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Incongruence Between Learning Style and Written Corrective Feedback Type: Mediating Effect of Implicit Theory of Learning Style

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Abstract

Implicit theory (Dweck, 2000) suggests that learners' theories about the malleability of their individual traits (learning style, here) determine the extent to which they can stretch their learning style (Gregersen & MacIntyre, 2014; Young, 2010) and benefit from the instruction that mismatches their preferred styles. The present study aimed at investigating the extent to which Iranian EFL learners with inductive vs. deductive learning styles would benefit from the written corrective feedback (WCF) that does not match their learning styles (i.e., implicit vs. explicit WCF). The study also examined if their success (or lack of) in style stretching and improving their written accuracy is due to the implicit theory (entity vs. incremental) they hold about their learning style. The result showed that students with an incremental theory significantly improved their written accuracy more than those with an entity theory. Also, the findings revealed that inductive learners were more successful in adapting to the mismatched WCF (explicit) and made more improvement in their written accuracy than deductive students who received implicit WCF.

Résumé

La théorie implicite d'un apprenant (Dweck, 2000) sur la malléabilité de ses traits individuels (styles d'apprentissage, ici) détermine dans quelle mesure il peut étirer son style d'apprentissage (Gregersen et MacIntyre, 2014; Young, 2010) et profiter de l'instruction qui ne correspond pas à leurs styles préférés. Cette étude vise à déterminer dans quelle mesure les apprenants iraniens de l'anglais langue étrangère ayant des styles d'apprentissage inductifs ou déductifs bénéficient de la rétroaction corrective écrite qui ne correspond pas à leurs styles d'apprentissage (c.-à-d. implicite ou explicite). Cette étude examine également si leur succès (ou leur manque) dans l'étirement de style et l'amélioration de leur précision écrite est dû aux théories implicites (entité vs incrémentales) qu'ils détiennent sur leur style d'apprentissage. Les résultats ont montré que les étudiants avec une théorie incrémentale ont considérablement amélioré leur précision écrite beaucoup plus que ceux qui ont eu une théorie d'entité. De plus, les résultats ont révélé que les apprenants inductifs ont réussi mieux à s'adapter à la rétroaction corrective explicite (qui ne correspond pas à leur style d'apprentissage) et ont amélioré davantage leur précision écrite que les élèves déductifs qui ont reçu la rétroaction corrective implicite.

Incongruence Between Learning Style and Written Corrective Feedback Type: Mediating Effect of Implicit Theory of Learning Style

Despite a large number of studies on WCF, to date, its potential for second language (L2) development is still a controversial issue (e.g., Fazio, 2001; Kepner, 1991; Polio, et al., 1998; Truscott, 1996, 1999, 2004, 2007, among others). Also, the same controversy exists in the right degree of feedback explicitness; the amount that provides students with enough information to form a new hypothesis, and does not pose an unnecessary burden on teachers' shoulders. There are studies that report the higher efficacy of more explicit types of corrective feedback (Chandler, 2003; Ellis, et al., 2006; Suzuki, et al., 2019; Van Beuningen, De Jong & Kuiken, 2008, 2012); some other studies, on the other hand, claim the same for implicit types (Ferris & Hedgcock, 2005; Lalande, 1982), and even few others declare no difference (Bitchener & Knoch, 2008, 2009, 2010; Frantzen, 1995; Robb, Ross & Shortreed, 1986).

To address these issues, recently, some scholars have resorted to individual differences (ID) to explain the contradicting results (Guénette, 2007; Kormos, 2012; Rahimi, 2015; Sheen, 2007; Shintani & Ellis, 2015; Stefanou & Revesz, 2015) arguing that feedback efficacy is highly associated with learners' individual differences, including motivation and attitude, depth of processing, L2 proficiency, and learning styles. One of these factors that seem to directly contribute to learners' benefiting from teacher feedback or language learning, for that matter, is learning style. However, it is only recently that scholars have started to show interest in the relationship between students' learning styles and how well they benefit from WCF (see Rahimi, 2015; Samie, 2021), recommending that teachers should take their students' learning style into account in deciding what feedback type to use when addressing their written errors.

More recently, however, this solution has been argued as not being ecologically valid due to the difficulty of teachers adapting their instruction to students' different styles in natural classroom settings as well as the malleable nature of learning styles and their capacity to be stretched (Zhang, 2013); hence, students can adapt their learning styles and go beyond their comfort zone even if the instruction they receive does not match their styles (Gregersen & MacIntyre, 2014; Young, 2010).

Nonetheless, the proposition of style stretching considers the students to be equally willing to face the challenge of stretching their learning style while the research in the field of psychology shows that it is not as straightforward as this. As Hong et al.(1995) point out, learners are not equally able to stretch their individual styles because they have their own theories about human traits. In other words, students' theories (entity or incremental) about specific traits (say, intelligence, learning style, etc.) determine whether or not and to what extent these traits are fixed or malleable. For instance, students with an entity theory believe that a trait is fixed and uncontrollable while those with an incremental theory consider a trait malleable, increasable, and controllable (Dweck & Leggett, 1988). Hong et al. (1995) call these theories, which learners may not always articulate, implicit theories.

No study, however, has ever focused on the extent to which L2 writers can stretch their learning style in response to the feedback that is against it; there is also no study examining the extent to which their implicit theories of learning style can contribute to style stretching (if any). The only existing studies in the area of L2 writing (Waller, 2015; Waller and Papi, 2017) have focused on the implicit theory of intelligence and have found that it is a strong predictor of student motivation, and students' motivation, in turn, is strongly associated with their feedback-

seeking orientation. No study, however, has investigated the extent to which implicit theory of learning style can mediate L2 writers' uptake of WCF and whether or not and to what extent they can respond to the WCF that mismatches their learning style. Hence, the present study probes the extent to which the students with deductive vs inductive learning styles benefit from WCF that is against their learning style (i.e., implicit vs. explicit WCF) and if and to what extent their implicit theory of learning style mediates their style stretching behavior.

Literature Review

WCF

WCF has been considered an indispensable aspect of writing pedagogy due to its promising and consolidating role in the development of L2 writing skills (Hyland & Hyland, 2006). It is particularly very important in the process approach to writing that entails multiple drafting and revision of each draft.

Research on WCF started with the studies that investigated its efficacy in general (e.g., Fazio, 2001; Ferris, 1999; Sheppard, 1992; Truscott, 1996). Later, studies on WCF aimed at identifying the most effective strategies for providing WCF that sparked off a dichotomy of various approaches to WCF- namely, direct vs. indirect and focused vs. comprehensive.

Regarding the efficacy of either direct or indirect WCF, some studies provided support direct WCF in particular contexts (Bitchener & Knoch, 2010; Van Beuningen, et al., 2012), whereas others found that indirect WCF is more beneficial as it engages L2 learners in problem-solving and guided-learning (Ferris, 2006; Reid, 1998). In addition, other studies found no significant differences between direct and indirect WCF (Bitchener & Knoch, 2009; Ferris & Roberts, 2001; Robb, et al., 1986). A similar discrepancy exists with regard to the efficacy of focused vs. comprehensive WCF. While some studies provided support for the efficacy of focused WCF over comprehensive WCF in treating the targeted linguistic features (Bitchener, 2008; Ellis, et al., 2008; Ferris, 2006; Rahimi, 2021; Sheen, 2007; Sheen, et al., 2009), others favored comprehensive WCF (Ferris, 2010; Storch, 2010; Van Beuningen et al., 2012). As mentioned earlier, researchers have attributed the conflicting results to neglecting the students' individual differences (Ellis, 2010, Ferris, 2010, Guénette, 2007).

The Contribution of Individual Differences to Feedback Efficacy

Ellis's (2010) componential framework for investigating WCF highlights the contribution of contextual as well as individual difference factors to WCF efficacy. Based on this framework, learning outcomes are the product of the interplay between contextual and individual factors as well as teacher WCF. Several studies have examined the role of contextual and individual factors in feedback efficacy, many of which have focused on the role of affective factors (Cumming, 1995; Ferris, 1995; Ferris & Roberts, 2001; Gram, 2005; Goldstein, 2006; Hedgcock & Lefkowitz, 1994; Hyland, 1998; Hyland, 2011; Lee, 2004; Leki, 1991; Storch & Wigglesworth, 2010; Swain, 2006; Swain & Lapkin, 2003; Zacharias, 2007).

There are a few studies that have focused on the contribution of cognitive processes to WCF efficacy (Adrada-Rafael & Filgueras-Gomez, 2019; Kim & Bowles, 2019; Qui & Lapkin, 2001; Sachs & Polio, 2007; Stefanou & Reves, 2015). For instance, Kim and Bowles (2019) examined the cognitive processes employed in different types of feedback and investigated

whether there is a relationship between the type of feedback, error type, and depth of processing. The findings showed that the students processed global errors more deeply than local ones in response to reformulation while the depth of the process was the opposite while they were engaged with direct feedback. Also, Sheen (2007) and Stefanou and Reves (2015) showed the contribution of learners' analytic ability to their uptake of WCF. As mentioned earlier, recently, there has been an increasing interest in studying the role of learning style in the uptake of WCF.

Learning Styles

Learning styles, according to Dornyei and Ryan (2015) is a confusing construct and literature suggests various definitions and classifications for this construct (see, for example, Peterson, et al., 2014; Coffield, et al., 2004). Despite these controversies, Dornyei and Ryan (2015) argue that "the current state of confusion is merely due to our insufficient knowledge rather than the scientific inadequacy of the concept" (Dornyei & Ryan, 2015, p.107). In fact, they believe that, at an intuitive level, there is general consensus on the definition of learning styles construct; that is, "different learners can approach the same learning task in quite different ways and…this variation is not indefinite but is characterized by systematic patterns." (p. 108). They call these systematic patterns learning styles. The difference mainly lies in the labels and style dimensions.

In the present study, we have adopted the cognitive styles construct offered by Riding (2002). Dornyei and Ryan (2015) find Riding's system of cognitive styles a "powerful and parsimonious system of cognitive styles that …remedied the shortcomings of past styles research while maintaining the attractive features of the concept." (p. 115). Riding's construct of cognitive styles has two dimensions: wholist-analytic and verbal imagery. Wholist-analytic dimension determines if the individual sees the concepts as a whole or in parts while the verbal-imagery dimension identifies if the individual tests to think in terms of pictures or words.

With regard to learning style classification, since, in the present study, we focus on language learning styles, we have adopted The Ehrman and Leaver classification of learning styles (Ehrman & Leaver, 2003), which is in line with Ridings' construct because, "similar to Riding's theory in that it reorganizes several established style dimensions under a new, comprehensive, and parsimonious superordinate construct." (Dornyei & Ryan, 2015, p. 130). Based on this classification, learning styles can be categorized into 10 sub-dimensions, namely, field dependent-independent, random-sequential, global-particular, inductive-deductive, synthetic-analytic, analog-digital, concrete-abstract, leveling-sharpening, impulsive-reflective.

To the best of our knowledge, only one study has examined if and to what extent learning styles contribute to feedback uptake. Rahimi (2015), using Group Embedded Figure Test for learning style, showed how students with field independence retain teachers' WCF more than those with a dependent style.

Among learning style constructs, the deductive/inductive learning style dichotomy (Ehrman & Leaver, 2003) has been chosen for this study. This construct is of great interest to WCF studies as it coincides with the explicit/implicit dichotomy of CF already explained. As DeKeyser (1994) argues that whereas inductive/deductive and explicit/implicit are "independent in principle, they tend to coincide in practice" (p.188). Based on his proposition, one can expect that in a writing classroom, deductive learners would benefit more from a more explicit type of WCF while inductive learners would be content with a more implicit type.

Malleability of Learning Style

Yates (2000) and Kozhevnikov, et al. (2014) argue that it is an unrealistic goal to expect teachers to precisely measure their students' cognitive styles and then match their teaching to individual students' styles. Rather, they underline the idea of helping students to "self-regulate their learning and flexibly switch between styles, according to situational requirements" (Kozhevnikov, et al., 2014, p. 12). Felder and Henriques (1995), too, point out that the students should be regularly involved in the activities that require the use of their less preferred learning styles; therefore, they need to go beyond their comfort zone and "stretch" their style.

To help students stretch their learning styles, Kolb (2015) proposes an intentional mismatch between the learning environment and individuals' style, which holds the potential of flourishing individuals' weaknesses in certain learning styles and therefore lead to the expansion of their style repertoire, enabling them to function in a variety of learning environments.

The suggestion of going beyond the comfort zone, also known as style stretching, entails that this construct is deemed as malleable rather than a fixed trait. One of the models that directly addresses the malleability of learning style is Curry's Onion model (1983). This model categorizes learning style measures into three strata, namely instructional preference, information processing style, and personality style.

Instructional Preference is the outer and least stable layer that refers to the individuals' preference of learning environment, learner expectations, teacher expectations, and other external features. The middle layer, information processing style, assesses an individual's intellectual approach to absorbing information, and as it is not directly influenced by the environmental factors, it shows more stability compared to the outer layer despite being modifiable- if aimed by educators. This layer is of great importance to educators as it is stable enough to assess and malleable enough to mold. Learning style falls in this layer, which makes this construct even more suitable for this study. The most inner layer, cognitive personality style, measures an individual's approach to adapting and assimilating information which shows the most stability and the least modifiability.

As mentioned earlier, the present study focuses on the deductive/inductive learning style and aims at examining if and to what extent deductive or inductive learners can stretch their style and benefit from mismatching WCF. However, the question is whether or not we can expect students to stretch their style merely by exposing them to mismatched learning situations. In other words, the question is if the students are equally willing to face this challenge.

Implicit Theories of an Individual's Traits

Although, as mentioned above, it has been recommended that teachers help students stretch their learning styles by exposing them to the tasks that mismatch their styles (Kolb, 2015; Kozhevnikov, et al., 2014; Yates, 2000), the idea the learners hold about their traits accounts for how they react when faced with unfavorable situations. These ideas are referred to as implicit theories (Dweck & Leggett, 1988). One of the models that attempt to depict these theories is proposed by Dweck (2000). Dweck claims that this "model can shed light on other important personal and interpersonal phenomena, such as, why contrary to popular opinion, confidence, self-esteem, and past success are not the keys to adaptive functioning" (Dweck, 2000, p. xiii). In fact, individuals might hold two different "theories" about their traits: a fixed, entity theory and a

malleable, incremental one (Bandura & Dweck, 1985). These theories, which are "people's basic assumptions about themselves and their world" (Dweck, 1996, p. 69), define individuals' reactions, feelings, and thoughts. For instance, learners with an entity theory of intelligence tend to show a helpless reaction, question their intelligence, and show lower persistence while the holders of incremental theory of intelligence show mastery-oriented response, working harder, and remaining focused in the face of setbacks (Dweck, 2000).

Dweck and Leggett (1988) believe that, in addition to learners' different behavior patterns, individuals' implicit theories account for the goals they set for themselves. Dweck and Leggett introduce two types of goals: (1) performance goals, and (2) learning goals. While individuals with a performance goal show maladaptive behavior and seek validation of their abilities and "looking smart", those with a learning goal show adaptive behavior and try to learn something new. Studies conducted by Leggett (1985), and Dweck and Leggett (1988) showed a significant relationship between individuals' implicit theory and their goals; entity theorists tend to hold performance goals while incremental theorists set learning goals.

In literature, implicit theories have been studied in a variety of domains, such as personality and morality (Dweck, 2000), health (Crum & Langer, 2007), emotion (Tamir, et al., 2007), sport (Chen et al., 2008; Ommundsen et al., 2005), interpersonal and romantic relationships (Knee, 1993; Knee, et al., 2003), stereotype threat (Aronson, et al., 2002; Levy & Dweck, 1998), self-control (Job, 2016), memory (Werth & Forster, 2002), fame (Maltby et al., 2008), shyness (Beer, 2002), and intergroup conflict (Halperin et al., 2012).

One of the traits which has been largely investigated, using Dweck's (2000) framework, is intelligence. Many studies show the importance of the implicit theory of intelligence on learners' ability to adapt themselves to challenging situations. De Castella and Byrne (2015), for instance, found entity belief about intelligence to be predictive of lower endorsement of achievement goals, academic self-handicapping, and poorer self-reported academic grades. Elliott and Dweck (1988) also reported that individuals with a learning goal, which is one of the characteristics of individuals with an incremental theory of intelligence, exhibited more challenge-seeking and mastery-oriented responses to failure, and this was regardless of the perceived ability of the participants.

Blackwel et al. (2007), conducted two studies on the role of implicit theories of intelligence in seventh graders' mathematics achievement. In the first study, they observed higher achievement in students with the incremental theory of intelligence. In the second study, through intervention, they could promote positive change in students with an entity theory of intelligence. Also, Farrell and Dweck (1985) observed the higher performance of students with learning goals compared to the participants with performance goals when they were presented with new and challenging material. The same pattern is also noticed in other studies (e.g., Dweck & Sorich, 1999; Grant & Dweck, 2003; Henderson & Dweck, 1990; Hong, et al., 1999; Mueller & Dweck, 1998).

The first move to use this theory in the field of second language writing was made by Waller and Papi (2017), who investigated the relationship between language learners' implicit theories of writing intelligence, motivation, and feedback orientation. In this study, they reported a positive relationship between feedback-seeking orientation, motivation, and incremental theory of writing intelligence. Students with an incremental theory of writing intelligence showed more feedback-seeking reactions while students with the incremental theory of writing intelligence showed more feedback avoidance orientation. Also, incremental students manifested higher motivation compared to their entity peers.

Although implicit theories have been highly used in the field of psychology to explain the failure in the face of challenges, in L2 learning, there has been little attempt to exploit the potentials of this theory to explain the conflicting results in employing different approaches to teaching.   Considering the potential of implicit theories in depicting "the patterns of vulnerability and hardiness that students display as they confront difficulty" (Dweck, 2000, p.4), more application of this theory seems to be urgent.

Gap in the Literature

Given that learners find it challenging to engage with materials that are presented in a way that pushes them outside their comfort zone (i.e. their learning style), looking at how they handle this challenge through the lens of implicit theories seems to address many unresolved issues in WCF, including whether or not students with different learning styles (deductive/inductive, here) would be equally able to stretch their style of learning to benefit from teacher's WCF. Thus far, however, to the best of our knowledge, there has been only one attempt to investigate the possibility of mediating effect of implicit theory in L2 learning and, more particularly, in written feedback (Waller & Papi, 2017); therefore, to fill the gap in the literature and contribute to WCF domain, and respond to Waller and Papi's call for further investigation, this study was conducted to inspect the relationship between students' implicit theory of learning style and their ability to benefit from WCF mismatching their learning style.

Objectives of the Study

The objective of this study is to investigate the mediating effect of implicit theory on students' uptake of WCF that mismatches their learning style. Moreover, this study aims to probe the difference between two types of learning styles, i.e. deductive and inductive style, in coping with mismatched WCF.

Research Questions

To achieve these objectives two research questions have been posed:

1. Is there any difference between inductive learners and deductive learners in terms of their ability to benefit from mismatched WCF?
2. Is there any relationship between learners' implicit theory of learning style and their ability to adapt themselves to the WCF that does not match their learning style?

Significance of the Study

There are some important areas where this study makes contributions. First of all, this study is an answer to the call for more investigation into the moderating effect of individual factors on learners' uptake of WCF (Ellis, 2008); thereby, the findings provide a new perspective into why feedback does not always lead to L2 writing by taking into account not only students' learning styles but also their implicit theory, which is believed to affect learners' goal and predict their behavior in face of setbacks (see the literature review section). Secondly, in this study, the interaction between different moderating factors (type of WCF, and learning style) on

L2 learners' written accuracy will be investigated. Thirdly, by bringing to light the interplay between students' implicit theory of learning style and their success in adapting themselves to the provided WCF, the study proposes a more pedagogically sound plan to exploit individual differences in the writing classroom.

Methods

Participants and Setting

A convenient sample of 40 (female=25, male=15) English majors at an Iranian university, with an average age of 22, participated in this study. The students were in their fourth year of study, participating in two intact essay writing classes. All the participants had passed two grammar and two writing courses before taking their essay writing course. One of the writing courses focused on paragraph writing and the other on the basics of essay writing where they learned to write descriptive and expository essays. The essay writing course had two important aims: it focused both on improving learners' knowledge of argumentative writing as well as on improving their written accuracy. Both classes were held by the second researcher.

Based on their performance on a learning style questionnaire (see the instrument section, below), the participants were divided into inductive (n=22) and deductive (n=18) groups. Also, the results of their responses to the implicit theory of learning style (see the instrument section) revealed that eight students from the inductive group and nine from the deductive group had an entity theory while 14 students from the inductive and nine from the deductive group had an incremental theory of learning style. In addition, the results of a writing pre-test showed no significant difference between the written accuracy of these two groups (See Table 3, below).

There was no difference between the treatments the students in the two classes received. In fact, it was the participants' deductivity/inductivity style, rather than their random participation in the two classes was the criterion for grouping them. As the students wrote their essays individually and received their own unique feedback, the researcher could tailor each individual's feedback based on their learning style so that it would be at odds with their preferred type of feedback.

Materials and Instruments

Two instruments were employed in the present study. First, in order to determine the participants' learning style (i.e., inductive or deductive), Cohen, et al.'s (2001) questionnaire was utilized. When administered to our pilot group- 49 bachelor students who were also in their fourth year of studying English literature at the same university, the test showed an acceptable level of item consistency, with Cronbach's alpha of .78. This survey consists of 110 items measuring 11 constructs. In the present study, the six items measuring deductivity/inductivity, based on how students deal with grammatical rules, were administered to the participants. Three items of this questionnaire are designed to measure deductivity and three items inductivity. For example, agreement with the statement "I like to start with rules and theories rather than specific examples" indicates deductively whereas the item "I figure out rules based on the way I see language forms behaving over time." distinguishes inductive students from deductive ones. Students were instructed to rate each statement on a 5-point Likert scale from 1 (never) to 5 (always).

The second instrument was an adapted version of Dweck's (2000) implicit theory of intelligence questionnaire administered to identify the students' implicit theory of learning style. The items of the questionnaire were altered to measure learners' implicit theory of learning style (See Table 1). The questionnaire had six items on a 6-point Likert scale from 1(strongly agree) to 6 (strongly disagree). The questionnaire also showed a high level of consistency when administered to the same pilot group mentioned above, with Cronbach's alpha reaching 0.83. Besides, to assess the reliability of this new questionnaire, students' answers to the adapted version were correlated against their answers to the original version. Based on Dornyei (2007) "if two tests correlate with each other in the order of 0.6, we can say that they measure more or less the same thing." (p.223). The correlation between the theory of style and the theory of intelligence was .61 which is higher than the needed correlation index to qualify them as the same construct.

Table 1

Dweck's (2000) original measure of implicit theories of general intelligence and adapted implicit theories of learning style

	Original item	Adapted item
Entity theory	You have a certain amount of intelligence, and you can't really do much to change it.	You only learn in a certain way, and you can't really change it.
	Your intelligence is something about you that you can't change very much.	Your learning style is something about you that you can't change very much.
	You can learn new things, but you can't really change your basic intelligence.	No matter how hard you try, you can never learn in a new way.
	To be honest, you can't really change the way you learn.	To be honest, you can't really change the way you learn.
Incremental theory	No matter how much intelligence you have, you can always change it a lot.	No matter what kind of learning style you have, you can always learn in new ways.
	You can always greatly change how intelligent you are.	You can always greatly change the way you learn.

The materials employed for the present study were two argumentative essays out of a total of 6 essays the participants wrote during an academic semester. The first essay written by the students in week 5 was utilized as the pre-test and the last one written in week 15 as the post-test. The topics of the essays and the texts mainly focused on educational and social issues that were familiar to the students.

Feedback Type

In this study, participants received comprehensive WCF. As for feedback type, since the aim of the study was to compare deductive and inductive learning styles in benefiting from mismatching feedback types, as a more explicit feedback type, we used brief grammatical description (BGD), which involves grammatical explanation, for inductive learners; for deductive learners, we used coded feedback (Codes) as a more implicit type of feedback. To provide BGD for the inductive group's error, we left comments on students' errors providing a short grammatical description for each highlighted error in the bubble comment (See Figure 1). For the deductive group, on the other hand, we highlighted the errors and provided codes in the bubble comments in the margin (see Figure 2). We used the coding scheme suggested by Ferris and Roberts's (2001) categories (see Table 2) and no further explanation was provided to them other than a chart that clarified the meaning of the codes. The reason why we used indirect (implicit) feedback was first because indirect feedback turns out to be more effective when long-term accuracy improvement is concerned; this type of feedback leads to "increased student engagement and attention to forms and problems." (Ferris, 2003, p. 52). Besides, we needed to provide two types of feedback with different degrees of explicitness for deductive and inductive students; only indirect feedback gave us this possibility. Students wrote their essays in Google Docs and shared them with the instructor.

Figure 1
Sample of BGD WCF

Figure 2
Sample of Code WCF

Table 2
Error categories and codes (Adopted from Ferris & Roberts, 2001, p.169)

Verb errors (V)	All errors in verb tense (vt) or form (vf), including relevant subject-verb agreement errors (sva), incorrect use, or formation of a modal or passive voice.
Noun-ending errors (NE)	Plural (sing/pl) or possessive ending incorrect, omitted, or unnecessary; includes relevant subject-verb agreement errors.
Article errors (Art)	Article (art) or other determiners (det) incorrect, omitted, or unnecessary.
Wrong word (WW)	All specific lexical errors in word choice (wc) or word form (wf), including preposition (prep) errors, pronoun errors (pro, including pronoun reference and pronoun agreement), and connecting words (con). Spelling errors are included only if the (apparent) misspelling resulted in an actual English word.
Sentence structure (SS)	Errors in sentence /clause boundaries (run-ons, fragments (frag), comma splices, word order (wo), omitted words or phrases, unnecessary words or phrases, and other unidiomatic sentence construction.
Spelling (SPL)	Errors in spelling (other than those already classified as word choice)
Other	Errors that do not fit into previous categories (may include capitalization (cap), punctuation (p), lower case, and so on)

Data Collection Procedure

The course lasted 16 weeks. At the beginning of the semester, participants completed the two questionnaires introduced above. The first three weeks of the course were devoted to introducing the conventions of text-based argumentative writing through deconstructing samples of argumentative essays and the teacher's introduction of the moves and components of the argumentative essay. In week four, to practice the argumentative genre, students wrote a group essay, on which they only received content feedback and no grammatical error was marked.

Starting from week five, every two weeks were spent on in-class writing of an essay and revising it. That is, in the first week, they wrote an essay in response to a controversial issue discussed in an article, either showing agreement or disagreement on the topic using examples, logic, or other sources. They had two hours to finish the assignment and submit it through Google Docs. Then, in two days, they received WCF on their essays; this feedback, as mentioned earlier, mismatched their learning style; that is, deductive students received coded feedback while inductive ones received BGE. They were then given two hours to revise their linguistic errors and submit the essay again. Since we focused on their accuracy in the subsequent essays and not in the revisions, we gave them the freedom to dictionaries while revising their essays. Then, in the following class session, they received content feedback and revised their writing in class. The same procedure was followed throughout the term until week 16. In total, they wrote six essays and revised them both language and content-wise.

Data Analysis

In order to measure the learners' implicit theory of learning style, a numerical value was allocated to the students' answers (strongly agree=1, agree=2, mostly agree=3, mostly disagree=4, disagree=5, strongly disagree=6). After reversing the items measuring the incremental theory of learning style, the scores on the questionnaire were averaged in order to obtain the students' implicit theory of learning style, with participants holding an average equal to or below 3 being classified as entity, and equal to or above 4 as incremental. Students with an average between 3 and 4 were categorized as neutral and, consequently, their data were removed from the data analysis.

To measure the learners' learning styles, a numerical value was allocated to the students' answers (never=1, rarely=2, sometimes=3, often=4, always=5). After reversing the items measuring deductive learning, the total scores were averaged. The participants with an average above 3 were categorized as inductive, while an average below 3 was associated with being deductive. Moreover, students with an average of 3 were categorized as neutral and, consequently, their data were removed from the data analysis.

Following Zhang (1987) and Chandler (2003), to measure linguistic accuracy, the number of errors per 100 words was calculated. In this procedure, to obtain an error ratio, the total number of errors in each essay was enumerated, divided by the total number of words in that essay, and multiplied by 100.

To answer the first research question, that is, if there is any difference between inductive learners and deductive learners in terms of their ability to benefit from mismatched WCF, we ran a mixed between-within subjects ANOVA. To answer the second question, that is, the effect of the learners' implicit theory of learning style on their ability to adapt themselves to the mismatching WCF, we ran another mixed between-within subjects ANOVA.

Results

Relationship Between Learning Style and Adapting to Mismatching Feedback

Table 3 presents the error means and SDs for the inductive and deductive groups at T1 and T2.

Table 3
Error ratio of the inductive and deductive groups across the two time periods

	Inductive			Deductive		
Time	N	Error mean	SD	N	Error mean	SD
T1	22	24.91	11.10	18	25.18	12.70
T2	22	15.14	4.17	18	26.46	14.13

As Table 3 reveals, the inductive group has an error ratio mean of 24.91 at T1. This mean has reduced to 15.14 at T2. The deductive group started the semester with an almost similar error mean to the inductive group (25.18), but, unlike the inductive group, their error mean escalated

to 26.46 at T2. In order to ensure that the two groups were at the same level concerning their written accuracy at T1, an independent T-test was run to compare their error means on the pretest. The results showed no significant difference between the two groups (t (40) =.02, $p > .05$). In order to see if the mean differences within and between groups were significant across the two times, a mixed between-within subjects ANOVA was run; this helped us to examine the impact of learning style (i.e. deductive vs. inductive) on participants' ability to benefit from mismatching feedback. Table 4 illustrates the results.

Table 4
Repeated measures for deductive & inductive groups

Variable	SQ	MSQ	F	Sig
Time	356.07	356.07	5.00	.03
Learning style	664.95	664.95	3.95	.04

Table 4 reveals there is a significant effect for both *Time* (F=5.00, *p<.05*) and *Learning style* (F=3.95, *p<.05*). In order to see if the observed differences between the means of each group across the two times are significant, two paired sample t-tests were run. The results, as expected, show no significant difference between the error means at T1 and T2 for the deductive group (t (17)=.50, *p>.05*); however, the differences between the means of the two times for the inductive group turned out to be significant (t (21)=3.58, *p<.001*).

Also, a follow-up independent t-test was run to see if the difference between the posttests of the two groups is significant. The results showed that the posttest error mean of the inductive group (15.14) is significantly lower than that of the deductive group (26.46) (t (38)=3.58, *p<.001*); hence, the inductive learners could make better use of the mismatched feedback and significantly improved their written accuracy over the treatment.

Relationship Between Implicit Theory of Learning Style and WCF Uptake

Table 5 indicates the error means and SDs for the entity and incremental students at the two times.

Table 5
Error ratio of the deductive & inductive groups across two time periods

	Entity			Incremental		
Time	N	Error mean	SD	N	Error mean	SD
T1	17	25.56	10.23	23	27.69	10.62
T2	17	24.64	12.88	23	14.72	8.47

As Table 5 illustrates, the entity students' error mean ratio at T1 is 25.56. Their T2 error mean has slightly decreased to 24.64. As for the incremental group, the error ratio mean at T1 is 27.69. They have largely reduced their mean of error ratio to 14.72 at T2. In order to ensure that the two groups were at the same level of written accuracy at T1, an independent t-test was run to compare their error means on the pre-test. The results showed no significant difference between the students with an entity theory of style and incremental theory of style (t (38) =.24, $p >$.05) in terms of error ratio at the beginning of the experiment.

In order to see if the mean differences within and between groups were significant at the two times, a mixed between-within subjects ANOVA was run. Table 6 illustrates the results.

Table 6
Repeated measures for incremental & entity groups

Variable	SQ	MSQ	F	Sig
Time	295.75	295.75	4.32	.04
Theory of learning style	942.67	942.67	5.86	.02

The results show a significant effect for *time* (F= 4.32, p = .04) and for the theory of learning style (F=5.86, p<.05, η^2=.20). In order to see if the observed differences between the means of each group across the two times were significant, two paired sample t-tests were run. The results showed no significant difference between the error means at T1 and T2 for the entity group (t (16)=.78, p>.05); however, the differences between the means of the two *times* for the incremental group turned out to be significant (t (22)=3.94, p<.001). Also, a follow-up independent t-test was run to see if the difference between the posttests of the two groups is significant. The results showed that the posttest error mean of the incremental group (14.72) is significantly lower than that of the entity group (27.69) (t (38)=4.29, p<.001); hence, incremental learners could make better use of the mismatched feedback and significantly improved their written accuracy over time.

Discussion

The results of the study showed inductive students were at a better level of privilege in benefiting from mismatched CF. This finding is at odds with the previous studies which reported a mismatch between learning style and teaching style to be an obstacle to the way of learning (e.g., Charkins et al., 1985; Felder & Henriques, 1995; Felder & Silverman, 1988; Kolb, 2015; Oxford et al., 1991; Wallace & Oxford, 1992). However, the results are in line with those of Liu and Graf (2009), which showed the effective role of learning style type when the medium of instruction favored a certain group. In their study, reflective learners could adapt themselves better to the mismatched instruction compared to active learners.

The reason why, in the present study, inductive learners were more successful in benefiting from mismatched WCF may be that they were provided with more information than needed to form a hypothesis while deductive learners received less than they required.

The results of the study also showed that there was a significant difference between entity and incremental learners in terms of written accuracy improvement, with the incremental students being more successful in benefiting from mismatched CF. Although the participants

were at the same level of written accuracy at the start of the semester, they were not equally successful in rendering this adverse situation an opportunity for learning with the help of other strategies. As Dweck (2000) asserts, "Effort, difficulty, setbacks, or higher-performing peers" (p.3) leads entity students to question their ability and, therefore, perform poorer than their peers. Moreover, Bandura and Dweck (1985) argue that learners with an incremental theory will adopt learning goals more than those with an entity theory. Dweck and Legget (1988, p. 263) also suggest that those with an incremental theory seek challenges and their theory "is more consistently associated with adaptive motivational patterns."

Drawing on the implicit theory model, one may attribute the entity students' lower performance compared to the incremental students to the former showing a helpless reaction to the challenge that receiving mismatched feedback posed on them, questioning their own ability to go beyond their comfort zone. On the other hand, incremental students have shown mastery-oriented responses to this setback, trying to overcome it by using different strategies and stretching their learning styles. As Dweck's (2000) studies showed, incremental students, deem their intelligence as growing and, therefore, view received feedback and challenges as an opportunity for learning, while to entity students, who deem their intelligence as a fixed trait, this is a threat to their ego and self-esteem. Given that there was a high correlation between our instrument measuring the implicit theory of learning style and Dweck's implicit theory of intelligence questionnaire, the same might hold true for learning style; hence, it is no surprise that mismatched feedback has been less beneficial to the entity group than the incremental group.

This result is in line with the previously conducted studies on the implicit theory of intelligence. Henderson and Dweck (1990), Blackwel et al. (2007), and Stipek and Gralinski (1996) also found that holding an entity theory of intelligence had an adverse influence on learners, leading them to obtain lower academic achievements compared to the incremental learners. Waller and Papi (2017), also using Dweck's (2000) model, reported the incremental students to have higher motivation and lower feedback avoiding orientation compared to their entity counterparts. In sum, given that entity and incremental students' performances were different, it appears that simply exposing students to mismatched feedback does not lead to style stretching.

Conclusion

Even though style matching seems an ideal approach to recognition of learners' differences, by stretching style, we can help "learners become more empowered in an array of language learning contexts and expand their comfort zones to embrace a larger style repertoire" (Gregersen & MacIntyre, 2014, p.185). As mentioned earlier, contrary to the speculation of Hayes and Allinson (1997), who contend that "exposing learners to learning activities that are mismatched with their preferred learning style will help them develop the learning competencies necessary to cope with situations involving a range of different learning requirements" (as cited in Gilakjani, 2012, p.54), in this study, exposing learners to mismatched WCF did not lead to style stretching (evident by lack of progress of deductive groups who were at the most disadvantage). The result of this study, however, seems to introduce an effective factor in learners' success in style stretching. The progress that learners with an incremental theory of learning style showed indicates that implicit theory is a critical factor in the extent to which L2 writers would benefit from WCF that mismatches their preferred learning style.

In sum, the results of the study revealed that exposure to unfavored learning situations does not lead to style stretching for everyone. It appeared that one's theory of learning style is a determining factor in whether and to what extent learners can stretch their styles and benefit from mismatched WCF.

Pedagogical Implications

This study was conducted in search of a more pedagogically sound approach to exploiting and honoring students' learning styles. In this quest, the results showed the decisive influence of the implicit theory of learning style on learners' ability to stretch their style. This result is of interest to teachers who find tuning their WCF to students' preferred learning style unrealistic and challenging. In other words, instead of fine-tuning feedback to students' learning styles, teachers are recommended to promote incremental views in their students by raising awareness of the malleable nature of learning style.

Therefore, it could be expected that writing teachers exploit this effect by asking students to write an essay arguing in favor of learning style malleability to promote this belief in learners' minds and leading them to change their implicit theories to be more in line with scientifically proved theories.

Limitations and Suggestions for Further Research

The present study suffers from a few limitations. First of all, in this study, a convenience sampling method was used, which decreases the generalizability power of the findings of the study. Secondly, the small sample size, especially entity students, might have affected the findings of the study. Hence, replication of this study in other contexts and with a larger sample size may yield different results. Thirdly, in this study, only one of the many constructs of learning styles (deductive vs. inductive) was investigated. Further research is required to see if students with other types of learning styles and an incremental theory would also benefit from mismatched WCF more than those with an entity theory.

In addition, bearing in mind that previous researchers have shown that students' implicit theory can be manipulated (Hong et al., 1999), future research can focus on this aspect and its result on students' uptake of mismatched feedback. In addition, interviews might also give more depth into understanding the barriers learners face when receiving mismatched feedback, and even it might provide clues into how their implicit theories were molded.

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References

Adrada-Rafael, S. (2017). Processing the Spanish imperfect subjunctive: Depth of processing under different instructional conditions. *Applied Psycholinguistics, 38*, 477–508.
Aronson, J., Fried, C. & Good, C. (2002). Reducing the effects of stereotype threat on African American college students by shaping theories of intelligence. *Journal of Experimental Social Psychology*, *38*, 113–125.

Bandura, M., & Dweck, C. S. (1985). *The relationship of conceptions of intelligence and achievement goals to achievement-related cognition, affect and behavior*. Unpublished manuscript, Harvard University

Beer, J. S. (2002). Implicit self-theories of shyness. *Journal of Personality and Social Psychology*, 83, 1009–1024.

Bitchener, J. (2008). Evidence in support of written corrective feedback. *Journal of Second Language Writing, 17*, 102–18.

Bitchener, J., & Ferris, D. (2012). *Written corrective feedback in second language acquisition and writing*. Routledge.

Bitchener, J. and Storch, N. (2016) *Written corrective feedback for L2 development*. Multilingual Matters.

Bitchener, J. & Knoch, U. (2008). The value of written corrective feedback for migrant and international students. *Language Teaching Research Journal, 12*, 409–431.

Bitchener, J. & Knoch, U. (2009). The relative effectiveness of different types of direct written corrective feedback. *System, 37*, 322-329.

Bitchener, J. & Knoch, U. (2010). The contribution of written corrective feedback to language development: A ten month investigation. *Applied Linguistics, 31*, 193–214.

Blackwell, L. S., Trzesniewski, K. H. & Dweck, C. S. (2007). Implicit theories of intelligence predict achievement across an adolescent transition: A longitudinal study and an intervention. *Child Development, 78*, 246-263.

Chandler, J. (2003). The efficacy of various kinds of error feedback for improvement in the accuracy and fluency of L2 student writing. *Journal of Second Language Writing, 12,* 267–296.

Charkins, R. J., O'Toole, D. M. & Wetzel, J. N. (1985). Linking teacher and student learning styles with student achievement and attitudes. *The Journal of Economic Education, 16, 111–120.*

Chen, L. H., Chen, M. Y., Lin, M. S., Kee, Y. H., Kuo, C. F. & Shui, S. H. (2008). Implicit theory of athletic ability and self-handicapping in college students. *Psychological Reports, 103*, 476–484.

Coffield, F., Moseley, D., Hall, E., & Ecclestone, K. (2004). *Should we be using learning styles? What research has to say to practice*? Learning and Skills Research Centre.

Cohen, A., Oxford, R. & Chi, J. (2001). Learning styles survey. Minneapolis, MN: University of Minnesota Center for Advanced Research on Language Acquisition (CARLA). Retrieved from http:// carla. umn. edu/ maxsa/ documents/ LearningStyleSurvey_MAXSA_IG.pdf

Crum, A. J. & Langer, E. J. (2007). Mind-set matters: exercise and the placebo effect. *Psychological Science*, *18*, 165–171.

Cumming, A. (1995). Fostering writing expertise in ESL composition instruction: Modeling and evaluation. In D. Belcher & G. Braine (Eds.), *Academic writing in a second language: Essays on research and pedagogy* (pp. 375-397). Norwood, NJ: Ablex.

Curry, L. (1983). *An organization of learning styles theory and constructs*. Paper presented at the Annual Meeting of the American Educational Research Association, Montreal, Quebec. Retrieved from https://files. eric.ed.gov/ fulltext/ED235185.pdf

De Castella, K. & Byrne, D. (2015). My intelligence may be more malleable than yours: The revised implicit theories of intelligence (self-theory) scale is a better predictor of achievement, motivation, and student disengagement. *European Journal of Psychology of Education*, *30*, 245-267.

Dekeyser, R. (1994). Implicit and explicit learning of L2 grammar: A pilot study. *TESOL Quarterly, 28*(1), 188-194.

Dornyei, Z. (2007*). Research methods in applied linguistics: Quantitative, qualitative and mixed methodologies*. UK: Oxford University Press.

Dornyei, Z., & Ryan, S. (2015). *The psychology of the language learner revisited.* Routledge.

Dweck, C. S. (1996). Implicit theories as organizers of goals and behavior. In P. M. Gollwitzer & J. A. Bargh (Eds.), *The psychology of action: Linking cognition and motivation to behavior*. New York: The Guilford Press.

Dweck, C. S. (2000). *Self-theories: Their role in motivation, personality, and development*. Lillington, NY: Taylor & Francis.

Dweck, C. S. & Leggett, E. L. (1988). A social-cognitive approach to motivation and personality. *Psychological Review*, *95*, 256-273.

Dweck, C. S. & Sorich, L. (1999). Mastery-oriented thinking. *Coping, 11*, 232-251.

Ehrman, M. E. & Leaver, B. L. (2003). Cognitive styles in the service of language learning. *System, 31*, 391–415.

Ellis, R. (2008). *The study of second language acquisition*. UK: Oxford University Press.

Ellis, R. (2010). Epilogue: A framework for investigating oral and written corrective feedback. *Studies in Second Language Acquisition, 32*, 335-349.

Ellis, R., Loewen, S. & Erlam, R. (2006). Implicit and explicit corrective feedback and the acquisition of L2 grammar. *Studies in Second Language Acquisition, 28*, 339-368.

Ellis, R., Sheen, Y., Murakami, M. & Takashima, H. (2008). The effects of focused and unfocused written corrective feedback in an English as a foreign language context. *System, 36*, 353–71.

Farrell, E., Dweck, C. S. (1985). The role of motivation processes in transfer of learning. Unpublished Manuscript.

Fazio, L. L. (2001). The effect of corrections and commentaries on the journal writing accuracy of minority- and majority-language students. *Journal of Second Language Writing, 10*, 235–249.

Felder, R. M. & Henriques, E. R. (1995). Learning and teaching styles in foreign and second language education. *Foreign Language Annals, 28*, 21–31.

Felder, R. M. & Silverman, L. K. (1988). Learning and teaching styles in engineering education. *Engineering Education, 78*, 674-681.

Ferris, D. (1995). Student reactions to teacher response in multiple-draft composition classrooms. *TESOL Quarterly, 29*, 33-53.

Ferris, D. R. (1999). The case for grammar correction in L2 writing classes: A response to Truscott (1996). *Journal of Second Language Writing, 8*, 1–10.

Ferris, D. R. (2003). *Response to student writing: Implications for second language students*. Routledge.

Ferris, D. (2006). Does error feedback help student writers? New evidence on the short- and long-term effects of written error correction. In K. Hyland and F. Hyland (eds.), *Feedback in second language writing: Contexts and issues* (pp. 81–104). Cambridge University Press.

Ferris, D. R. (2010). Second language writing research and written corrective feedback in SLA: Intersections and practical applications. *Studies in Second Language Acquisition, 32*, 181-201.

Ferris, D. & Hedgcock, J. S. (2005). Teacher response to student writing: Issues in oral and written feedback. In D. Ferris & S. Hedgcock (Eds.), *Teaching ESL composition: Purpose, process and practice* (pp. 184-222). London: Lawrence Erlbaum Associates.

Ferris, D. & Roberts, B. (2001). Error feedback in L2 writing classes: How explicit does it need to be?. *Journal of Second Language Writing, 10*(3), 161-184.

Frantzen, D. (1995). The effects of grammar supplementation on written accuracy in an intermediate Spanish content course. *Modern Language Journal, 79*, 329–344.

Gilakjani, A. P. (2012). A match or mismatch between learning styles of the learners and teaching styles of the teachers. *International Journal of Modern Education and Computer Science*, *4*, 51–60.

Goldstein, L. (2006). Feedback and revision in second language writing: Helping learners become independent writers. In K. Hyland & F. Hyland (Eds.), *Feedback in second language writing: Contexts and issues* (pp. 185 – 205). New York: Cambridge University Press.

Gram, M. (2005). *The students' attitudes towards feedback* (Unpublished master's thesis). Essex University, Sacramento.

Grant, H. & Dweck, C. S. (2003). Clarifying achievement goals and their impact. *Journal of Personality and Social Psychology, 85*, 541-556.

Gregersen, T. & MacIntyre, P. D. (2014). *Capitalizing on language learners' individuality: From premise to practice*. UK: Multilingual Matters.

Guénette, D. (2007). Is feedback pedagogically correct? Research design issues in studies of feedback on writing. *Journal of Second Language Writing, 16*, 40–53.

Halperin, E., Crisp, R. J., Husnu, S., Trzesniewski, K. H., Dweck, C. S. & Gross, J. J. (2012). Promoting intergroup contact by changing beliefs: group malleability, intergroup anxiety, and contact motivation. *Emotion (Washington, DC)*, *12*, 1192–1195.

Hayes, J. & Allinson, C. W. (1997). Learning styles and training and development in work settings: Lessons from educational research. *Educational Psychology*, *17*, 185-193.

Hedgcock, J. & Lefkowitz, N. (1994). Feedback on feedback: Assessing learner receptivity in second language writing. *Journal of Second Language Writing, 3*, 141–163.

Hong, Y., Chiu, C., Dweck, C. S., Lin, D. M. S., & Wan, W. (1999). Implicit theories, attributions, and coping: A meaning system approach. *Journal of Personality and Social Psychology, 77*, 588-599.

Hong, Y. Y., Chiu, C. & Dweck, C. S. (1995). Implicit theories of intelligence: Reconsidering the role of confidence in achievement motivation. In M. Kernis (Ed.), *Efficacy, agency, and self-esteem* (pp. 197-213). New York: Plenum.

Hyland, F. (1998). The impact of teacher written feedback on individual writers. *Journal of Second Language Writing, 7*, 255–286.

Hyland, F. (2011). The language learning potential of form–focused feedback on writing. In R. Manchon (Eds.), *Learning–to–write and writing–to–learn in an additional language* (pp. 159-179). Amsterdam: John Benjamins.

Hyland, K., & Hyland, F. (2006). *Feedback on second language students' writing*. Cambridge University Press.

Job, V. (2016). Implicit theories about willpower. In E. R. Hirt, J. J. Clarkson & L. Jia (Eds.), *Self-regulation and ego control* (pp. 203-225). US: Academic Press.

Kang, E. & Han, Z. (2015). The efficacy of written corrective feedback in improving L2 written accuracy: A meta-analysis. *Modern Language Journal*, *99*, 1–18.

Kepner, C. G. (1991). An experiment in the relationship of types of written feedback to the development of second language writing skills. *Modern Language Journal, 75,* 305–313.

Kim, H.R., Bowles, M. (2019). How deeply do second language learners process written corrective feedback? Insights gained from think-alouds. *TESOL Quarterly, 53*, 913–938.

Knee, C. R. (1993). Implicit theories of relationships: Assessment and prediction of romantic relationship initiation, coping, and longevity. *Journal of Personality and Social Psychology*, *74*, 360–370.

Knee, C. R., Patrick, H. & Lonsbary, C. (2003). Implicit theories of relationships: Orientation toward evaluation and cultivation. *Personality and Social Psychology Review*, *7,* 41–55.

Kolb, D. (2015). *Experiential learning experience as the source of learning and development.* New Jersey: Pearson FT Press.

Kormos, J. (2012). The role of individual differences in L2 writing. *Journal of Second Language Writing, 21*, 390-403.

Kozhevnikov, M., Evans, C., & Kosslyn, S. M. (2014). Cognitive style as environmentally sensitive individual differences in cognition: A modern synthesis and applications in education, business, and management. *Psychological Science in the Public Interest, 15*, 3–33.

Lalande, J. F. (1982). Reducing composition errors: An experiment. *Modern Language Journal, 66*, 140–149.

Lee, I. (2004). Error correction in L2 secondary writing classrooms: The case of Hong Kong. *The Journal of Second Language Writing, 13*, 285–312.

Leki, I. (1991). The preferences of ESL students for error correction in college level writing classes. *Foreign Language Annals, 24*, 203–218.

Levy, S. & Dweck, C. S. (1998). Trait-focused and process-focused social judgment*. Social Cognition*, *16*, 151–172.

Liu, T. C. & Graf, S. (2009). Coping with mismatched courses: students' behaviour and performance in courses mismatched to their learning styles. *Educational Technology Research and Development*, *57*, 739-752.

Maltby, J., Day, L., Giles, D., Gillett, R., Quick, M., Langcaster-James, H. & Linley, P. A. (2008). Implicit theories of a desire for fame. *British Journal of Psychology*, *99*, 279–292.

Mueller, C. M. & Dweck, C. S. (1998). Praise for intelligence can undermine children's motivation and performance. *Journal of personality and social psychology, 75*, 33-52.

Ommundsen, Y., Haugen, R. & Lund, T. (2005). Academic self-concept, implicit theories of ability, and self-regulation strategies. Scandinavian Journal of *Educational Research*, *49, 461–474.

Oxford, R., Ehrman, M. & Lavine, R. (1991). Style wars: Teacher-student style conflicts in the language classroom. In S. Magnan (Ed.), *Challenges in the 1990s for college foreign language programs* (pp.1-25). Boston: Heinle and Heinle.

Peterson, K., DeCato, L., & Kolb, D. A. (2014). Moving and learning: Expanding style and increasing flexibility. Journal of Experiential Education, *doi:10.1177/1053825914540836*

Polio, C., Fleck, C. & Leder, N. (1998). 'If only I had more time': ESL learners' changes in linguistic accuracy on essay revisions. *Journal of Second Language Writing, 7*, 43–68.

Rahimi, M. (2015). The role of individual differences in L2 learners' retention of written corrective feedback. *Journal of Response to Writing, 1,* 19-48.

Rahimi, M. (2021). <u>A comparative study of the impact of focused vs. comprehensive corrective feedback and revision on ESL learners' writing accuracy and quality</u>. *Language Teaching Research, 25,* 687-710.

Reid, J. M. (Ed.). (1995). *Learning styles in the ESL/EFL classroom*. Boston: Heinle & Heinle.

Robb, T., Ross, S. & Shortreed, I. (1986). Salience of feedback on error and its effect on EFL writing quality. *TESOL Quarterly 20*, 83–93.

Sachs, R. & Polio, C. (2007). Learners' uses of two types of written feedback on L2 writing revision task. *Studies in Second Language Acquisition, 29*, 67–100.

Sheen, Y. (2007). The effect of focused written corrective feedback and language aptitude on ESL learners' acquisition of articles. *TESOL Quarterly, 41*, 255–283.

Sheen, Y., Wright, D. & Moldawa, A. (2009). Differential effects of focused and unfocused written correction on the accurate use of grammatical forms by adult ESL learners. *System, 37*, 556–69.

Sheppard, K. (1992). Two feedback types: Do they make a difference? *RELC Journal, 23*, 103–110.

Shintani, N. & Ellis, R. (2015). Does language analytical ability mediate the effect of written feedback on grammatical accuracy in second language writing? *System*, *49*, 110-119.

Samie, S. (2021). Corrective feedback and EFL learning style. *Journal of Management and Training for Industries, 8,* 27-36.

Stefanou, C. & Révész, A. (2015). Learner differences and the acquisition of second language article use for generic and specific plural reference. *The Modern Language Journal, 99*, 263–282.

Stipek, D. & Gralinski, J. H. (1996). Children's beliefs about intelligence and school performance. *Journal of Educational Psychology, 88*, 397–407.

Storch, N. (2010). Critical feedback on written corrective feedback research. *International Journal of English Studies*, *10*, 29-46.

Storch, N. & Wigglesworth, G. (2010). Learners' processing, uptake, and retention of corrective feedback on writing: Case studies. *Studies in Second Language Acquisition, 32*, 303–334.

Suzuki, W., Nassaji, H. & Sato, K. (2019). The effects of feedback explicitness and type of target structure on accuracy in revision and new pieces of writing. *System*, *81*, 135-145.

Swain, M. (2006). Languaging, agency and collaboration in advanced second language learning. In H. Byrnes (Ed.), *Advanced language learning: The contributions of Halliday and Vygotsky* (pp. 95–108). London: Continuum.

Swain, M. & Lapkin, S. (2003). Talking it through: Two French immersion learners' response to reformulation. *International Journal of Educational Research, 37*, 285–304.

Tamir, M., John, O. P., Srivastava, S. & Gross, J. J. (2007). Implicit theories of emotion: Affective and social outcomes across a major life transition. *Journal of Personality and Social Psychology*, *92*, 731–744.

Truscott, J. (1996). The case against grammar correction in L2 writing classes. *Language learning*, *46*, 327-369.

Truscott, J. (1999). The case for 'the case against grammar correction in L2 writing classes': A response to Ferris. J*ournal of Second Language Writing, 8,* 111–122.

Truscott, J. (2004). Evidence and conjecture on the effect of correction: A response to Chandler. *Journal of Second Language Writing, 12,* 96–104.

Truscott, J. (2007). The effect of error correction on learners' ability to write accurately. *Journal of Second Language Writing, 16*, 255–272.

Qui, D. & Lapkin, S. (2001). Exploring the role of noticing in a three-stage second language writing task. *Journal of Second Language Writing, 10*, 277–303

Van Beuningen, C.G., De Jong, N.H. & Kuiken, F. (2008). The effect of direct and indirect corrective feedback on L2 learners' written accuracy. *ITL-Review of Applied Linguistics, 156*, 279–296.

Van Beuningen, C.G., De Jong, N.H. & Kuiken, F. (2012). Evidence on the effectiveness of comprehensive error correction in second language writing. *Language Learning, 62*, 1–41.

Wallace, B. & R.L. Oxford. (1992). Disparity in learning styles and teaching styles in the ESL classroom: Does this mean war? *AMTESOL Journal, 1*, 45-68.

Waller, L. (2015). *Motivation and written corrective feedback: How students' implicit theories of writing intelligence influence their writing motivation and orientation to written corrective feedback* (Unpublished master's thesis). Michigan State University, USA.

Waller, L. & Papi, M. (2017). Motivation and feedback: How implicit theories of intelligence predict L2 writers' motivation and feedback orientation. *Journal of Second Language Writing, 35*, 54-65.

Werth, L. & Forster, J. (2002). Implicit person theories influence memory judgments: The circumstances under which metacognitive knowledge is used. *European Journal of Social Psychology*, *32*, 353–362.

Yates, G. C. R. (2000). Applying learning style research in the classroom: Some cautions and the way ahead. In R. J. Riding, & S. G. Rayner (Eds.), *Interpersonal perspectives on individual differences, Vol. 1: Cognitive styles* (pp. 347–364). Ablex.

Young, T. (2010). How valid and useful is the notion of learning style? A multicultural investigation. *Procedia-Social and Behavioral Sciences, 2*, 427-433.

Zacharias, N. T. (2007). Teacher and student attitudes toward teacher feedback. *RELC Journal, 38*, 38-52.

Zhang, L. F. (2013). *The malleability of intellectual styles*. New York: Cambridge University Press.

Zhang, S. (1987). Cognitive complexity and written production in English as a second language. *Language Learning, 37,* 469-481.