,117) = 9.890, p < .0001$). Table 2 presents the means and standard deviations for both the Experiment group and the Control group.

the two V-ing forms ($p < .0001$), but no effect between the two V-ing adjectives ($p = .60$). The only difference lies in the fact that participants accepted both forms, and their acceptance of V-ing -AS was slightly higher than that of V-ing +AS (mean = .38 and .23 respectively).

The teaching effect, as times goes by, faded since the results of Delayed Test was noticeably worse than those of Immediate Test. However, it remained uncertain whether our instruction of psych predicates based on SSHM would be effective in any way, since the four-month time period would allow any difference. Thus, we conducted the same experiment with a Control group, which did not receive the instructional treatment.

Comparing the Experiment Group's results of Pretest and Delayed Test and that of the Control group, we found that there was

significant effect for the three tests ($F(2,117)=7.053$, $p=.001$), for the three adjectives ($F(2,117)=93.308$ $p<.0001$), and there was also effect for the interaction between Test and Structure ($F(4,117)=7.964$, $p<.0001$).

For the Control Group, Sheffe test on Structure showed effect for the pair between V-ed and V-ing +AS ($p<.0001$), for the pair between two V-ing forms ($p=.007$), and for the pair between V-ed and V-ing -AS ($p=.015$), providing evidence for both H1 and H2. Sheffe test on test showed no effect for the Pretest and Control ($p=.63$), except for the pair between Delayed Test and Control ($p=.001$), suggesting that our instruction was still effective.

To further determine the effectiveness of teaching, we conducted multi-variant test on the learners' judgement scores on three adjectives, which generated effect for each of the three adjective structures ($F(3,156)=21.571$ for V-ed adjectives, $=12.152$ for V-ing with +AS, and $=39.628$ for V-ing with -AS, $p<.0001$ exclusively). Pairwise comparisons on V-ed adjectives showed no effect between Pretest and Delayed Test ($p=.093$) for the Experiment group but between Control Group and any of the Experiment Group ($p<.0001$), simply because the Control Group accepted V-ed adjectives less strongly ($M=.67$). We have no explanation for the judgement of Control Group who performed better on the Cloze

test.

As for the V-ing +AS, pairwise comparisons showed significant effect between Pretest and Delayed test for the Experiment group ($p=.035$), and Delayed test of the Experiment group and Control group ($p=.03$), but no effect between Pretest of the Experiment Group and Control Group ($p=.95$), suggesting that teaching did make a difference in this respect. However, pairwise comparisons on V-ing -AS generated significant effects for all the pairs except the one between Delayed test and Control ($p=.57$), suggesting that teaching did not have any effect when V-ing adjectives were combined with inanimate subjects, though the Experiment group outscored the Control Group ($M=.38$ vs $M=.31$).

To summarize, we found that firstly learners were more accurate with V-ed adjectives than with V-ing ones, confirming the role of L1 transfer; secondly learners formulated a cognitive strategy based on animacy of sentence subjects around the second semester of Senior One and the first semester of Senior Two (low intermediate level): students accepted the combination of "Inanimate Subject + be V-ing to + Experiencer" but rejected the combination of "Animate Subject + be V-ing to + Experiencer". Since the subject of psych predicates can also be animate, the combination of Animate Subject + be V-ing to + Experiencer is also correct in English. Thus,

learners should unlearn the “side-effect” of their cognitive strategy: the rejection of animate subjects with V-ing adjectives.

5. Conclusion

To conclude, the results of this study confirmed animacy as a cognitive strategy as observed in Zhang (2003) and Zhang et al (2004). The animacy of subject NP is a crucial factor in the L2 development of sensitivity to zero CAUS in V-ing psych adjectives. Learners begin to formulate such a strategy around low-intermediate level. Teaching psych predicates based on SSHM can help learners get more sensitive to the zero CAUS in V-ing adjectives and unlearn the “side-effect” of the cognitive strategy: the rejection of the correct Animate Subjects with V-ing adjectives. Since animacy as a cognitive strategy is predicted by Semantic Salience Hierarchy Model, the results of this study prove that the SSHM with animacy should be a guiding principle in teaching psych adjectives.

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