

The Effectiveness of Direct and Indirect Coded Written Feedback in English as a Foreign Language*

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Despite continuing interest in the relative effectiveness of different types of written corrective feedback in both second language (L2) research and classroom, no one type of written feedback has yet been conclusively shown to be more effective than another. The present study investigated the differential efficacy of two types of focused written corrective feedback, direct error correction and indirect coded feedback, for L2 development. Forty-three Korean English as a foreign language (EFL) learners from three intact classes at a university were assigned to a control group or one of two experimental groups (i.e., direct vs. indirect coded feedback). A pretest-post-test design was employed to assess improvement in learners' ability to use the target structure, the past counterfactual conditional. Only the direct written feedback group significantly outperformed the control group on the post-test involving a new piece of writing. Results indicated that direct written feedback was more effective than indirect written feedback provided in the form of coded feedback in improving learners' subsequent accuracy in using a complex syntactic structure in a short-term period.

Keywords: focused written corrective feedback, direct/indirect feedback, coded feedback, second language (L2) development, English as a foreign language (EFL)

1. Introduction

Truscott's (1996) argument that written corrective feedback or "error/grammar correction" (Bitchener and Ferris 2012: viii) is ineffective and harmful has provoked considerable scholarly discussion and debate

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(Ferris 1999, 2002, 2004, 2006, Truscott 1999, 2004, 2007, 2009) over the effectiveness of written corrective feedback in L2 research. However, even much prior to such call for empirical evidence in support of the effectiveness of written corrective feedback in L2 learning by Truscott (1996, 1999), many researchers focused on exploring what types of written corrective feedback best promote L2 development while assuming the efficacy of written corrective feedback. A number of researchers have investigated the extent to which L2 learners can benefit from different types of written corrective feedback (see Bitchener and Ferris 2012 for a comprehensive review). At the center of discussion has been the relative effectiveness of direct and indirect written feedback.

However, due to the conflicting results of previous research (Lalande 1982, Robb, Ross, and Shortreed 1986, Semke 1984, Suh 2010, van Beunigen, De Jong, and Kuiken 2008, 2012), no definitive conclusions can yet be drawn regarding the relative efficacy of direct and indirect written corrective feedback in L2 development, which warrants further research. Some methodological issues of previous studies in this strand of inquiry and the different operationalization of indirect feedback among studies reveal the need for further carefully-designed research on the relative efficacy of direct and indirect coded written feedback. The present study sought to address the methodological issues by controlling the possible effects of several confounding variables in the research design and by including a true control group which does not receive written feedback on linguistic errors. In addition, this study adopted a focused approach in an effort to establish a direct link between written feedback directing at a specific syntactic structure and L2 learners' subsequent improvement in the use of the structure.

The present study set out to investigate whether two types of written corrective feedback, direct written feedback and indirect coded written feedback, have differential effects on promoting adult Korean L2 learners' development of a targeted syntactic structure in an English as a foreign language (EFL) context.

2. Literature Review

2.1. The Effects of Direct and Indirect Written Feedback on L2 Development

Much of written corrective feedback research to date has compared different types of written feedback in order to explore what the optimal means of correcting learner errors in their written production is (e.g., Bitchener 2008, Ellis, Sheen, Murakami and Takashima 2008, Ferris and Roberts 2001, Lalande 1982, Robb et al. 1986, Semke 1984, Suh 2010, van Beunigen et al. 2008, 2012). Written corrective feedback has been characterized by different terminology and has been further defined through various distinctions, including direct or indirect, explicit, implicit, and coded or uncoded. One distinction that has been made in most of the written corrective feedback studies is between direct (i.e., errors are corrected by the teacher) and indirect feedback (i.e., errors are not corrected, but are indicated in some way). Indirect written feedback can take different forms with varying degrees of explicitness (e.g., underlining or circling of errors vs. coding of errors and/or providing a checklist indicating error type).

From a theoretical perspective, indirect written feedback has been argued to possibly lead learners to engage in problem-solving and hypothesis-testing activities, which, in turn, will promote L2 development and written accuracy. Advocates for indirect written corrective feedback have stated that this form of correction is most useful because it invites L2 learners to engage in guided learning (Lalande 1982) and it fosters deeper processing of partially internalized knowledge (Bitchener 2012). Thus, it follows that indirect feedback may work only with learners who have some partial knowledge about the targets, not to learn completely new linguistic features. Those supporting direct feedback, on the other hand, have argued that direct feedback may be more effective since it provides learners with sufficient information to address complex linguistic errors (e.g., syntactic errors) and it offers relatively more explicit and immediate feedback (Chandler 2003).

Previous research comparing the effects of direct and indirect written

corrective feedback on L2 development measured through subsequent writing tasks, not on revisions, has yielded mixed results. One earlier study (Lalande 1982) reported superior advantage of indirect feedback, while two studies (Robb et al. 1986, Semke 1984) found no significant difference between indirect and direct feedback, and three more recent studies (Suh 2010, van Beunigen et al. 2008, 2012) provided supporting evidence for direct feedback. Therefore, further research is warranted in this area.

2.2. Methodological Issues of Previous Research

As mentioned above, there are inconclusive results about the relative effects of direct and indirect coded feedback on the development of linguistic accuracy. A careful analysis of the studies reveals several potential methodological issues, which may have contributed to the mixed results.

First, the type of feedback was not the only dissimilarity between the experimental groups in some early written feedback studies (e.g., Lalande 1982, Robb et al. 1986, Semke 1984). For example, the additional between-group differences in the presence/absence of revision after provision of feedback or in required quantity of writing might have affected the results, so it is unclear whether the observed differences between groups were caused by the different type of feedback or the combined effects of feedback and confounding variables.

Another methodological issue pertains to the lack of a true control group. Different conclusions may be reached when analyses are based on comparisons between experimental groups versus between experimental and control groups. It should also be noted that much of previous research did not include a true control group which does not receive written corrective feedback on linguistic errors. Thus, the lack of a true control group in research design might have resulted in significant information loss. In other words, some actual differences between experimental and control groups might not have been observed as the comparisons were made only between experimental groups (i.e., direct and indirect feedback groups).

An additional methodological consideration might be the type of ap-

proach employed regarding the range of linguistic errors corrected (i.e., whether written feedback was focused or unfocused). Three recent studies which were more carefully designed (Suh 2010, van Beunigen et al. 2008, 2012) yielded overall supporting evidence for direct feedback. However, since Suh (2010) investigated focused written corrective feedback while the studies by van Beunigen et al. (2008, 2012) addressed comprehensive (i.e., unfocused) written feedback, a direct comparison of the results between the studies cannot be made. While unfocused written feedback has high ecological validity (van Beunigen et al. 2012), van Beunigen et al. (2012) has “not shown a direct connection between correcting errors in specific grammatical structures and improved accuracy in those structures” (Shintani, Ellis, and Suzuki 2014: 105). In light of this, this study employed a focused approach to correcting learner errors in order to examine a direct link between different types of written corrective feedback and L2 development.

2.3. Different Operationalization of Indirect Written Feedback

In addition to the methodological issues, the different operationalization of indirect feedback in previous studies may account for the inconsistent results. The study which reported an advantage for indirect feedback (Lalande 1982) and those which did not find any significant difference between direct and indirect written corrective feedback (Robb et al. 1986, Semke 1984) provided indirect coded feedback. In contrast, Suh (2010) who found an advantage for direct feedback operationalized indirect feedback as indication of form-related error through underlining and/or cursors (i.e., uncoded). It is possible, as Suh (2010) points out, that the different degree of explicitness between the two types of indirect feedback may have impacted on the dissimilar results. To address this possibility, following Suh (2010), the present study compared the effects of direct and indirect coded written feedback.

3. The Present Study

As discussed earlier, continuing interest in the comparative effects of direct and indirect written corrective feedback in L2 research and the inconsistent research findings warrant more empirical investigations that address several potential methodological issues of previous studies. In addition, further research which compares the developmental benefits of direct and indirect coded written feedback needs to be carried out to advance our understanding of the relative effectiveness of different types of written feedback, and furthermore, the optimal way to provide written corrective feedback in L2 classrooms.

The present study attempted to contribute to the current literature on written corrective feedback by comparing the effectiveness of direct and indirect coded written feedback in improving EFL learners' ability to use a targeted syntactic structure while controlling some potential external variables in the research design and including a true control group. The following main research question guided this study:

Is there any difference in the effect of direct and indirect coded written feedback on L2 learners' subsequent accuracy in using a targeted structure?

4. Method

4.1. Design

This study employed a quasi-experimental design with a pretest-treatment-post-test design, using intact EFL classes. Each participating class was randomly assigned into a direct written feedback group, an indirect written feedback group, or a control group. At each testing session, a written production task was employed to assess the learners' ability to use the target structure. All the participants completed an exit questionnaire after completing the post-test.

4.2. Participants

The original pool of participants for this study consisted of 59 intermediate EFL learners at a university in Seoul, South Korea. They were all enrolled in a college English course, which is a requirement for all undergraduate students at the university. They were from three classes. To control for prior knowledge, those who scored more than 60% in the production test were excluded from the final sample. Participants were also excluded for failing to complete all sessions. The final pool consisted of 43 learners (male, $n = 30$, and female, $n = 13$), ages 18-29 – 12 in the direct written feedback group, 15 in the indirect coded feedback group, and 16 in the control group. Most of them had begun studying English at (around) age 13, and they had been studying English for 10 years on average. Only two participants had experience living in an English-speaking country, and their length of stay was less than a year (2 months and 8 months).

4.3. Linguistic Target

To investigate the effects of direct and indirect coded written corrective feedback, the past counterfactual conditional in English (e.g., *If you had mowed my lawn, I would have paid you \$10.*) was selected as the linguistic target for the present study. This structure was chosen mainly for two reasons. First, it is syntactically and semantically complex because it consists of two clauses and it takes certain modal verbs in the main clause (Celce-Murcia and Larsen-Freeman 1999). This makes the structure difficult to learn. As in previous studies targeting this structure (e.g., Izumi, Bigelow, Fujiwara, and Fearnow 1999, Song and Suh 2008), the pretest results showed that the participants in this study had only some partial knowledge of the targeted structure, and they have yet to fully acquire it.¹⁾ Second, this particular type of structure is not explicitly taught during

1) One of the anonymous reviewers commented that the participants in the indirect feedback group who scored (close to) zero on the production pretest could not have benefited from the indirect coded written feedback because they were not developmentally ready and the information given might not be transparent to those learners in the indirect written feedback group. However, the pretest scores on the recognition test,

the semester, although the participants had learned it in high school.

4.4. Treatment

All learners in the experimental conditions were provided with one written corrective feedback treatment as some recent studies have demonstrated that a single feedback treatment led to the improved accuracy in new writing (e.g., Bitchener, Cameron and Young 2005, Bitchener and Knoch 2010, Sheen 2007).

Learners in the direct written feedback (DF) group received their writing with errors underlined/marked and with corrected form or structure provided above their errors, as shown in Example 1:

had mowed

Example 1: If you mowed my lawn, I would have paid you \$10.

For learners in the indirect written feedback (IF), errors were underlined/marked and type of error was indicated, but it was left to the learner to engage in problem solving and derive the corresponding target forms, as shown in Example 2:

verb tense wrong

Example 2: If you mowed my lawn, I would have paid you \$10.

4.5. Tasks and Materials

4.5.1. Treatment Task

The treatment task chosen for the current study was a guided written story-retelling task. The main reason for selecting the guided story-retelling task was to ensure that all the target sentences would be attempted so that the learners would receive written feedback on the targeted structure.

which was administered right after the production pretest, indicate that all participants (including the indirect feedback group) had at least partial knowledge of the target structure and were developmentally ready to receive, notice, and process feedback to acquire the structure.

Three tasks were created to provide contexts for feedback on the past counterfactual conditional (Suh, 2010). Each story included five target sentences (five main clauses and five *if*-clauses). All three tasks were facilitated by a set of picture prompts. The participants were given fourteen through fifteen sequenced picture and vocabulary prompts, developed to elicit the targets as well as distracters and to help participants remember a story²⁾ (see Appendix for sample picture prompts). One of the three tasks was employed as treatment task, and the other two tasks were employed as test materials.

The guided story-retelling task was carried out in a classroom setting. The procedure adopted for the guided story-retelling task was as follows:

1. Learners in all groups were informed of the task that they were going to do.
2. The learners received a short story written in Korean and were asked to read it silently.
3. The teacher collected in the stories and gave the learners picture prompts along with a blank writing sheet. The learners were told to retell the story in English using the picture prompts.
4. The learners' written stories were collected by the teacher.

The participants in all three groups engaged in the same written story-retelling task. The treatment condition differed only in terms of the feedback session, during which the participants received direct feedback, indirect coded feedback, or no feedback. The participants were provided with written corrective feedback from the same teacher-researcher, and they were not allowed to use dictionaries while completing the task.

4.5.2. Tests

In order to evaluate the learners' productive use of the past counterfactual conditional in contexts, the guided story-retelling task was used. As mentioned above, two of the three guided story-retelling tasks were employed in the pretest and immediate post-test. Two different but com-

2) The mean number of sentences produced by the participants was 15 per story.

parable versions of the production test (i.e., written story-retelling task) were counterbalanced at each testing time. No participant received the same story to write on more than one time at both testing sessions.

4.6. Procedure

All of the treatment and testing was carried out in a classroom setting. On the first day of the experiment, learners took a written production pretest (in the form of a story-retelling task). The pretest lasted about 30 minutes. Then all learners completed their second written story-retelling task, which lasted approximately 30 minutes, and handed in their stories to the teacher. In the following class (two days later), participants received their stories back with written feedback and were told to look at them carefully for approximately five minutes. Participants in the control group received their original compositions with no feedback provided. While the control group did not receive feedback, they were encouraged to look at their own stories carefully, as were the participants in the experimental groups, and think about how they could improve them. Immediately after the feedback session, learners completed the post-test and filled out a debriefing questionnaire (Suh 2010). An overview of the procedure is shown in Figure 1.

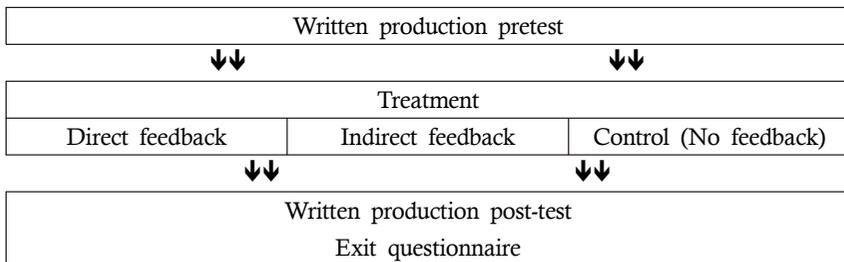


Figure 1. Procedure.

4.7. Data Scoring and Statistical Analysis

The participants' written production data were scored using a Target-Like Use (TLU) analysis (Pica 1984). One point was awarded for each targetlike production of the targeted structures in obligatory contexts, and no point for each non-targetlike attempt. Percentage scores were calculated. In scoring the learners' production of the target structure, incorrect morphology (e.g., "caught," instead of "caught") was ignored. The researcher and a trained independent rater coded the production data, and the inter-rater reliability was found to be 96%.

SPSS datasets were employed for descriptive and inferential statistics. In order to answer the research question, a repeated-measures ANOVA and one-way ANOVAs were carried out. The alpha level was set at .05. To interpret the magnitude of effect sizes, Cohen's (1988) guidelines were employed. For partial eta-squared, .01 is considered a small effect size, .06 a medium effect size, and .14 a large effect size.

5. Results

Table 1 presents the descriptive statistics for the experimental and control groups at the two different testing times (pretest and immediate post-test). Figure 2 is a graphic representation of the findings.

Table 1. Group Means and Standard Deviations for Written Production Test

Condition	<i>n</i>	Pretest		Post-test	
		<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Direct	12	15.00	23.98	85.00	27.80
Indirect	15	7.33	14.86	56.67	41.69
Control	16	13.44	23.99	45.21	41.99

* The scores are presented in percentages.

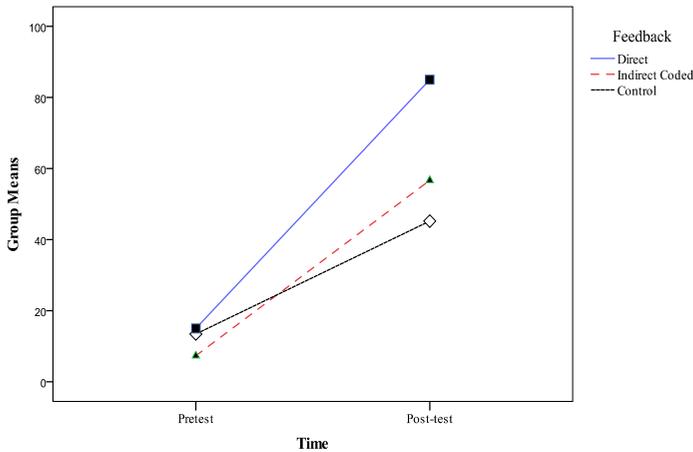


Figure 2. Pre-to-post development on the written production test.

To ensure that the three groups did not differ from one another in terms of their prior knowledge of the linguistic target, a one-way ANOVA was performed. No statistically significant difference was found, which suggests that the three groups were comparable before receiving the treatment: $F(2, 40) = .52, p = .60$.

The research question asked the relative efficacy of two types of written corrective feedback, direct written feedback and indirect coded feedback, for L2 development. To examine whether the differences across the three groups' scores over time were statistically significant, a two-way repeated measures ANOVA was conducted on participants' scores on the production tests, with feedback condition (direct vs. indirect coded vs. control) as the between-group factor and time (pretest vs. post-test) as the within-subjects factor.

Results of the repeated measures ANOVA revealed a statistically significant interaction between time and condition ($F(2, 40) = 3.79, p = .03$, partial $\eta^2 = .16$) and a significant main effect of time ($F(1, 40) = 76.52, p = .00$, partial $\eta^2 = .66$, power = 1.00), but no significant main effect of condition ($F(2, 40) = 2.60, p = .09$, partial $\eta^2 = .12$, power = 0.49). Learners in all groups as a whole performed significantly better on the immediate post-test than on the pretest. The significant interaction suggests that the three groups changed differently from one another over

time. Although the effect sizes for the interaction and time were large, the effect size for the feedback condition was moderate. A post-hoc power analysis showed that the observed power for the treatment (i.e., feedback condition) effect was 0.49 (below the recommended level of 0.8), which suggests that the statistically non-significant result may actually have been due to a small sample size.

A one-way ANOVA showed significant between-group differences on the post-test, $F(2, 40) = 3.77, p = .03$. Least Significant Difference (LSD) post-hoc pairwise comparisons were carried out on the post-test to determine where the differences lay. The analyses revealed that the direct written feedback group significantly outperformed the control group on the post-test ($p = .01$), while there was no statistically significant difference between the indirect coded feedback group and the control group ($p = .41$). Learners in the direct feedback group also outperformed learners in the indirect coded feedback group on the post-test, but the difference between the two experimental groups (i.e., direct and indirect coded written feedback groups) did not turn out to be statistically significant ($p = .067$). Although the picture is not so straightforward, these findings together indicate that the direct written corrective feedback and indirect coded feedback seem to have differential effects on L2 development.

6. Discussion and Conclusion

The present study set out to investigate the differential effects of direct written corrective feedback and indirect coded written feedback on L2 learners' ability to use the past counterfactual conditional in English. It found a direct relationship between direct written corrective feedback and development of linguistic accuracy in using the targeted syntactic structure, but it did not find such a relationship between indirect coded written feedback and L2 development. Although no statistically significant difference was observed between the two types of written feedback, the difference was rather close to the .05 level of significance.

The finding that the learners who received direct written corrective feed-

back made a significantly greater improvement than those who did not receive feedback from pre- to post-test is consistent with the general pattern observed in several recent studies (Bitchener and Knoch 2010, Suh 2010, van Beuningen et al. 2008, 2012) where direct written corrective feedback was shown to be effective in L2 development. Thus, this study provides additional supporting evidence for direct written corrective feedback and, moreover, further counter-evidence to Truscott (1996, 1999)'s claim that error correction is ineffective for L2 development or learning.

Interestingly, this finding suggests that intermediate Korean EFL learners can benefit from even a single treatment of direct written corrective feedback in L2 development. Unlike in this study, the participants in a previous study by Suh (2010) were provided with written feedback during three treatment sessions. Therefore, it was an empirical question whether the effectiveness of written corrective feedback can be observed in the current study in which learners received feedback during one treatment session. It is meaningful in that even a single provision of targetlike form in the written modality can result in the learning of a complex syntactic structure (Celce-Murcia and Larsen-Freeman 1999) in an EFL classroom context. While Bitchener and Knoch (2010) also found that a single treatment of direct written feedback can enable advanced ESL learners to enhance their written accuracy, they provided feedback on two targeted functional uses of the English definite and indefinite articles, a linguistic target of a relatively simple nature (Ellis et al. 2008, Bitchener and Knoch 2010).

The result that no significant difference was found between the indirect coded written feedback and the control groups immediately after the provision of feedback corroborates the findings of several other studies (Suh 2010, van Beuningen et al. 2008, 2012). This may be attributed to the fact that the English past counterfactual conditionals, the linguistic target, were too complex to be learned as a result of one-time treatment of indirect coded written feedback. This result, along with that of Suh's (2010) study, seems to suggest that indirect written feedback (both in the form of coded and uncoded feedback) was not more effective than the control condition in which learners carefully looked at their own compositions in developing

learners' ability to use the targeted structure more targetlike or accurately. Moreover, given that van Beuningen et al. (2008, 2012) provided comprehensive feedback on "word form (e.g., verb tense, singular/plural), word order, incomplete sentences, and addition or omission of a word" (van Beuningen et al. 2012: 12) using an unfocused approach, the same trend appears to hold true for comprehensive error correction.

In this study, the direct feedback group did not show a significantly greater improvement than the indirect feedback group from pretest to (immediate) post-test. This is a finding inconsistent with that of Suh (2010), where a statistically significant difference between direct and indirect (uncoded) feedback was found. At the same time, interestingly, this result is in line with the findings of van Beuningen et al. (2008), who displayed a trend ($p = .061$) that suggests the superior efficacy of direct written feedback over indirect coded feedback even though the difference between the two was not statistically significant. As pointed out in the previous section, it is noteworthy that although no statistically significant difference was observed between direct and indirect coded written corrective feedback in this experiment, as with the case of van Beuningen et al. (2008), the results show a trend ($p = .067$). Thus, it might be the case that the actual difference was concealed in this study due to a small sample size. A question that merits further investigation is whether the same trend would be observed when indirect coded feedback is provided more than on one occasion.

Some limitations should be noted in interpreting the findings of the current study. First, the sample size included in the final analyses was relatively small, which resulted in low power in a post-hoc power analysis. Therefore, it is difficult to make strong claims or generalizations based on the results of this study. Another limitation relates to the one-shot feedback treatment employed in this study. Although it arguably corresponds to a common teaching practice and the results of this study can provide practical implications for the L2 classroom, this constitutes a limitation in research design. Likewise, unlike other recent studies which involved a single feedback treatment (e.g., Bitchener and Knoch 2010, van Beuningen et al. 2012), this study did not include a delayed post-test,

so it was not possible to measure any possible long-term effects. Future research is needed to investigate any durable effect of direct and indirect coded written feedback in facilitating learners' development of a complex syntactic structure by providing feedback during multiple treatment sessions and including delayed post-tests. In addition, from a research perspective, the quasi-experimental design of the study limits the generalizability of the findings. Subsequent research which takes into consideration the research design and methodological issues and the further research topics, which were alluded earlier, on the effectiveness of direct and indirect (coded) feedback is expected to help enhance our understanding of the issue.

Notwithstanding some limitations, from a theoretical perspective, this study contributes to the discussion on the relative effectiveness of direct and indirect written corrective feedback for L2 development in a Korean EFL classroom context. From a pedagogical perspective, the current study has provided support for the differential merits of direct written corrective feedback and indirect coded written feedback; direct error correction seems to be a more effective instructional method than indirect coded feedback in improving the accuracy with which Korean university learners use a complex syntactic structure (in new pieces of writing) in a short-term period.

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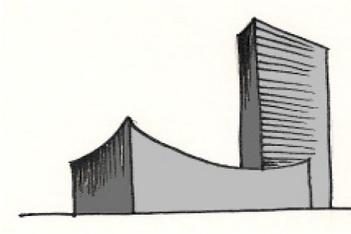
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Appendix: Sample picture prompts for the written story-retelling task

Mina

apply for



internship

April

UN



interview

successful



if

take

Public Speaking

last semester