Effects of Direct and Indirect Written Corrective Feedback on Bhutanese Learners' Grammatical Accuracy Over Time

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Abstract

This study investigated the effect of direct and indirect written corrective feedback (WCF) on the grammatical accuracy in the use of past tense and articles by grade eight learners (n = 45). The study also explored the extent to which the use of WCF may affect the syntactic complexity in the learners' writing. The learners were selected and purposively divided into three levels of English language proficiency (high, average, and low), from which they were randomly assigned into two treatment groups and one control group. Participants wrote narrative essays on a given topic, each for the pretest, followed by three treatment sessions, posttest, and delayed posttest. One treatment group received direct WCF while the other received indirect WCF. The control group did not receive WCF. The findings of this experiment show that the indirect WCF group (M = 75.26, SD = 12.83) outperformed the direct WCF group (M = 60.98, SD = 13.14) and the control group (M = 56.64, SD = 20.42) significantly on the grammatical accuracy measures taken at posttest. It was found that WCF did not affect the syntactic complexity of the learners' writing. It is surmised that a sustained and

	extensive use of indirect WCF may improve Bhutanese learners' written grammatical accuracy.

1. INTRODUCTION

Written corrective feedback (WCF) is a form of explicit written information provided by the teacher to the learner about incorrect grammatical usage in their writing (Bitchener & Ferris, 2012). Teachers provide WCF intending to help learners improve accuracy in their writing. WCF as an explicit teaching procedure can contribute to mastery of grammar (Swain, 2000). Besides, theories like information processing (McLaughlin, 1987) and skill acquisition (DeKeyser, 2007) also underpin the second language acquisition (SLA) role of WCF. However, Truscott (1996, 2004, & 2007) urged teachers to stop practicing WCF making the argument that it is ineffective for and detrimental to L2 learning. Consequently, many empirical studies (Bitchener & Knoch, 2008, 2010a; Chandler, 2003; Ferris, 2003, 2004; Sheen, 2007; Van Beuningen et al., 2008, 2012) investigated and proved that WCF facilitates grammatical accuracy development. Truscott (1996) also pointed out that WCF may hamper syntactic complexity as learners avoid complex structures to minimize errors. Thus, Truscott (2004) attributed the accuracy gains found in earlier studies (e.g., Chandler, 2003) to such evasion strategy and not to WCF. A few studies did attempt to investigate the effect of WCF on linguistic complexity. However, these studies (e.g., Chandler, 2003) could not present conclusive findings, while a recent study (Van Beuningen et al., 2012) found WCF did not hamper linguistic complexity in learners' writing.

In the English as a second language (ESL) context of Bhutan, WCF is used mainly in schools as the curriculum mandate teaching and learning of different forms of writing. The standards for writing in English, expressed in the 'The Silken Knot' (a policy document outlining standards for English for schools in Bhutan) inform all stakeholders to encourage writing as a regular feature of the curriculum. The standard suggests that a school graduate, who has completed grade 12, should be able to communicate in coherent and grammatically correct writing besides being able to plan, draft, redraft, and edit their own work. The standard also outlines that a graduate should be able to write in many different genres like personal (e.g., letters, diaries, and autobiography),

transactional (e.g., explanation, argument, narration, and reports), and poetic (e.g., plays, stories, novels, and poems) (CERD, 2002).

While summative assessment through written examinations project a product-based writing (i.e., only one draft is submitted for assessment), formative assessment writing components (essays, letters, poems, reports) incorporate process-approach to writing development throughout the academic year. As this approach requires production of multiple drafts by the learners through the writing process and teacher scaffolding in the form of feedback, decisions pertaining the type of feedback strategy to be followed become pedagogically pertinent. It has been observed that teachers either engage in an uninformed feedback practice or that they completely disregard its implementation. For instance, beginner teachers tend to overdo it by marking comprehensively all errors of all learners and on all drafts. This overwhelms both the teacher by the sheer workload and the learners by difficulty in processing the feedback. There is also a tendency of some teachers, who under the pretext of contextual factors such as large class size and heavy workload, brand WCF practice as impractical and altogether disregard it. As there is a dire paucity of WCF research in the Bhutanese context, a suitable WCF strategy for Bhutanese schools is yet to be explored, which also is the purpose of this study.

Worldwide the research on WCF has shown some positive effects for L2 acquisition in a general sense (Ferris, 2004). However, these studies have presented conflicting findings regarding which WCF strategy is most effective. This inconsistency in the findings has led to numerous calls for studies which are theoretically grounded (Polio, 2012), ecologically valid (Storch, 2010) and methodologically sound (Bitchener & Ferris, 2012; Bitchener & Storch, 2016; Ferris, 2010). The current study attempts to address these calls by underpinning the experimental research design with the core concepts of skill acquisition theory and information processing model, as well by incorporating insights gleaned from the previous WCF studies.

Firstly, the conflicted findings in WCF studies can be attributed to numerous options of WCF strategies (Ellis, 2008) and secondly to the different WCF research approaches pursued by the researchers (Storch, 2010).

Most of the WCF studies have categorized the strategies as either direct or indirect. While direct WCF requires the teacher to identify an

error and provide a correction, indirect WCF involves providing hints (e.g., underlines, circles, and codes) and letting learners come up with the correct answers (Lee, 2013). The relative efficacy of direct and indirect WCF has been rigorously debated. On one hand, it has been suggested that learners will benefit more from indirect WCF as it promotes guided learning and problem-solving enabling intense language processing (Ferris, 1995). This kind of intense language processing will "promote the type of reflection that is more likely to foster long-term acquisition" (Bitchner & Knoch, 2008, p.415). Moreover, Buckingham and Aktuğ-Ekinci (2017) found that coded indirect WCF was 'time-efficient' for teachers and they proposed that indirect coded WCF prompts learners to review their knowledge about a particular language feature. Pro-direct WCF, on the contrary, claimed direct WCF is less ambiguous to the learners as it indicates an error and provides a correct form, whereas, indirect WCF is considered to hamper understanding of the feedback resulting in poor engagement with the WCF, particularly, in the case of low proficiency learners (Zheng & Yu, 2018). Direct WCF also facilitates immediate scrutiny of the learner's hypothesis about their L2 usage and internalize the correct forms (Bitchner & Knoch, 2010b).

However, the studies that investigated the relative merit of direct and indirect WCF on grammatical accuracy presented varying results. Some studies reported merit for indirect over direct WCF (e.g., Ferris, 2006), while others have found no difference between the two (e.g., Frantzen, 1995). Researchers attributed this inconsistency in the findings to study design and execution flaws. Nevertheless, the two recent studies (Bitchner & Knoch, 2010b; Van Beuningen et al., 2012) acclaimed for avoiding significant flaws found the direct WCF more effective than indirect WCF.

Another line that divides the existing studies on WCF is that many of them investigated the effects of 'focused WCF' (e.g., Bitchner & Knoch, 2010b) which targets only one error type as opposed to 'unfocused WCF,' (e.g. Van Beuningen et al., 2012) which targets all of the errors in learners' writings (Ellis et al., 2008). Even though 'unfocused WCF' is what teachers usually do in their classrooms, Ellis et al. (2008) posited that learners might be able to notice and acquire the received WCF better when they receive WCF on only one targeted feature since they have limited processing capacity according to many L2 acquisition models. Therefore, there is a possibility that unfocused WCF may

overwhelm the very learners the teacher wished to help (Bitchener, 2008). The results from much of the focused WCF research have been positive as well. Studies such as Bitchener (2008), Bitchener & Knoch (2009a, 2010b), Ellis et al. (2008), and Sheen (2007) show that focused WCF has positive effects on learners' learning even in new writing tasks.

In contrast, little research that has been carried out to study if 'unfocused' WCF has a positive learning effect (Van Beuningen et al., 2008, 2012) delivered inconsistent results. A study by Truscott and Hsu (2008), showed comprehensive WCF enhanced performance in revisions; however, it did not lead to better performance in new writings. Ellis et al. (2008) found that learners showed enhanced performance on new writings in both their focused and comprehensive WCF groups, and thus they concluded that both are equally effective. Moreover, in Sheen et al. (2009), focused WCF was found to be more beneficial than comprehensive WCF for improved accuracy in new writings. So it is too early to draw any conclusion with regard to the effectiveness of comprehensive WCF.

The advocates of unfocused WCF (e.g., Van Beuningen et al., 2008) argue that the study results are not conclusive, and that researchers' study focused WCF on targeted features like English articles because it is easy to control and not because it is more effective than comprehensive feedback (Ferris, 2010). Moreover, such a focus on one or two forms may make learners consciously monitor the use of those forms during the experiments only and not in other real writing contexts (Xu, 2009). In addition, providing focused WCF is far removed from actual classroom practice of providing WCF on every error of learners' writing (Ferris, 2010). On the contrary, Bitchener (2008) and Sheen (2007) argue that L2 learners with supposedly limited processing capacity will be overwhelmed in trying to process comprehensive WCF meaningfully. Therefore, the current study as proposed (eg. Storch, 2010) takes a middle ground by addressing two broad error categories of articles and narrative past tense.

The second reason for conflicting findings in WCF research as suggested above is different approaches of WCF studies. L2 writing studies focused on the role of WCF during the revision process, while SLA studies investigated the role of WCF in new writings.

L2 writing studies (e.g., Chandler, 2003) were considered ecologically valid as they were conducted in real classrooms, where the

teacher provided sustained WCF on curriculum-based writing tasks. The L2 writing studies investigated the effects of WCF in the meaningful revision of their writing (Storch, 2010). However, the L2 writing studies were criticized for considering successful revision as evidence of learning. Truscott and Hsu (2008) argued that a mere reduction of errors in revision is not a predictor of learning. Therefore, Bitchener and Ferris (2012) suggest that the only way to know whether successful text revisions attribute to learning is to look for evidence of improved accuracy in the writing of new texts over a period of time.

Hence, more studies (e.g., Bitchener 2008; Ellis et al., 2008; Sheen, 2007) examined long-term effects of WCF in new writing tasks. These recent SLA studies have been investigating if receiving and processing WCF can lead to learning. These tightly controlled experimental investigations measured the effects of WCF by comparing learners' accuracy performance on pretests and (delayed) posttests. Although the SLA studies were rigorously designed, they lacked ecological validity. The SLA studies (e.g., Bitchener & Knoch, 2008; Bitchener et. al., 2005; Sheen, 2007) provided feedback on one type of error and only on one piece of writing. These studies also did not include a meaningful revision to engage the learners with the WCF. However, it is significant to note that providing opportunity for revision enhances the effect of the feedback (Shintani, Ellis, & Suzuki, 2014) and therefore, revision is a vital step for the development of written accuracy (Liu & Brown, 2015). As these studies do not reflect real classroom conditions, they may not be relevant to the language teachers (Storch, 2010).

Therefore, Ferris (2010) proposed a need to make WCF studies both longitudinal and contextualized to accommodate the shortcomings of both fields of WCF study. She proposed a blend of L2 writing design with SLA design by incorporating revision and a new writing task. The current study incorporated Ferris' proposed blended design by applying treatment to each new piece of student writing. Moreover, in this design, the treatment can be repeated as required unlike most studies (e.g., Bitchener & Knoch, 2008, 2009a; Sheen, 2007; Van Beuningen et al., 2008) in the field hitherto, which provided only one occasion of treatment. This possibility of repeating the treatment makes the study longitudinal and the inclusion of revision after every treatment makes it contextualized. This arrangement will also strengthen the ecological validity as it is more authentic to the practice of the frontline teacher

who incorporates revision as a tool to enhance accuracy. Moreover, one-shot treatment and brief student engagement with the feedback devalues relevant theories of SLA (DeKeyser, 2007) which propose extensive exposure and practice as a prerequisite of learning. Figure 1 illustrates a research design compromising the shortcomings of both L2 writing and SLA research.

This study addresses the following two research questions:

I.   How effective are direct and indirect written corrective feedback (WCF) compared to each other, and when compared to the absence of WCF on the grammatical accuracy of targeted features in new writing, over time?

II. Does the provision of written corrective feedback (WCF) affect syntactic complexity of the learners' writing over time?

2. METHODOLOGY

2.1 Research context

The study was conducted in a public middle school in Punakha, Bhutan. It is a boarding school with grades ranging from 7 to 10. All study-related activities (e.g., mini-lessons, treatment interventions, and tests) were carried out in the school's auditorium, a huge building with enough space and relevant teaching and learning amenities.

The participants were grade eight ESL learners. The average age of participants was 15. The first language of the majority of the participants was Dzongkha (73.3%), followed by Sharchop (17.7%) and Lhothsamkha (8.8%). As English is the medium of instruction, all the subjects (e.g., history, geography, science, mathematics etc.), except the national language – Dzongkha, are taught in English from pre-primary to tertiary education. The school has qualified language teachers holding Bachelors of Education (B.Ed) and Post Graduate Diploma in Education (PGDE) with field experience ranging from two to 10 years.

Figure 1

Research Design

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┌─────────────────────────────────────────────────────────────────┐
│   Error Analysis (determine target areas based on learner needs)  │
└─────────────────────────────────────────────────────────────────┘
                               ↓
┌─────────────────────────────────────────────────────────────────┐
│ Explicit Instruction (mini-lessons on grammar rules and genre conventions) │
└─────────────────────────────────────────────────────────────────┘
                               ↓
        ┌──────────────────────────────────────────────────┐
        │          Pretest (produce a written output)       │
        └──────────────────────────────────────────────────┘
         ↓                      ↓                      ↓
  ┌──────────────┐      ┌──────────────┐      ┌──────────────┐
  │  Direct WCF  │      │   Indirect   │      │    No WCF    │
  │    group     │      │  WCF group   │      │    group     │
  └──────────────┘      └──────────────┘      └──────────────┘
         ↓                      ↓                      ↓
┌─────────────────────────────────────────────────────────────────┐
│  Treatment Task 1 (produce a new written output on a new topic)   │
└─────────────────────────────────────────────────────────────────┘
         ↓                      ↓                      ↓
┌───────────────────────────────────────────┐      ┌──────────────┐
│ Teacher provides WCF and learners revise   │      │Self-correction│
└───────────────────────────────────────────┘      └──────────────┘
         ↓                      ↓                      ↓
┌─────────────────────────────────────────────────────────────────┐
│  Treatment Task 2 (produce a new written output on a new topic)   │
└─────────────────────────────────────────────────────────────────┘
         ↓                      ↓                      ↓
┌───────────────────────────────────────────┐      ┌──────────────┐
│ Teacher provides WCF and learners revise   │      │Self-correction│
└───────────────────────────────────────────┘      └──────────────┘
         ↓                      ↓                      ↓
┌─────────────────────────────────────────────────────────────────┐
│  Treatment Task 3 (produce a new written output on a new topic)   │
└─────────────────────────────────────────────────────────────────┘
         ↓                      ↓                      ↓
┌───────────────────────────────────────────┐      ┌──────────────┐
│ Teacher provides WCF and learners revise   │      │Self-correction│
└───────────────────────────────────────────┘      └──────────────┘
         ↓                      ↓                      ↓
        ┌──────────────────────────────────────────────────┐
        │ Posttest (produce a new written output on a new topic) │
        └──────────────────────────────────────────────────┘
         ↓                      ↓                      ↓
┌─────────────────────────────────────────────────────────────────┐
│ Delayed Posttest (produce a new written output on a new topic)    │
└─────────────────────────────────────────────────────────────────┘
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The English language curriculum for grade eight consists of the four modes of discourse. The four modes are reading and literature,

writing listening and speaking, and language and grammar. The curriculum texts include stories, essays, poems and novel selected for each level from the best pieces of literature from different periods of time.

The curriculum framework specifies topics of grammar to be taught at each level in a progressive sequence starting from grade four. The framework encourages teachers to teach grammar using a contextual approach which offers implicit instruction through the study of literature texts, rather than using traditional method of prescriptive structural approach, where grammar is explicitly taught as stand-alone subject with prescribed grammar textbooks. However, it is observed that teachers implement both implicit as well as explicit methods to teach grammar.

The English language assessment consists of formative assessment (FA) and summative assessment (SA). FA with a weighting of 30% includes rubric-based continuous assessment of a reading portfolio, a writing portfolio, and listening and speaking activities. SA with a weighting of 70% is comprised of school-based, written examinations. Within the scope of FA and SA, learners are required to practice writing while teachers guide the learners through various forms of feedback to make them better writers and editors. Under FA learners are required to maintain reports and reviews of the reading they have carried out in their reading portfolio. The learners are also required to maintain a writing portfolio where they collect all the writing drafts with regular teacher feedback. Under SA learners are required to write two examinations: midterm and annual. Further, the examinations consist of one English paper assessing language and writing, and second English paper assessing reading and literature. In English Paper I, learners are required to write an essay worth 40%, a letter worth 20%, a summarization worth 15%, and grammar exercises worth 25%.
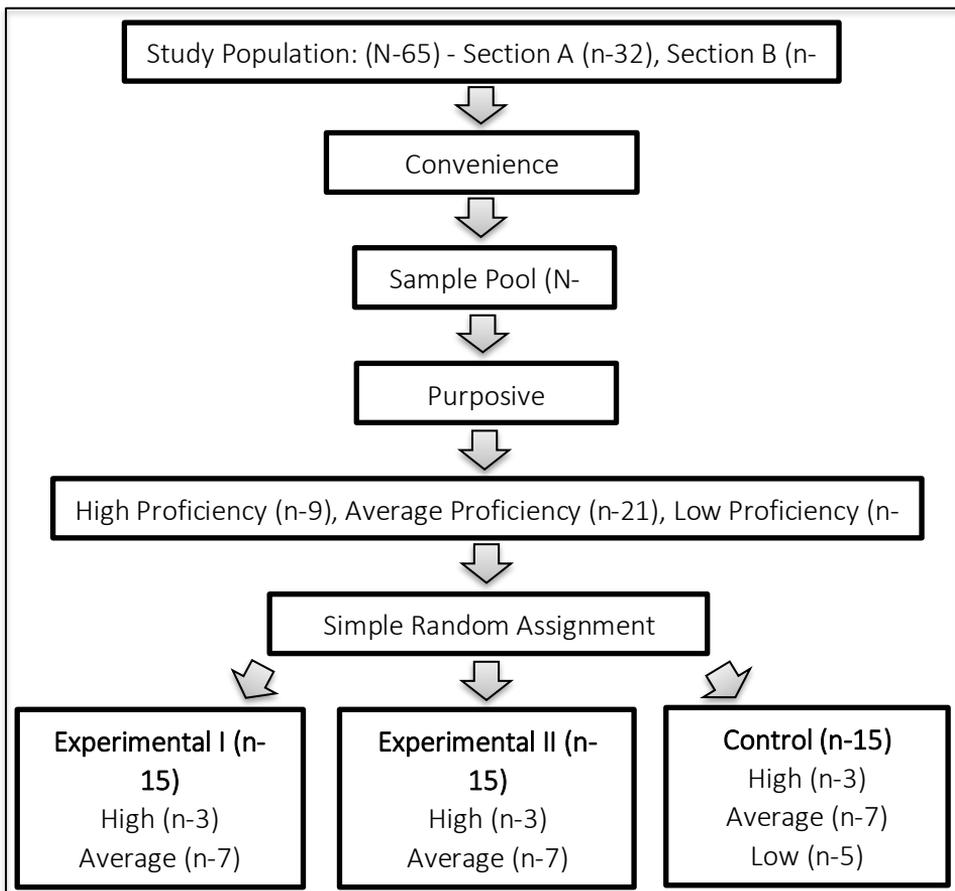
2.2 Sampling

The study population (N=65) consisted of two sections of grade eight learners. A sample pool of 45 learners was drawn from the population using convenience sampling. Purposive sampling was later carried out to segregate the participants into low, average, and high levels of English language proficiency using their first-semester English score percentages.

The learners who earned 35 to 49 were grouped under low proficiency, 50 to 65 under average proficiency, and 66 to 80 under high proficiency.

From each of the three proficiency categories, the participants were assigned randomly to the treatment groups: Experimental Group I which received direct WCF, Experimental Group II which received indirect WCF, and Control Group, which received no WCF. Figure 2 presents the sampling procedure.

Figure 2

Sampling Procedure

2.3 Comparability of groups

The comparability of the three groups was established firstly by the above sampling procedure. It was further ascertained by the baseline performance (pretest) at the onset of the study.

The one-way ANOVA test, $F_{(2,42)}= 0.038$, p=.962, on the participant's pretest with group condition as between-subjects variable demonstrated that there were no significant differences among the three groups in the overall grammatical accuracy. Table 1 presents the descriptive statistics for overall grammatical accuracy on pretest by conditions indicating the groups were similar and comparable.

Table 1

Descriptive Statistics for Overall Grammatical Accuracy on Pretest by Conditions

Conditions	N	Mean	Std. Deviation
Direct WCF	15	56.45	16.40
Indirect WCF	15	54.37	21.65
No WCF	15	55.67	23.59
Total	45	55.50	20.31

2.4 Treatment Instruments

2.4.1 Treatment for Experimental Group I: Direct WCF

The participants in this group received direct WCF on their text. The researcher identified all errors in the two target areas: past tense and articles, and provided the corresponding correct L2 form. Direct WCF is operationally defined as circling or striking off of an unnecessary and erroneous form or structure, followed by provision of correct target form and insertion of grammatical forms that had been omitted. This study used option A and B from Figure 3 showing direct WCF procedures.

2.4.2 Treatment for Experimental Group II: Indirect WCF

The participants in this group received indirect WCF on their text. Indirect (coded) WCF is operationally defined as identification of the grammatical errors by indicating it with either circling or underlining or giving an insert mark (^) for a missing word, followed by provision of an error code. The two error codes 'Art' for article errors and 'Pt' for past tense errors were

Figure 3

Direct WCF Procedures

> **Direct WCF procedures**
>
> A. My mother is *an* a honest women.   [Article error- crossing out and Direct WCF]
>
> B. I didn't go to *the* market yesterday.   [Article error- insertion and Direct WCF]
>
> C. My mother is a honest women. ①   [Article error- Crossing out, numbering and Direct meta-linguistic WCF]
>
> ① Use 'an' before a word beginning with a vowel sound - an honest...

used. This study used option D from figure 4 showing indirect WCF procedures.

Figure 4

Indirect WCF Procedures

> **Indirect WCF procedures**
>
> A. My mother is a honest women.   [Article error- Indirect WCF/circling]
>
> B. I didn't went to the market yesterday.   [Past tense error- Indirect WCF/underlining]
>
> C. I didn't went to the market yesterday.   [Past tense error- Indirect WCF/highlighting]
>
> D. My mother is *Art* a honest women.   [Article error- Indirect WCF/error code]
>
> E. I don't went to market yesterday. — 2 (errors)   [Past tense and article error- Indirect WCF/error count]

2.4.3 Treatment for Control Group: No WCF – writing practice and self-correction

The participants in this group did not receive WCF on their writing but they self-corrected and rewrote their work in the given time. The

participants wrote practice essays for three times and self-revised each of them.

2.5 Data collection instruments

2.5.1 Writing Tasks

Narrative essay writing was used to elicit a learner language sample. Narrative essay writing is operationally defined for this study as a five-paragraph narrative of incidents, events, and characters that revolve around a single central idea, wherein a writer expresses anecdotal, experiential, and personal experiences in a creative way. Three paper-pen based writing tasks were used in this study, each for pretest, posttest and delayed posttest. The word count and time limit for the narrative essay were piloted and set at 250 to 300 words in about 50 minutes. Narrative writing was chosen as it is a prescribed genre with 40% weighting for grade eight learners. It may therefore motivate the participants to engage meaningfully with the WCF, as they may see it as a practice that will help them perform well in the exam later. Providing learners with real motives and goals behind the task they are doing will facilitate meaningful engagement of the learners with the feedback, which many of the experimental and quasi-experimental studies ignored (Storch and Wigglesworth, 2010; Storch, 2018). All groups wrote the same number of essays to keep time on task constant. The narrative writing task was used for all tests to ensure the validity of the measurement task. The topics were as follows:

Pretest writing task: My most memorable summer vacation
Posttest writing task: How I spent my day during the school picnic
Delayed-Posttest writing task: My first day at a boarding school

2.5.2 Observation

As a participant observer the researcher also observed, listened, and manually maintained open-ended field notes. Those field notes were comprised of the researcher's impressions and questions, besides the description of his observation of the setting, interaction, actions, and events that transpired during the execution of writing and revision sessions. The inclusion of field notes was an attempt to incorporate a different point of view to this purely experimental study. Data from the

field notes are triangulated with data from tests in the interpretation and discussion of the results.

2.6 Experimental procedure

The experimental procedure was comprised of tests, treatments and revision sessions as follows: a pretest (S1), three treatment/control sessions (S2, S4, S6) interspersed by three revision sessions (S3, S5, S7), a posttest (S8) and a delayed posttest (S9). Figure 5 shows the modus operandi of the experiment. Each stage of the research is explained below session-wise.

Figure 5

Modus Operandi of the Experiment

Preliminaries	(1-2 weeks of time)	Error Analysis, Pilot Test to streamline time, Orientation of the population to the study, Sampling to treatment/control conditions, Mini Lessons / reorientation on the grammatical / genre features (elicitation instrument) Rater Conference (error analysis), Rater Conference (coding)
Pretest	Week 1	Pretest (writing task)
Treatment	Week 2	Treatment Task 1
	Week 3	Revision
	Week 4	Treatment Task 2
	Week 5	Revision
	Week 6	Treatment Task 3
	Week 7	Revision
Posttest	Week 8	Posttest (writing task)
Delayed Posttest	Week 9	Delayed Posttest (writing task)

2.6.1 Preliminaries

All the preliminaries were executed one week prior to the experiment: seeking consent from the administration, parents, and learners, sampling, error analysis, orientation and briefing on the procedure and purpose of the experiment.

Error Analysis of the participants' 18 purposively sampled (nine essays comprising three each for high, average and low performing learners each section) mid-term exam narrative essays was conducted to determine the two most recurrent error categories. The highest number of errors were committed in the area of past tense (31%), closely followed by article (28%) usages. These two error categories were accordingly chosen for the study. The inter-rater reliability for error coding with Interclass Correlation Coefficients (ICC) estimate of 0.855 with 95% confidence indicated good reliability between the two raters.

The researcher reoriented all the participants on the targeted grammatical rules and the conventions of the narrative writing. The grammatical rules agreed upon by the researcher and the other rater was used as criteria to assess the grammatical accuracy of the learners' written essay. Each re-orientation session was a mini-lesson of one hour covering the rules in brief with the study of examples as well. The mini-lessons before the pretest helped in maintaining a constant and equal task representation across the three tests and the three groups.

2.6.2 Session 1: Pretest writing task (Week1)

All the participants were administered the pretest writing task. The output from this task was used as a baseline measure for the learners' grammatical accuracy in the two target areas and for syntactic complexity.

2.6.3 Session 2, 3, 4, 5, 6, and 7: Treatment / control (Week 2, 3, 4, 5, 6, and 7)

During session 2, 4, and 6 participants across all three groups wrote three different essays (experimental/Control task 1, 2 and 3) on three different topics. The essays that were written by the experimental group I and II were provided with respective WCF by the researcher while the control group received their work without WCF. The experimental groups revised their writing after the provision of WCF. They were asked to copy the initial text revising all grammatical errors marked by the researcher. The revisions happened in week 3 for task 1, week 5 for task 2, and week 7

for task 3. The control group self-corrected their work during revision sessions. The topics for the essays were:

1. The last time I cried
2. Write about a time when you got into a dispute with a friend. How did the situation get resolved?
3. Write about a time when you felt on top of the world.

2.6.4 Session 8: Posttest writing task (Week 8)

The posttest was administered one week after the treatment/control sessions. The participants across all three groups wrote the posttest on a new topic. Participants did not revise this text.

2.6.5 Session 9: Delayed Posttest writing task (2 months after week 8)

The delayed posttest was administered to all the three groups two months after the posttest. The participants across all three groups wrote the test on a new topic. Participants did not revise this text.

2.7 Linguistic measures for grammatical accuracy and syntactic complexity

The participants' essays from pretest, posttest, and delayed posttest were measured for grammatical accuracy in two error categories. The overall grammatical accuracy was calculated as an average of grammatical accuracy scores of verb tense and articles. The grammatical accuracy was measured as the percentage of correct usage of each target linguistic form (i.e., [number of correct usages/number of obligatory occasions] x 100). For example, three correct uses of linguistic form past tense from ten obligatory occasions will give an accuracy performance score of 30% (Bitchener et. al., 2005).

The texts across all three conditions were also analyzed for syntactic complexity at pretest, posttest, and delayed posttest. To measure syntactic complexity, a subordination index was used: the number of subordinate clauses as a percentage of the total number of clauses (i.e., [number of subordinate clauses/total number of clauses] x 100) (Van Beuningen et.al., 2012). To calculate syntactic complexity, all the main clauses and the subordinate clauses were coded to get the total number of clauses in a piece of writing. If a learner's writing has a higher

number of the subordinate clause, it shows that the learner can produce complex language construction and otherwise.

2.8 Inter-rater and Intra-rater reliability

All the student essays (pretest, posttest, and delayed posttest) were coded by the researcher. The texts were coded for grammatical accuracy and for clause types (i.e., main clause or subordinate clause). A co-rater also coded 46% of the texts to establish inter-rater reliability.

The coding procedure was entirely blind. The raters were not aware of the participants' name and the study group/condition. Separate xerox copies of essays were provided for coding to ensure the independence of the two raters. Moreover, coding schemes and the rules governing the error categories were listed and discussed in advance. The coding index for syntactic complexity was developed with clear definitions of the main clause and the subordinate clause.

The researcher also coded 20% of the data once again after two months to measure intra-rater reliability. The essays were coded for reliability based on a stratified random sample that was drawn proportionately from three groups with proportionate representation from high, average, and low level of English language proficiency across three testing periods.

Inter-rater and intra-rater reliability analysis were calculated using interclass correlation coefficients (ICC) for both overall grammatical accuracy and syntactic complexity. Reliability results are presented in Table 2.

Table 2

Average Levels of Inter-rater and Intra-rater Agreement

	Interclass correlation	95% Confidence Interval		Interclass correlation	95% Confidence Interval	
	Grammatical Accuracy	Lower Bound	Upper Bound	Syntactic Complexity	Lower Bound	Upper Bound
Inter-rater	0.964	0.942	0.978	0.894	0.830	0.934
Intra-rater	0.953	0.899	0.978	0.88	0.755	0.944

Based on the 95% confidence interval of the ICC, values less than 0.50 are indicative of poor reliability, values between 0.50 and 0.75 indicate moderate reliability, values between 0.75 and 0.90 indicate good reliability and values greater than 0.90 indicate excellent reliability.

As shown in Table 2, high levels of agreement within the same raters as well as between raters were found for both the measures of grammatical accuracy as well as syntactic complexity.

3. RESULTS

RQI - The descriptive statistics for grammatical accuracy scores of each group at each of the three test occasions are presented in Table 3 and are graphically illustrated in Figure 6.

Table 3

Descriptive Statistics on Grammatical Accuracy by Group and Time

Time		Pretest		Posttest		Delayed Posttest	
Group	N	M	SD	M	SD	M	SD
1. Direct WCF	15	56.45	16.41	60.98	13.14	59.00	16.40
2. Indirect WCF	15	54.37	21.65	75.26	12.83	69.22	19.93
3. No WCF	15	55.67	23.59	56.64	20.42	52.90	23.37

Figure 6

Effects of Direct and Indirect WCF on Grammatical Accuracy by Group and Time
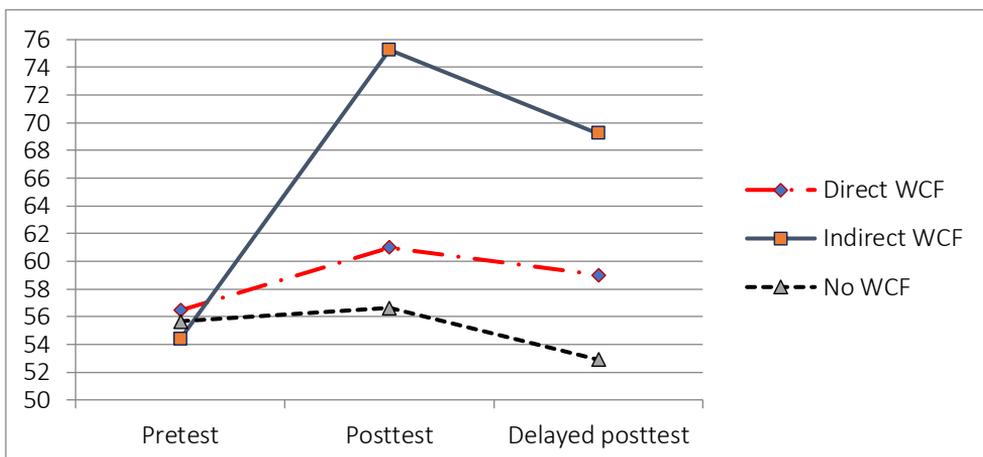
Both Table 3 and Figure 6 illustrate that the mean grammatical accuracy at the pretest were similar between the three groups. However, at the posttest the indirect WCF group (M = 75.26, SD = 12.83) outperformed the direct WCF group (M = 60.98, SD = 13.14) and the no WCF group (M = 56.64, SD = 20.42). Similarly, at the delayed posttest the indirect WCF group (M = 69.22, SD = 19.93) outperformed the direct WCF group (M = 59.00, SD = 16.40) and the no WCF group (M = 52.90, SD = 23.37), although the between-group differences were not large.

The two-way ANOVA was performed to test for significant difference between the three levels of independent variables (i.e., direct, indirect, and no WCF), as well as in the levels of with-in-subject factors (i.e. pretest, posttest, and delayed posttest). It also determined the interaction effect between the independent variables and the with-in-subject factors. Table 4 shows two-way repeated-measures ANOVA for between-subject and within-subject effects for grammatical accuracy.

Table 4

Two-way Repeated-measures ANOVA for Grammatical Accuracy

		df	f	p
Between-subjects	WCF type (treatment)	2	1.641	.206
Within-subjects	Time	2	9.055	.000
	Time * Treatment	4	5.150	.001

As can be seen in Table 4, there was a significant interaction ($F_{[2, 4]}$ =5.150; p = .001) between time and WCF types. There was no significant difference ($F_{[2, 2]}$ =1.641; p = .206) between the three WCF type groups; however it shows that there was a significant difference ($F_{[2, 2]}$ =9.055; p = .000) over the three testing times in terms of grammatical accuracy.

One-way ANOVA was conducted to isolate the exact points in time where differences between groups occurred. One-way ANOVA for between-group differences at three points of time indicated that the differences between the three groups were statistically significant (with an alpha level of .05) at the time of posttest ($F_{[2, 42]}$ =5.663; p = .007) but not statistically significant at the time of delayed posttest ($F_{[2, 42]}$

=2.523; p = .092), although there was a considerable difference between the means of indirect WCF and direct WCF.

As there was a statistical between-group difference at the posttest, Tukey's post hoc test (with an alpha level of .05) was conducted to pinpoint differences between the groups. Table 5 shows Tukey's post hoc pair-wise comparison for grammatical accuracy.

Table 5

Tukey's Post hoc Multiple Comparisons for Grammatical Accuracy

Time	Between-group comparisons		Sig.	
Pretest	Direct WCF	Indirect WCF	0.959	
	Direct WCF	No WCF	0.994	
	Indirect WCF	No WCF	0.984	
Posttest	Direct WCF	Indirect WCF	0.046	*
	Direct WCF	No WCF	0.736	
	Indirect WCF	No WCF	0.007	*
Delayed Posttest	Direct WCF	Indirect WCF	0.354	
	Direct WCF	No WCF	0.686	
	Indirect WCF	No WCF	0.079	
* The mean difference is significant at 0.05 level				

Table 5 shows the indirect WCF group (M = 75.26, SD = 12.83) outperformed the direct WCF group (M = 60.98, SD = 13.14) as well as the control group (M = 56.64, SD = 20.42) with a significant difference (at $p < .05$) on mean accuracy scores in the posttest. However, for the delayed posttest the indirect WCF group could not retain this gain in grammatical accuracy and therefore did not differ significantly from the direct WCF and the control group.

RQII - The descriptive statistics for syntactic complexity scores of each group at each of the three test occasions are presented in Table 6 and are graphically illustrated in Figure 7.
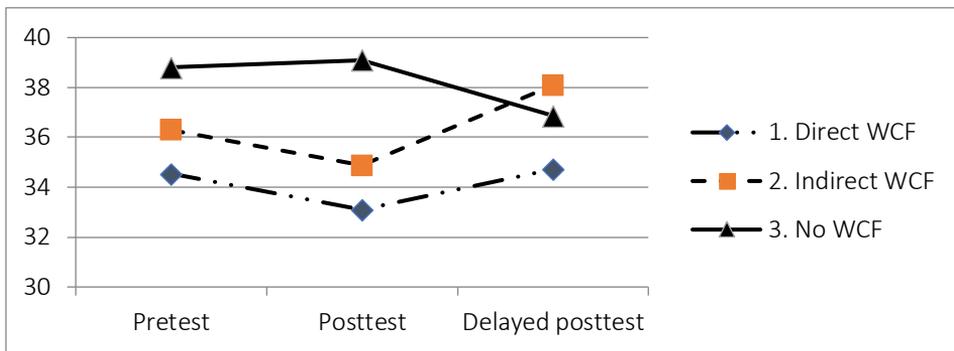
Table 6

Descriptive Statistics on Syntactic Complexity by Group and Time

Time		Pretest		Posttest		Delayed Posttest	
Group	N	M	SD	M	SD	M	SD
1. Direct WCF	15	34.53	7.03	33.10	6.10	34.72	7.82
2. Indirect WCF	15	36.30	9.45	34.88	8.89	38.08	9.69
3. No WCF	15	38.79	7.27	39.09	7.53	36.87	7.58

Figure 7

Effect of WCF on Syntactic Complexity by Group and Time

Both Table 6 and Figure 6 illustrate that the mean syntactic complexity scores at pretest, posttest, and delayed posttest were similar between the three groups. The between-group differences in the mean syntactic complexity at three different points of time were only marginal and not statistically significant.

A two-way repeated measure ANOVA was conducted to compare the main effects of the WCF types and the interaction effect between time and WCF types on the syntactic complexity. There was no significant interaction between time and WCF types ($F_{[2, 4]}$ =.574, p = .682). There was no significant difference in the mean syntactic complexity scores between the three groups ($F_{[2, 2]}$ = 2.253, p = .118), nor across three testing times ($F_{[2, 2]}$ = .208, p = .813).

4. DISCUSSION

The first research question investigated the effects of direct and indirect WCF on grammatical accuracy of past tense and article usage. It found indirect WCF group significantly outperformed the direct WCF and the control group in the posttest. In the delayed posttest taken two months after the posttest, although the indirect WCF group outperformed both the direct WCF and no WCF group, the difference was not significant.

The significantly high mean grammatical accuracy scores of the indirect WCF group at the posttest possibly can be attributed to the nature of indirect WCF which facilitates a unique form of learner engagement with WCF during revision. The provision of codes which reveals the category of error is relatively explicit when compared to other types of indirect WCF such as underlining and circling. The direct WCF, on the other hand, is extremely explicit as it provides the correct form to the learner. Coded WCF seems to mitigate the demerits of indirect feedback. The learners are guided by the codes to a specific error category unlike underlining or circling. Moreover, the coded indirect WCF has the potential to focus the learner's attention on a particular error type and correct it after careful consideration. Indirect WCF was productive presumably as it made the learners think about the error and invest effort to comprehend it (Uscinski, 2017). It means a WCF strategy is more effective if it garners more learner attention to a particular error. However, if corrections are provided the learners may not consider the errors with deeper attention.

From the observation notes it was found that the direct WCF group easily and quickly finished their revisions as they were provided with correct forms. On the contrary, the indirect WCF group took time as they had to consider the errors carefully and figure out the correct forms possibly requiring them to activate their declarative knowledge. Similarly, Storch and Wigglesworth (2010) also found that learners are extensively engaged while processing indirect WCF. This is understandable since an engagement with the indirect WCF included identifying the nature of the error and executing an appropriate correction. In contrast, while processing direct feedback, learners limit themselves to agreeing and accepting the correction already done. Furthermore, it was observed that the learners in the indirect WCF group as allowed referred to the grammar notes provided after the mini-lessons, whereas the learners in the direct WCF group did not.

The indirect WCF urges learners to understand why something is incorrect. The error codes reveal an error category and encourage understanding to make a correction. This can result in 'substantive noticing' (Qi & Lapkin, 2001) where learners understand why something is wrong. Conversely, it can be hypothesized that direct WCF is less likely to cause substantive noticing as there is no need for understanding to revise. A WCF which fosters substantive noticing will be more effective in improving grammatical accuracy in learners' writing (Qi & Lapkin, 2001).

However, the result of the present study does not corroborate some of the past studies (e.g. Bitchener & Knoch (2010b); Van Beuningen et al., 2008; 2012). In these studies, direct WCF group performed significantly better on mean grammatical accuracy over indirect WCF group.

This incongruity can be attributed to two factors: the classification of WCF types, and lack of theoretical (SLA) grounding. First, Bitchener and Knoch's (2010b) study used only circling and underlining as an indirect WCF, which is different from coding which informs the nature of the error. Second, many WCF studies (e.g. Bitchener, 2008; Bitchener et al., 2005; Bitchener & Knoch, 2010b; Van Beuningen et al., 2008, 2012), according to Polio (2012), lack theoretical grounding as they are more pedagogically driven. Unlike the present study which administered three occasions of treatment, these studies provided only one-shot treatment defying important SLA theories.

SLA theories (e.g. skill acquisition and information processing) provide a central place for intentional 'practice' and 'repeated activation' in the second language learning process (DeKeyser, 2007; McLaughlin, 1987). One-shot treatment studies undervalue and disregard the SLA theories and alienate studies away for the authentic classroom practice of the frontline teachers. L2 teachers do not provide feedback only on one occasion instead it is a recurrent intervention. Thus evaluating the relative value of direct and indirect WCF, based on one-shot treatment studies cannot be conclusive. Reflecting similar insight, Van Beuningen et al. (2012) expressed the possibility that the effects of indirect coded WCF would have been greater in their study if they had applied a longitudinal design with more than one WCF occasion. The current study with three occasions of WCF confirms their assumption.

In conclusion, it is significant to understand the L2 teaching and learning context in Bhutan to meaningfully apply the insights proposed by the vast WCF literature. Some SLA studies (e.g., Bitchener & Knoch, 2008; Sheen, 2007) recommend the provision of direct WCF in conjunction with oral or written metalinguistic explanations. Similarly, Van Beuningen et al. (2012) proposes the provision of direct comprehensive WCF. However, these strategies do not appear feasible in Bhutanese context where class sizes are typically large and language teachers are required to teach a large number of classes. The teachers may not have the time as well as patience to provide that much feedback in such detail. Moreover, the recommendations these studies made were based on strictly experimental laboratory studies far alienated from the practical classroom realities. For instance, some studies (e.g., Bitchener & Knoch, 2008; Bitchener et. al., 2005; Sheen, 2007) did not involve revision, which is very important post feedback stage required to draw learner's attention to the feedback. In addition, some of these studies (e.g., Bitchener & Knoch, 2008; Van Beuningen et al., 2008, 2012) involved only one-shot treatment (provision of feedback at only one occasion) to decide the optimal efficacy of direct and indirect feedback. It does not take into account the benefits of repeated practice proposed by SLA theories. Therefore, the current study incorporating revision process from L2 writing research within the pure experimental fold of SLA research suggests indirect WCF as relatively more effective than direct WCF in the Bhutanese context.

RQ2 - The second research question investigated the effect of WCF use on the student's written syntactic complexity. This question was posed because the WCF opponents (e.g., Truscott, 1996) argued that the use of WCF may lead to simplified writing as learners may attempt to avoid situations in which they expect to make errors. The avoidance of complex structures resulting in simplified writing, therefore, will also reduce the number of errors. Thus Truscott (2004) proposed that the accuracy gains found in earlier WCF studies (e.g. Chandler, 2003) can be attributed to such avoidance strategy of simplified writing instead of to the provision of WCF.

All three groups displayed similar measures of mean syntactic complexity scores measured at three testing points. The differences were not statistically significant at any interaction point. This proves that the administration of WCF on learners writing does not affect syntactic

complexity in a learner's writing. This finding corroborated with the study by Chandler (2003) and Van Beuningen et al. (2012), both of which reported that WCF did not lead to simplified writing in either of the posttests.

The present study assumes two possible interpretations of this finding. First, the focus of WCF in this study was on rule-based discrete items (e.g., past tense and articles) and not on any complex syntactic structures. The research base shows that WCF is effective in helping the L2 writers improve grammatical accuracy in some particular rule-based discrete items, without affecting syntactic complexity. Second, the study did not include any form of grading of the learners' essays. No marks or grades were provided for the learners based on their performance or the number of errors they committed. It is assumed that if the learners had been graded based on their errors, they may have attempted to avoid that particular writing context where an error was made, in order to prop up their score. Therefore, grading based on errors may affect syntactic complexity to some degree.

5. CONCLUSION

The study found out indirect WCF superior to direct WCF in improving the grammatical accuracy in Bhutanese ESL school context. It also confirmed the use of WCF does not negatively affect syntactic complexity.

This study in particular also attempted to ground itself in SLA theories of skill acquisition and information processing. Both of these theories suggest that a certain level of declarative knowledge is a prerequisite for learners to master a skill through practice. Pedagogically, this suggests that some form of pre-teaching, such as mini-lessons on grammar and narrative writing conventions in this study before the actual practice by the learners, will help develop knowledge of accurate writing conventions to language learners. Incorporation of multiple treatments in this study also provides a pedagogical insight gleaned from the two theories that the extensive and conscious practice is essential for achieving mastery of language use. Language learning therefore is a process of continuous practice which enables repeated activation and processing.

The study found that indirect WCF is best for treatable errors like articles and past tense. Moreover, error codes were used on the areas of grammar that learners have already studied and the administration of WCF presumably further consolidated the grammar norms producing accurate writing. However, the effectiveness of indirect WCF cannot be generalized to other kinds of linguistic errors. Provision of unfocussed WCF also is not practical in Bhutanese ESL classroom owing to large class sizes and teacher workload. Therefore, this study used focused WCF targeting two broad error categories, to avoid overwhelming both the teachers and the learners. The study also advocates the importance of revision after WCF to foster learner uptake.

This study does not advocate indirect WCF to be the best form of feedback because many contextual factors will have to be considered to make a type of feedback relevant and meaningful for a specific group of learners. However, the study confirms that extensive and deliberate practice with indirect feedback can significantly improve accuracy in the treatable error categories of verb tense and articles.

Although a segment of ideas and insights gleaned from the theories, previous studies and personal experiences aided in setting up a strictly controlled and rigorously planned study, there were limitations. First, the study was not carried out in the actual context of a writing class. The strict exam-like set up of the writing and revision sessions may have induced greater levels of anxiety than that exist in a typical writing class. The potentially increased anxiety from this environmental factor may have impacted some learners' in the affective dimension. Second, the delayed posttest was scheduled close to the final exam due to time constraint and thus, it is assumed that the delayed posttest writing task garnered a low level of focus and commitment from the participants. Third, the sample size of the study was small (n-45). In an experimental study with quantitative data, large numbers of participants are desirable as inferential statistics work better and the results are trustworthy with larger numbers. Fourth, as the study followed pure experimental design, it could not incorporate any other alternate sources of data besides field notes, for data triangulation. Future studies can attempt data triangulation by using a questionnaire to draw learners' perceptions about their preferences of different types of WCF. These limitations should be considered with caution when attempting to extrapolate from the results of this study.

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