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Korean Students' Learning Styles and Their Focus on Form Learning Under Implicit and Explicit Conditions

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The current research is aimed at exploring the relationship between individual learning styles and the focus on form learning. To establish learning styles, four modalities—visual, aural, read/write, and kinesthetic styles—were employed. For the focus on form learning, implicit and explicit learning modes were adopted. A total of 110 Korean 11th grade high school students participated in this study. They were randomly divided into four conditions: (1) more implicit, (2) less implicit, (3) more explicit, and (4) less explicit. Then, the participants undertook pre- and post-grammatical judgment tasks, followed by a VARK questionnaire (Fleming, 2001) to determine their preferred learning styles. The results indicated that the Korean EFL learners preferred kinesthetic learning the most (37.3%), followed by aural (30%), read/write (20%), and visual (14.5%) learning modalities. In addition, a two-way ANOVA revealed that it was not the learning styles but the two learning conditions that created the primary effect on the students' target form learning. In addition, between the implicit and explicit learning modes, the explicit condition played a significant role in the students' target form learning. Along with the interactions between implicit and explicit learning, some pedagogical implications were addressed.

[learning styles/focus on form/implicit and explicit learning/VARK]

I. INTRODUCTION

Learning styles are known as one of the individual factors that influence language learning. Along with other individual factors such as age, sex, or general intelligence, learning styles were categorized under cognitive styles (Ellis, 1994). Oxford (2001) defined that "perceptual modalities refer to physical and perceptual learning channels with

which the learner is the most comfortable" (p. 360). Reid (1987) categorized learning modalities into six learning styles: visual, auditory, kinesthetic, tactile, group, and individual learning; Oxford (2001) classified them into four categories: visual, auditory, kinesthetic, and tactile; Fleming (2001) also categorized into four types: visual, aural, read/write, and kinesthetic. Each scholar developed learning style inventories such as Perceptual Learning Style Preference Questionnaire (PLSPQ) (Reid, 1987), Strategy Inventory for Language Learning (SILL) (Oxford, 1990), or VARK (Visual, Aural, Read/Write, and Kinesthetic) (Fleming, 2001), and they have been widely used.

Although not unified, these tools have consensus that learners process information that they receive differently depending on their perceptual styles: visual learners learn better by reading charts or watching films, auditory learners learn better by listening to lectures or audiotapes, and kinesthetic learners learn better by moving around (Fleming, 2001). Until now, many subtopics were studied in terms of the relationship between language proficiency and learning styles (Ehrman & Oxford, 1995), teacher-student style disparities (Dreyer, 1998), and the superiority of a specific learning style compared to others on L2 achievement (Bailey, Onwuegbuzie, & Daley, 2000). In language learning, content areas such as vocabulary were also studied as well (Abdollahzadeh & Amiri-Vardani, 2010; Park, J-H., Lee, G., & Kang, M., 2005); however, only a few studies have ever researched the relationship between grammar learning and learning styles (Khaki, Ganjabi, & Khodamoradi, 2015).

Implicit and explicit learning are known as two learning conditions in language learning. Implicit learning refers to acquiring a language just as the process of acquiring a mother tongue, whereas explicit learning refers to learning a language according to the traditional teaching and learning processes used in most language classes. These two learning modes were actively studied in combination with grammar teaching and learning in second language studies. Up until now, previous implicit and explicit studies have dealt with subtopics such as the effects of explicit instruction (de Graaff, 1997; Spada, 2011), implicit instruction (Doughty & Williams, 1998), and typological input (White, 1998), to name a few. In addition, the positive role of textual enhancement on the target form learning was also reported (Alanen, 1995; Doughty, 1991; Jourdenais, Ota, Stauffer, Boyson, & Doughty, 1995; Shook, 1994; White, 1998).

In implicit and explicit focus on form learning, scholars have emphasized the importance of input and noticing because when learners pay more attention to particular inputs, which have more salient features, more learning occurs. Noticing is also an indispensable factor in the two learning domains. In order to make input more salient and intriguingly noticeable at the same time, some techniques such as textual input enhancement were devised and used popularly with their positive effects in grammar teaching and learning (Alanen, 1995; Doughty, 1991; Shook 1994; White, 1998). However,

whether learners who have different learning styles (i.e., visual, aural, or kinesthetic) perceive the textually enhanced input in the same way or not has not been studied yet. Still, there is a possibility that visual learners benefit from input enhancement techniques in the implicit learning mode, while aural learners benefit from teacher's verbal explanation in the explicit learning mode.

Scholars have explored the effects of individual differences such as IQ (Reber, Walkenfeld, & Hernstadt, 1991; Robinson, 1996) or learning aptitude (Harley & Hart, 1997) in focus on form learning[1]; however, learning styles did not receive much attention so far, leaving much room for future work (Han, M. & Hwang, J-B., 2015; Robinson, 2001; Spada, 2011). In addition, given that focus on form teaching and learning is one of the major strands in Korean high schools, a closer investigation is needed regardless of whether the learners' learning styles have any effect on their grammar learning or not. In this vein, the current study aims at exploring any potential relationship between Korean EFL learners' learning styles and their rule learning under the explicit or implicit learning conditions.

II. LITERATURE REVIEW

1. Learning Styles

Learning styles refer to "individual's characteristics and preferred ways of gathering, organizing, and thinking about information" (Fleming, 2001, p. 1), or simply, Dörnyei (2009) defines it, as the "manner of learning" (p. 231). In order to discover learning styles, many tools have been developed. For instance, Reid's (1987) Perceptual Learning Style Preference Questionnaire (PLSPQ) and Fleming's (2001) VARK (Visual, Aural, Read/Write, and Kinesthetic) have been commonly used. Although the names of the tools are different, each tool guides similar learning preferences. For instance, Fleming (2001) mentions that visual learners prefer to learn "information in charts, graphs, flow charts, and all the symbolic arrows, circles, hierarchies…"; aural learners have a preference for "information that is spoken or heard"; read/write learners prefer to have "information displayed as words either read or written," such as in "quotes, lists, texts, books, and manuals"; whereas kinesthetic learners prefer the "use of experience and practice (simulated or real)" (pp. 1–2).

Among these learning style tools, especially Fleming's (2001) VARK received much

[1] In this article, three terms, which are focus on form learning, grammar learning, and rule learning, are used interchangeably following the general consensus of these three terms in second language study scholarship.

attention since the questionnaire has one additional category called ‘read/write’ in its four modalities (i.e., visual, aural, read/write, and kinesthetic) that was not highlighted in other learning style surveys. One remarkable aspect of the data reported by Fleming (2001) was his March–May data in 2008. He reported that among 38,419 students, 32.1% preferred the read/write style, followed by the kinesthetic (29.9%), aural (22.9%), and visual (15.2%) modalities. This result signifies that the portion for read/write was stronger than other modalities and that the read/write modality should not be left out from research of learners’ preferred learning modalities. In addition, in a meta-analysis study which examined the 26 learning style inventories, Im, S. (2014) reported that Fleming’s (2001) VARK inventory was more effective than Kolb (1985) or the Felder-Silverman (1988) model with its moderate effect size greater than .04. Thus, use of VARK seems appropriate when surveying Korean high school students’ learning styles since VARK embraces broader learning styles by including the read/write preference in its category.

However, previous studies dealing with learning styles and English proficiency reported somewhat contradictory results. For instance, Rai and Khatri (2014) surveyed outstanding physiotherapy undergraduate students in India, and they reported that 33.33% students showed preferences for the kinesthetic learning style. On the contrary, Bailey et al. (2000) found a negative relationship between high achieving American college students and their kinesthetic learning preferences. Their finding was the opposite of Reid’s (1987) study since Reid found that American university students considerably preferred kinesthetic learning. As for achievement, Park, C. C. (2002) reported that middle and high achievers were more visual learners than low achievers. Yet, the question of how Korean students would identify their learning preferences has not been thoroughly studied.

In Korea, learning styles were mostly addressed at the level of elementary school teaching. For instance, Min, H. S. (2012) reported that 31.4% of Korean elementary school learners preferred the hands-on or tactile learning style. In addition, the percentage of this tactile learning style prevailed the other learning styles such as visual (26.7%), aural (13.1%), etc. In her study, she also reported that the younger, the more students were visual learner; on the other hand, the older, the more students were kinesthetic learners. Her findings also coincided with other elementary students’ learning style studies. Kim, K. H. (2001), and Lee, C.-G. (2001) investigated 3rd to 6th grade and 4th to 6th grade Korean elementary school students, respectively. Both studies reported the same results that tactile learning outweighed other learning styles. They concluded that the high percentage of tactile learning style they found was due to the characteristics of learners who love to move their bodies. Although the above studies employed Korean elementary school students, the question of how Korean high school learners would self-identify their own learning style was not known.

However, it is notable that only a few studies have ever studied English language

learners' grammar learning together with their learning styles. For instance, Bourgeois (2004) reported that when she taught a target form according to the learners' VARK learning preferences, the adult ESL learners learned the form very well. This means that learning a rule according to one's learning style may work even in an EFL situation. When the student is provided with his or her own preferred learning style(s), there would be high likelihood of learning outcomes. Reid (1987) reported that Korean learners were mostly kinesthetic and tactile learners, while Park, C. C. (2000) reported that Korean high school students in the US were very visual and had a minor preference for the kinesthetic and tactile style. Still, there is a need to study whether these findings are also applicable to Korean high school students who currently reside in Korea. In addition, observing the effect of learning styles on their rule learning should produce an interesting result.

2. Implicit and Explicit Focus on Form

Implicit learning refers to learning a language according to the process of a child learning the mother tongue, whereas explicit learning refers to learning a language according to the process of an adult learning a language (Bley-Vroman, 1990). Scholars have noted that consciousness or noticing is the key that dichotomizes the two learning mechanisms: without consciousness is associated with implicit learning, whereas with consciousness is associated with explicit learning. Implicit and explicit learning of grammar has been delved into by scholars in the three interface models: non-interface position, strong interface position, and weak interface position. The non-interface position (Krashen, 1982) argues that second language learners can acquire grammar implicitly just as they naturally acquired their mother tongue. He argues that there is no need to teach grammar to second language learners. The strong interface position (DeKeyser, 1998) argues that implicit and explicit knowledge can be changed by procedural and automatized practices. Combining two positions, the weak interface position (N. Ellis, 1994) proposes that explicit knowledge promotes the generation of implicit knowledge, and noticing is an indispensable factor since it contributes to the formation of implicit knowledge in the meantime. Here, noticing is important because "what learners notice in input is what becomes intake for learning" (Schmidt, 1995, p. 20).

Until now, a flurry of empirical studies tried to find what makes noticing salient, since non-salient inputs do not play a role in the learning processes. Scholars devised techniques of so-called input enhancement (Sharwood Smith, 1991, 1993), which comprises both oral intonation and written typological enhancement (Doughty & Williams, 1998; VanPatten, 2003). Techniques such as input flood and textual enhancement were used in the written mode to draw learners' attention. The input flood technique involves a high frequency of a target form, whereas the textual enhancement technique refers to large fonts, bold face, or

color-coded highlights. However, what is left behind is whether these oral or written techniques exert their powers when these modes are met with learners' perceptual learning styles or not. This is because of what Fleming (2001) clearly mentions about visual learners: "using different font sizes and font styles provide them with plenty of visual variety and makes things easier to remember" (p. 76). If his statement is true, visual learners would benefit from textual enhancement techniques, thereby leading the learners to acquire the target form more easily than other preference holders.

Apart from the potential benefits of textual enhancement, teachers' oral explanation should be taken into account because teachers' explicit instruction is a key that forms explicit knowledge and works as a bridge to the formation of implicit knowledge afterward. For instance, de Graaff (1997) showed evidence of the combination of explicit teaching and textual enhancement even in rule learning of an artificial language, *eXperanto*. In Korea, the case was the same. Kim, E. J. (2016) reported that Korean high school learners who were instructed the target rule explicitly followed by an implicit rule learning had better learning results compared to the students who studied the rule under the implicit-only learning conditions (i.e., reading a textually enhanced passage). Similarly, Kim, J. E. (2014) also reported that explicit rule learning plus an incidental rule learning condition had a better result in learning English *that*-trace filter in both explicit (oral imitation task) and implicit (untimed grammaticality judgment task) knowledge measures. These studies suggest the possibility that aural learners would benefit from teachers' oral instruction compared to other types of learners.

Accordingly, there is a high possibility that these oral instructions and input enhancements may work differently depending on how learners perceive information in their most comfortable ways. Traditional grammar learning is delivered by a lecture with the aid of prints or slides. Visual learners may learn better through consciousness-raising techniques such as input enhancement (e.g., boldfaced, italicized, enlarged, etc.) in the written mode, whereas aural learners may learn better through a teacher's oral instructions. There is a paucity of research about the read/write learners who learn better through printed information and the kinesthetic learners who learn better through real experiences. Accordingly, the current study tries to investigate the potential relationship between learning styles and focus on form learning in the Korean EFL learning environment. Two research questions were generated:

(1) What are the Korean high school students' learning styles (i.e., visual, aural, read/write, and kinesthetic)?
(2) How do the Korean learners' learning styles and the two learning conditions (i.e., implicit and explicit) work together in their learning of the target form?

III. METHODOLOGY

1. Participants

One hundred ten 11th-grade high school students from a boy's high school in Gyeonggi Province participated in this study. The school belonged to general high schools, without any foreign language or science special-purpose, in order to capture the general picture of Korean high school students. Four intact classes were recruited and randomly assigned to one of the learning conditions (i.e., more implicit, less implicit, more explicit, and less explicit). They had been learning English for 9 years, since the 3rd grade. No students had reported that they had any learning difficulties.

2. Materials

1) Target Forms

Negative adverbs with inverted subject-auxiliary were chosen as the lesson content. Reinders and R. Ellis (2009) and Kim, E. J. (2016) used this target form in their studies because of its difficulty. According to R. Ellis (2006), the target form is reported as difficult since the appearance of the negative adverb is comparably low and the target form is less noticeable because the auxiliary does not receive stress. Similarly, Azar (2002) also noted that using a negative word in the beginning of a sentence is uncommon in casual languages. This target form is also rarely taught in Korean grammar classes. According to Jung's (2006) analysis of Korean high school textbooks, only 3.8% of the total target grammar was allotted to inversion sentences. In addition, only 0.29% (9 sentences) was negative inversions, and they were mostly *only* and *no sooner*. Thus, based on the above reasons, four target adverbs—*never*, *rarely*, *seldom*, *hardly*—were used in the current study.

2) Passage

In order to embed the target form in a passage, an authentic article titled, *This 911 Operator May Have Saved a Man's Life—With an Avocado*, from Reader's Digest magazine was used. The article was about an operator who saved a starving man since he was isolated in his own house after surgery. The length of the passage was 334 words. The Flesch-Kincaid average grade level was 6.0, which means that the passage had a reading level appropriate for an American 6th grade student. Jeon (2014) reported that the Korean high school English textbook grade level was 6.78; thus, the reading passage was considered to be suitable for the purpose of the study. In total, 7 sentences were carefully

manipulated by enlarging, boldfacing, and underlying the target form (as shown in Appendix A) and then embedded in the passage.

3) Design

Group 1 (G1) and group 2 (G2) were implicit form learning groups. G1 read only an input flooded passage, while G2 read an input flood and textually enhanced passage (i.e., boldfaced). Group 3 (G3) and group 4 (G4) read the same passage; however, before completing the reading task for a comprehension purpose, G3 had an oral instruction by the author of the present study, while G4 had an oral plus written explicit instruction. For G3, only a verbal explanation was given for the target rule about negative adverbs with inversion of subject-auxiliary as follows, "when negative adverbs such as *never*, *rarely*, *seldom*, *hardly* go in front of the sentence, the subject and auxiliary switch their places in a sentence." For G4, in addition to the oral explanation, the author of the study used the blackboard and wrote down sample sentences followed by a brief practice session. The input enhancement techniques and the types of explicit instruction are summarized in Table 1.

TABLE 1
Summary of the Input Enhancement, and the Explicit Instruction (N=110)

	G1 (N=31)	G2 (N=25)	G3 (N=21)	G4 (N=33)
	Implicit		Explicit	
	More implicit	Less implicit	Less explicit	More explicit
Input enhancement technique				
Input flood	+	+	+	+
Textual enhancement	-	+	+	+
Explicit instruction				
Oral instruction	-	-	+	+
Written instruction	-	-	-	+

3. Tests & VARK

1) Pre-GJT (Grammaticality Judgment Task)

Pre-GJT was used in order to see the participants' prior knowledge before learning the target form. The pretest included 10 target sentences and 20 distractors. The students were asked to correct grammatically incorrect words in the 30 sentences. All the test items were created by referring to Azar's (2002) and Loewen's (2009) studies.

2) Post-GJT

The post-GJT included the same error correction test used in the pre-GJT. However, this time, only 10 target sentences and 10 distractors were used in order to save time. For the post-GJT, the order of the sentence was switched and content words were replaced. However, there was no time limit in the post-GJT because untimed GJT is known to be appropriate in measuring learners' metalinguistic knowledge (Loewen, 2009). A sample of target sentences and distractors are provided in Appendix B.

3) The VARK Questionnaire[2]

VARK was chosen as the tool for the study. The translated Korean version was used, but some awkward words were switched to easy ones. By strictly following the VARK scoring procedure, the one modality which received the highest score was assigned to the modality of the participant. However, although multimodality (e.g., VA, VK, VAR, VAK, or VARK) was highlighted by Fleming (2001), potential combinations between the four experimental groups (e.g., 2 implicit and 2 explicit) and 5 or more multimodalities would yield uneasy analysis in the study (e.g., 4 x 5=20 at least). Thus, to fulfill the original purpose of the current study, only one dominant learning preference was counted and the students who had multimodalities, such as all even numbers in all the categories (e.g., 4V, 4A, 4R, 4K) out of 16 questions, were excluded from the analysis. In the beginning of the study, the total number of students was 137; however, after counting out the multimodality learners, only 110 students were included in the analysis, having 31 (G1), 25 (G2), 21 (G3), and 33 (G4) in each group. The reported reliability of the VARK questionnaire was .85 (visual), .82 (aural), .84 (read/write), and .77 (kinesthetic), respectively (Leite, Svinicki, & Shi, 2010).

4. Procedure

All the experiments were carried out during a 50-minute class hour in a quiet place in the high school. In the beginning of the experiment, all the participants were given a pre-GJT. Then, all the groups read the text-enhanced reading passage with comprehension purposes, followed by a post-GJT. However, in between, G3 and G4 had explicit instruction. The VARK questionnaire was circulated separately during the following class. As for scoring, a second rater who has a PhD degree in education was hired to score 15%

[2] Permission for using the VARK questionnaire for a research purpose was obtained from Neil D. Fleming on December 24, 2015 via e-mail.

of the total coding, and the inter-rater reliability was 0.90. The procedures are summarized in Table 2.

TABLE 2

General Procedure of the Study

Order	G1 (N=31)	G2 (N=25)	G3 (N=21)	G4 (N=33)
1	Pre-GJT			
2	N/A	N/A	Explicit instruction (only oral mode)	Explicit instruction (oral and written mode)
3	Reading the provided passage			
4	Post-GJT			

5. Scoring

1) Grammaticality Judgment Task

By strictly following Kim, E. J.'s (2016) coding scheme, no partial point was allowed. In particular, a zero point was given to students who corrected the target sentence into a declarative sentence. In addition, a zero point was given to students who did not correct the verb root form to past participle as Learner 1 did below. The maximum points that the students could earn was 10 points in the pre-test and 10 points in the post-test. Scoring samples are provided below.

Ex) Never had I see such a beautiful lady.

Learner 1: *see* -> underlined and corrected into *seen* (1 point)

Learner 2: *see* -> underlined but no correct answer (0 point)

Learner 3: *I have never seen such a beautiful lady* (0 point)

Learner 4: no underline or no answer (0 point)

6. Data analysis

In order to see the role of learning styles and their interaction under the two learning conditions (i.e., implicit and explicit), first descriptive statistics will display the students' overall learning styles. Then, a two-way ANOVA will observe the interaction between learning styles and the learning conditions. SPSS 21 version was used for the analysis.

IV. RESULTS

The descriptive statistics in Table 3 show the distribution of the four learning styles in

each group. In total, 41 (37.3%) students identified themselves as kinesthetic learners, followed by 33 (30.3%) aural learners, 20 (18.2%) read/write learners, and 16 (14.5%) visual learners. Among the four learning preferences, the portion of kinesthetic learners was the highest.

TABLE 3

VARK Questionnaire Results in the Four Groups

	G1	G2	G3	G4	Total
Visual	5	6	2	3	16 (14.5%)
Aural	11	6	5	11	33 (30.0%)
Read/Write	4	4	4	8	20 (18.2%)
Kinesthetic	11	9	10	11	41 (37.3%)
Total	31	25	21	33	110 (100%)

TABLE 4

Descriptive Statistics of the Pre- and Post-GJT by Group

		Mean	SD	Min.	Max.	Possible Max. Scores
Pre-GJT	G1	1.29	1.97	0	7	10.0
	G2	1.44	2.40	0	8	10.0
	G3	2.90	2.70	0	9	10.0
	G4	1.61	2.33	0	7	10.0
	Total	1.73	2.37	0	9	10.0
Post-GJT	G1	2.42	3.20	0	10	10.0
	G2	2.24	3.54	0	10	10.0
	G3	5.29	3.68	0	10	10.0
	G4	8.05	1.92	4	10	10.0
	Total	4.61	3.93	0	10	10.0

Table 4 displays the four groups' pre-GJT and post-GJT scores after the implicit and explicit instruction. In the pre-GJT, G3 performed best (*M*=2.90, *SD*=2.70), followed by G4 (*M*=1.61, *SD*=2.33), G2 (*M*=1.44, *SD*=2.40), and G1 (*M*=1.29, *SD*=1.97). However, in the post-GJT, G4, which received both aural and written explicit instruction, performed best (*M*=8.05, *SD*=1.92), followed by G3 (*M*=5.29, *SD*=3.68), which received oral-only instruction, G1 (*M*=2.42, *SD*=3.20), which read the input-flooded passage with high frequency, and G2 (*M*=2.24, *SD*=3.54), which read the input-flooded plus textually enhanced passage.

Table 5 displays the four different learning styles learners' performances in the pre- and post-GJT. In the pre-GJT, the visual learners (V) performed best (*M*=2.19, *SD*=2.51), followed by read/write (R) learners (*M*=2.10, *SD*=2.57), kinesthetic (K) learners (*M*=1.68, *SD*=2.13), and aural (A) learners (*M*=1.33, *SD*=2.50). However, in the post-GJT, all the

students gained a certain level of knowledge. The read/write (R) learners (*M*=5.65, *SD*=3.77) outweighed the other learners, having aural (A) learners (*M*=4.52, *SD*=4.04) second, and kinesthetic (K) learners (*M*=4.38, *SD*=4.01) third, and the visual learners (V) (*M*=4.13, *SD*=3.84) fourth.

TABLE 5

Descriptive Statistics of the Pre- and Post-GJT by Learning Styles

		Mean	SD	Minimum	Maximum	Possible Max. Score
Pre-GJT	V	2.19	2.51	0	8	10.0
	A	1.33	2.50	0	9	10.0
	R	2.10	2.57	0	9	10.0
	K	1.68	2.13	0	7	10.0
	Total	1.83	2.43	0	9	10.0
Post-GJT	V	4.13	3.84	0	10	10.0
	A	4.52	4.04	0	10	10.0
	R	5.65	3.77	0	10	10.0
	K	4.38	4.01	4	10	10.0
	Total	4.67	3.92	0	10	10.0

TABLE 6

One-way ANOVA of the Pre-GJT

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	37.583	3	12.528	2.313	0.080
Within Groups	574.235	106	5.417		
Total	611.818	109			

In order to examine group differences before the experiment, a one-way ANOVA was run. As shown in Table 6, the significance of the group difference was $p>.05$, which means that the four experimental groups were homogeneous and that they had equivalent prior knowledge before the treatment.

Table 7 represents significant group differences in the post-GJT, $p<.0001$, which means that the four experimental group displayed statistically significant differences in the post-GJT after the treatment. A Tukey post-hoc test also found that there were group differences between G4 and G1 and G2 ($p<.0001$), G4 and G3 ($p<.05$), and G2 and G1 ($p<.05$).

Figure 1 shows the overall performance of the four groups before and after the implicit and explicit instruction. G4, the more explicit group, which received the oral instruction as well as written visual inputs such as example sentences on the blackboard followed by enhanced passage reading, performed best compared to other three groups. G3, the less explicit group, which received oral explanation of the target form, also performed

modestly; however, G1, the more implicit group, and G2, the less implicit group, which read the passage without explicit instruction, did not perform well compared to the two explicit groups. As a next step, a two-way ANOVA was conducted in order to see the interaction between the learning styles and learning conditions from the pre- to post-GJT.

TABLE 7

One-way ANOVA of the Post-GJT

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	688.254	3	229.418	24.402***	0.000
Within Groups	996.576	106	9.402		
Total	1684.830	109			

*** p<.0001

FIGURE 1

Mean Scores in the Pre- and Post-GJT by Group

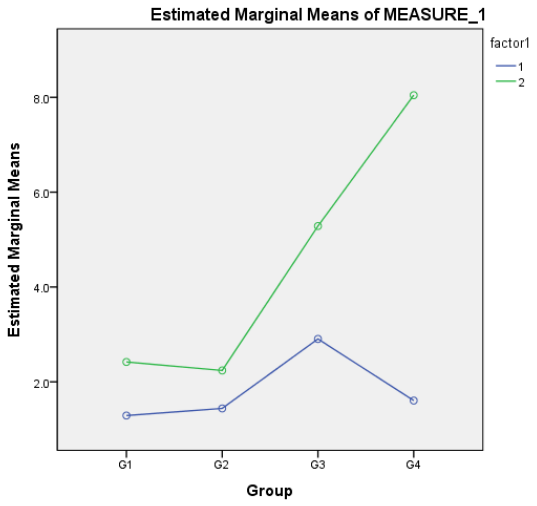

Table 8 shows a significant main effect for conditions (i.e., implicit and explicit), F(3, 93)=31.649, p<.0001, but an insignificant main effect of styles (i.e., visual, aural, read/write, and kinesthetic), F(3, 93)=.67, p>.05, as well as insignificant interaction effect between conditions and styles, F(9, 93)=1.17, p>.05. This means that there was only a main effect for learning conditions, which were implicit and explicit, on the learners' targeted form learning.

TABLE 8

Two-way ANOVA of the Post-GJT

	Sum of Squares	df	Mean Square	F	Sig.
Conditions	450.319	3	150.106	31.649***	0.000
Styles	9.527	3	3.176	0.67	0.57
Conditions * Styles	49.997	9	5.555	1.17	0.32
Error	441.081	93	5		

****p*<.0001

V. DISCUSSION AND CONCLUSION

The aim of the study was to identify the Korean high school students' preferred learning styles (i.e., visual, aural, read/write, and kinesthetic) as well as to determine the relationship between their learning styles and two learning conditions (i.e., implicit and explicit) on their learning of target forms. The condition for G1 was more implicit, as this group read an authentic reading passage with a high frequency of the target form. The G2 condition was less implicit, as this group read the same content but as a textually enhanced (i.e., boldfaced, enlarged, and underlined) passage. By contrast, the G3 condition was less explicit; this group learned the rule through an oral explanation, and G4 was a more explicit condition since they were provided with both an oral explanation and practice sessions before reading the passage. The results revealed that the degree to which the participants learned the target form (negative inversion) was greatest in G4, the group with the explicit learning condition.

The first research question involved acquiring a snapshot of the Korean high school students' learning styles. At first glance, it was revealed that the percentage of kinesthetic learners was the highest (37.3%), followed by aural (30%), read/write (20%), and visual (14.5%). The high percentage of kinesthetic learners aligned with previous studies (Kim, K. H., 2001; Lee, C-G., 2001; Min, H. S., 2012; Rai & Khatri, 2014). In addition, it was indicated that the portion of read/write learners represented 20% of the entire group. The read/write learning modality was neglected by other learning style questionnaires such as the Strategy Inventory for Language Learning (SILL) (Oxford, 1990) and the Perceptual Learning Style Preference Questionnaire (PLSPQ) (Reid, 1987). However, as shown above, the read/write learners who demonstrated a preference for "quotes, lists, texts, books, and manuals" that are "displayed as words either read or written" (Fleming, 2001, p. 2) were evident.

The second research question involved the effect of learning styles and learning conditions on the learner's target form learning (i.e., negative adverbs with subject-

auxiliary inversion). As presented in Table 8, learning styles did not strongly affect post-GJT scores. Rather, it was the two learning conditions (i.e., implicit and explicit) that produced a significant effect, $p<.0001$. Regarding the two learning conditions, it is noteworthy that G1, the more implicit group, and G2, the less implicit group, did not learn much after receiving implicit instruction (i.e., boldfaced, highlighted, and underlined texts with high frequency of the target form). The reason for this could be because they were unaware of the learning condition (Reber et al., 1991), as they were asked to read the reading passage for comprehension, not for the purpose of learning grammar.

Apart from the other groups, the robust performance of G4, which received the more explicit condition, would be explained by the weak interface model (N. Ellis, 1994), which allowed the students to benefit from both explicit and implicit learning modes. According to Schmidt (1990), explicit instruction increases the likelihood of students' noticing the target form. Similarly, as for the weak interface model, N. Ellis (2005) mentions that, "The primary conscious involvement in L2 acquisition is the explicit learning involved in the initial registration of pattern recognizers for constructions that are then tuned and integrated into the system by implicit learning during subsequent input processing" (p. 305), which supports the dynamic interaction between explicit and implicit learning modes. G4 received both oral explanations and a practice session (explicit), followed by reading a textually enhanced passage (implicit). Thus, the likelihood of learning would have increased sharply as a result of the dynamic interaction between the two learning modes.

As for the effect of the learning styles on learning the target form, Bailey et al. (2000) noted that, "When college students enroll in foreign language course, their learning styles are likely most often already formed, so that learning styles are antecedents of foreign language proficiency" (pp. 127-128). However, the results of the current study were the opposite. Learning styles had no effect on their focus on learning the target form. Rather, the results corresponded with those of Choi, I., Lee, S. J., and Kang, J. W.'s (2009) study in Korea. These researchers reported that the significance of learning styles was reduced in correlation with the duration that the students were in the program. Considering that the participants in this study have been in a formal educational setting for 11 years in Korea, the students might have adapted to the traditional learning conditions, thus blurring the boundary.

Moreover, another reason might relate to the results of the current research. In many grammar classes, Korean teachers use visual aids (e.g., PowerPoint slides or handouts) while explaining the target rule through oral explanation with the aid of read-and-write drills. If this is the case, there is no clear-cut distinction among the teachers' teaching modalities. This means that teachers use all the visual, aural, and read/write modalities and learners learn grammar without the use of particular learning modes. Although the

relationship between kinesthetic learners and their learning of grammar is not indicated in the current study, the ineffectiveness of the four learning modalities on grammar learning calls for future studies.

Based on the above, several pedagogical implications are proposed. First, a combination of explicit and implicit instruction should be considered as evidenced in G4. Along with this, the use of technology such as computers or mobiles could be alternative tools to aid the dynamic interaction between explicit and implicit learning modes. Second, input enhancement techniques such as input-flood and textual-enhancement techniques should be revisited since, when they are combined with explicit learning, the likelihood of the target form being noticed was much enhanced. Other kinds of textual enhancement techniques such as print that is enlarged, boldfaced, color-coded, or underlined will indeed foster students' consciousness and lead learners to become aware of salient input.

Nonetheless, the current study has several limitations, including a sample represented by only one gender and a brief experimentation period. Future research might narrow the gap by adding more variables such as learning strategy, learning motivation, and proficiency to those of the current study. By this, a deeper understanding of learners' preferences on regarding grammar learning may be obtained. Notwithstanding, the current study adds to the literature on investigating the roles of learning styles in a focus on form learning conditions in Korea, where grammar research regarding Korean high school students has been rare.

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APPENDIX A

Sample of the Reading Passage

Last May, Michael Smith, 81, returned to his Anaheim, California, apartment after months in the hospital for lung cancer treatment. He found his refrigerator and pantry were nearly empty. **Hardly had he seen** something to eat in his apartment.

Smith's wife, Kate, had passed away a few years earlier, and he had no family nearby to help him with grocery shopping. Unable to drive or walk, Smith called a local supermarket, but the manager told him the store didn't deliver. **Never had he found** a food delivery service nearby. Hungry and desperate, Smith dialed 911.

APPENDIX B

Sample of the Grammaticality Judgment Task

1. Rarely have I eat better food. (target)
2. Never seen I had his wallet in his room today. (target)
3. Hardly I had left before the quarrelling started.(target)
4. Scarcely I seen such a sight! (target)
5. Hardly had I get something beautiful here. (target)
6. I wanted to know why have you worked there. (distractor)
7. The ladies watched TV late night, is it? (distractor)
8. Leung works in Tokyo but run a business in Bangkok. (distractor)

9. Did you completed your assignment? (distractor)
10. This building is more higher than your car. (distractor)

Examples in: English
Applicable Language: English
Applicable Level: Secondary

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