Modeling Chinese high school EFL writers' language mindsets, goal orientations, and feedback-seeking behavior: The interaction effects between language mindsets and writing competence

Abstract

The feedback-seeking behavior (FSB) framework offers a novel perspective for analyzing second language (L2) learners' proactive agency in processing teacher feedback. While research has identified associations among language mindsets, goal orientations, and FSB in L2 speaking classes, this line of inquiry should be extended to L2 writing education where students' responses to teacher feedback have received increasing attention. Particularly, the role of writing competence in this process needs to be examined. This study was conducted at a prestigious public high school in southwest mainland China, with a sample of 462 12th grade students. Our path model provided the following three major findings. First, growth mindset students may pursue learning or performance-approach goals. Regardless of writing competence, they would both inquire and monitor teacher feedback. Second, learning oriented growth mindset students preferred feedback monitoring, whereas performance-approach oriented growth mindset students preferred feedback inquiry. Third, only highly proficient fixed mindset students pursued performance-approach goals, which could lead to both feedback monitoring and inquiry, with a slight inclination toward the latter; meanwhile, less proficient fixed mindset students were unlikely to do so. Finally, we make pedagogical suggestions based on these findings.

Keywords: feedback-seeking behavior, language mindsets, goal orientations, English writing competence

Introduction

Feedback plays an important role in second language (L2) writing education, with extensive research on this topic over the past two decades, such as its effects on students' revisions and improved written accuracy (e.g., Bitchener & Knoch, 2010; Bitchener & Storch, 2016; Kang & Han, 2015). In recent years, researchers have realized that L2 writers' emotional and behavioral responses to feedback are equally important. Evidence shows that feedback from different sources has considerable impacts on students' perceptions, motivation, and engagement in L2 writing learning (e.g., Yao et al., 2021a, 2021c; Hyland & Hyland, 2019; Yu et al., 2020). However, these studies largely treated L2 writers as "passive recipients of different feedback types rather than proactive agents in their learning pursuits", and thus a "fundamental shift in perspective is needed" to uncover students' active roles in processing different kinds of feedback (Papi et al., 2020, p. 486). One novel lens for analyzing this issue is the feedback-seeking behavior (FSB) framework from organizational psychology (Papi et al., 2019; Papi et al., 2020).

According to FSB researchers, people may implicitly observe the situation and interpret the meaning in the feedback (feedback monitoring), or may explicitly inquire about feedback from others (feedback inquiry) (Ashford, 1986; Ashford & Cummings, 1983; VandeWalle, 2003). These two feedback-seeking approaches are driven by several antecedents, including feedback seeker features, perceived quality of feedback providers, and contextual characteristics (Anseel et al., 2015; Joughin et al., 2021). Since the establishment of the FSB framework, related empirical studies have been conducted primarily in organizational and managerial settings (Anseel et al., 2015), with only a few in education (Bondarenko, 2020; Joughin et al., 2021; Leenknecht et al., 2019; Papi et al., 2019). We argue that more research is warranted to enrich our understanding of L2 writers' FSB, as this can provide a new avenue for analyzing the role of feedback in L2 writing education from

students' perspectives (Papi et al., 2020).

FSB research in L2 education finds that growth versus fixed language mindsets (Lou & Noels, 2017, 2019) shape students' preferences for different FSBs (Papi et al., 2019; Papi et al., 2020). Students may believe in the malleability of their L2 ability (growth mindset) or feel that it is an unchangeable inborn trait (fixed mindset). The language mindset framework offers insights into the effects of students' personal beliefs, an important aspect of feedback seekers' features, on their perceptions of and orientations toward feedback from teachers (Waller & Papi, 2017; Xu, 2022) and peers (Yao et al., 2021a, 2021c). Analyzing L2 learners' FSB, Papi et al. (2019) reported that students' language mindsets could impact their achievement goals (i.e., learning and performance goals); in turn, this led to different feedback-seeking approaches. Notably, students' L2 competence may play a critical role in their choice of achievement goals (Yao et al., 2021b; Lou & Noels, 2017, 2019). Growth mindset students, regardless of their L2 competence, may pursue learning goals, aiming to acquire new knowledge in L2 learning. Meanwhile, fixed mindset students may pursue two types of performance goals depending on their L2 competence: competent students may pursue performance-approach goals and intend to outperform others, whereas less competent students may pursue performance-avoidance goals to evade possible negative comments from others on their L2 learning. Therefore, integrating L2 competence into the analysis can provide a more nuanced view of the complex relationships between language mindsets and achievement goals, as well as their impacts on students' feedback-seeking approaches.

Furthermore, the few empirical studies on L2 learners' language mindsets and FSB were conducted with undergraduate students in the U.S. (Papi et al., 2019; Papi et al., 2020). This line of inquiry should be extended to different contexts (e.g., regions, cultures, education levels, and student academic skills) to provide additional evidence for students' FSB in L2 learning.

This study was conducted in the context of secondary-level education in China and a path model was created to explore how Chinese high school English-as-a-foreign-language (EFL) writers' language mindsets impacted their FSB. In particular, we investigated the interaction effects of goal orientations and English writing competence in this process. Finally, based on our findings, we proposed pedagogical suggestions for teaching L2 English writing.

Literature Review

Here, we first explain the relationship between FSB and goal orientations; that is, how students' perceived costs and values in feedback may be shaped by their diverse goal orientations, which in turn can influence their feedback-seeking approaches. We then illustrate the close association between language mindsets and goal orientations, as well as the role of linguistic competence in this process. Finally, we review two empirical studies concerning L2 learners' language mindsets and FSB, and outline our rationale and research questions.

FSB and Goal Orientations

In L2 writing education, FSB refers to students' "intentional, calculated, and strategic attempts to gather feedback information on their L2 writing performance" (Papi et al., 2020, p. 486). The costs and values embedded in the feedback are key antecedents of L2 writers' FSB (Anseel et al., 2015; Joughin et al., 2021; VandeWalle, 2003). VandeWalle (2003) noted that seeking feedback primarily involves three kinds of costs: self-presentation (i.e., the risk of showing one's weaknesses and deficiencies to others), ego (i.e., the risk of hearing negative comments), and effort costs (i.e., the amount of effort needed to receive feedback). Meanwhile, the author delineated two values: expectancy value, which concerns the "usefulness of feedback-seeking behavior for improving performance", and impression

management value, which is derived from one's attempt to leave a good impression on a given target (e.g., L2 teacher) "by requesting feedback about successful performance" (VandeWalle, 2003, p. 585). Generally, high perceived values in feedback may lead to more proactive feedback-seeking activities, whereas high perceived costs may hinder individuals from actively seeking feedback (Ashford & Cummings, 1983; Papi et al., 2020; VandeWalle, 2003).

A prominent feature of the FSB framework is that individuals' perceptions of costs and values can be largely shaped by their learning or performance goal orientations (Anseel et al., 2015; Leenknecht et al., 2019; VandeWalle, 2003). A learning goal "reflects a desire to learn new skills, master new tasks, or understand new things." Meanwhile, a performance goal "is about winning positive judgments … and avoiding negative ones" (Dweck, 1999, p. 15). These two goal orientations play a critical role in determining people's perceived costs and values of feedback. Consequently, learning-oriented individuals weigh more on expectancy value and regard feedback as useful information for self-improvement (Anseel et al., 2015; Elliot & McGregor, 2001; Leenknecht et al., 2019). In addition, learning goals are associated with a belief that "effort leads to success" (VandeWalle, 2003, p. 583). This positive view of effort can decrease the effort cost of feedback. Therefore, individuals with a learning goal are more likely to proactively seek and inquire about feedback from others (VandeWalle, 2003).

Conversely, performance-oriented individuals tend to overemphasize the potential costs embedded in feedback, particularly self-presentation and ego costs (Crommelinck & Anseel, 2013; VandeWalle, 2003). For them, seeking feedback may risk exposing their deficiencies to others; this can threaten their self-presentation and ego. Consequently, they prefer to use monitoring rather than inquiry as their feedback-seeking approach as the former has lower self-presentation and ego costs than the latter (Anseel et al., 2015; Crommelinck &

Anseel, 2013). Notably, people with performance goals may try to win positive judgments when they perceive that they are doing well. In such cases, they may focus on the impression management value and actively seek feedback, hoping to leave a good impression on others (Janssen & Prins, 2007).

The relationships between FSB and goal orientations have been documented in extensive research in organizational and managerial settings (e.g., Janssen & Prins, 2007; VandeWalle, 2003), as well as in the limited literature in education (Leenknecht et al., 2019, Papi et al., 2019). For instance, with a sample of 80 students majoring in applied science at a Dutch university, Leenknecht et al. (2019) reported that learning goals had a stronger association with the two feedback-seeking approaches than performance goals; moreover, students with learning goals were more likely to both monitor and inquire feedback, whereas "students with performance goals prefer monitoring instead of inquiry due to the self-representation costs" (p. 1075). While goal orientations have been proven to impact FSB, they are shaped by other overarching variables, namely mindsets (Dweck, 1999; Lou & Noels, 2017, 2019). Goal orientations may be better treated as mediators between mindsets and FSB (e.g., Papi et al., 2019).

Language Mindsets and Goal Orientations

Mindsets, or implicit theories, refer to people's growth and fixed beliefs toward a certain kind of competence they have (Dweck, 1999; Lou & Noels, 2017, 2019). People may believe that their competence can be developed with proper strategy and effort (growth mindset) or is an in-born trait that cannot be improved (fixed mindset). The mindset framework has been employed in the field of math (e.g., Blackwell et al., 2007) and science education (e.g., Chen & Pajares, 2010); this framework has drawn increasing attention from L2 researchers (e.g., Yao et al., 2021a, 2021b, 2021c; Lou & Noels, 2017; Papi et al., 2019;

Papi et al., 2020; Xu, 2022), particularly since the establishment of the language-mindset meaning system (Lou & Noels, 2019).

According to the language-mindset meaning system, L2 learners' growth and fixed language mindsets can impact several emotional and behavioral responses, such as goal orientations. Language students with a growth mindset, regardless of their L2 competence, tend to pursue learning goals. In contrast, those with a fixed mindset pursue two different performance-focused goals depending on their perceived L2 competence (Lou & Noels, 2019). Highly competent fixed mindset students pursue performance-approach goals, and "aim to out-perform others and validate [their] ability" (p. 4), whereas those who are less competent pursue performance-avoidance goals and "avoid being seen as incompetent" (Lou & Noels, 2019, p. 5).

Relationships between language mindsets, goal orientations, and perceived L2 competence have been observed in tertiary education in Canada (Lou & Noels, 2017) and secondary education in China (Yao et al., 2021b). Note that both these studies examined L2 learners' mindsets towards their general L2 competence. Research needs to investigate whether the same pattern can be replicated for specific language skills, such as L2 writing. This can help in "the understanding of the domain-specificity of language mindsets as well as motivational processes across different language abilities" (Lou & Noels, 2020, p. 550).

Given the close associations between goal orientations, language mindsets, and FSB, L2 learners' language mindsets may shape their feedback-seeking approaches. Next, we review the limited literature in this regard.

The Impacts of Language Mindsets on FSB

To the best of our knowledge, only two empirical studies have investigated L2 learners' FSB within the language mindset framework. In a study with 287 L2 learners at a

U.S. university, Papi et al. (2019) found that students' growth mindset could lead to their learning goal orientations; this, in turn, guided them to both monitor and inquire about feedback from teachers and peers in L2 speaking classes. Meanwhile, a fixed mindset was associated with performance-approach goals, which drove students to actively inquire about feedback from teachers. These students may regard feedback inquiry "as a tool to make a good impression on their teachers" (Papi et al., 2019, p. 215). Indeed, according to the language-mindset meaning system, highly competent fixed mindset students may actively seek positive comments on their good performance (Lou & Noels, 2019). Therefore, the positive association between fixed mindset, performance-approach goals, and feedback inquiry from teachers in Papi et al. (2019) may be attributed to students' high L2 speaking competence. However, as L2 competence was not included in their study, we need to empirically validate this inference.

Next, in a study with 128 L2 writers at a U.S. university, Papi et al. (2020) observed that only growth mindset was positively associated with feedback monitoring, mediated by the values of feedback. Moreover, neither growth nor fixed mindset could directly or indirectly impact feedback inquiry. While the authors did not consider students' L2 competence, they did note this as a limitation and pointed out that learners with different L2 writing competence levels may have diverse motivational behaviors and feedback-seeking approaches (Papi et al., 2020).

Overview of the Literature and Rationale for the Present Study

We can draw four major findings from the extant literature on language mindsets and FSB (summarized in Table 1). First, while studies have observed relationships between language mindsets, goal orientations, and general L2 competence (Yao et al., 2021b; Lou & Noels, 2017), they have not investigated whether these findings are applicable to specific L2

skills, such as L2 writing. Examining L2 writers' language mindsets can "contribute to the understanding of the domain-specificity of language mindsets as well as motivational processes across different language abilities" (Lou & Noels, 2020, p. 550). Moreover, relating language mindsets to FSB can also extend the language mindsets framework by bringing new variables to the language-mindset meaning system.

Second, research on L2 writers' FSB is limited. The only empirical study on L2 writers' FSB (Papi et al., 2020) considered neither students' goal orientations nor L2 writing competence, a potential factor in determining students' goal orientations, in its analyses. Considering L2 writing competence can provide more insights about students' choice of achievement goals and feedback-seeking approaches.

Third, there are two empirical studies on L2 learners' FSB, but on tertiary education in the U.S. (Papi et al., 2019; Papi et al., 2020). This line of inquiry should be extended to other regions and different educational levels. For example, East Asian (e.g., Chinese) students may be influenced by Confucian culture, and demonstrate unique characteristics in their language mindsets and motivational behaviors (Dweck, 1999; Lou & Noels, 2019). In addition, the National College Entrance Examination largely drives high school education in China. Students in such an examination-oriented environment may have different goal orientations and feedback-seeking approaches than those of university students in the U.S. Therefore, empirical research involving L2 writers like Chinese high school students can complement the literature on language mindsets and FSB by adding voices from L2 writers with diverse socio-cultural backgrounds.

Finally, studies have adopted regression analysis to examine the direct and indirect effects of language mindsets on FSB (Papi et al., 2019; Papi et al., 2020). By contrast, we believe that creating a path model (e.g., Lou & Noels, 2017) may be a more effective approach to capture the relationships among variables, especially the interaction effects of

language mindsets and L2 writing competence on goal orientations and FSB.

[Insert Table 1 Here]

In summary, the following two questions guided our research:

1) Can Chinese high school EFL writers' language mindsets impact their FSB via goal orientations?

2) What are the interaction effects between language mindsets and English writing competence in this process?

Research Method

Context and Participants

As part of a larger project investigating Chinese high school students' English writing learning, this study was conducted at a prestigious public high school in a major city in southwest mainland China during the fall semester of 2021. The participants were 462 12th grade students ($Mean_{age}$ = 17.58, SD = 0.54; 57.5% female) who were facing the upcoming National College Entrance Examination. They had five to seven English classes (45 minutes per class) per week and the English writing instruction required approximately 30% of the teaching volume. Participation in this study was voluntary and uncompensated. The study's procedures were approved by the institutional review board.

Instrument

The questionnaire (see Appendix A) measured students' language mindsets, goal orientations, and FSB on a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). We created a continuation English writing task to test the students' English writing competence (see Appendix B).

We adapted six items from Dweck (1999) and Yao et al. (2021a, 2021c) to measure

students' growth and fixed mindsets toward their English writing ability. Example statements included: "You have a certain amount of writing talent, but you can't really do much to change it" (fixed mindset); and "No matter who you are, you can significantly change your writing skills" (growth mindset). Cronbach's alphas demonstrated good internal reliability for the fixed (three items, $\alpha = 0.86$) and growth mindset scales (three items, $\alpha = 0.85$).

The nine goal-orientation items were adapted from Elliot and Church (1997), which have demonstrated showed good reliability in existing research (Yao et al., 2021b; Lou & Noels, 2017). Example statements included: "I want to learn as much as possible from English writing class" (learning goal, three items, $\alpha = 0.70$); "I am motivated by the thought of outperforming my peers in English writing class" (performance-approach goal, three items, $\alpha = 0.84$); and "I worry about the possibility of getting a bad grade in English writing class" (performance-avoidance goal, three items, $\alpha = 0.71$).

The ten FSB items were adapted from Papi et al. (2019). Example statements included: "When I get my papers back, I read all of the comments carefully" (feedback monitoring, five items, $\alpha = 0.90$); and "When I do not understand my teacher's comments on my writing, I ask her/him to clarify" (feedback inquiry, five items, $\alpha = 0.94$).

Continuation English writing has been included in the English test of the National College Entrance Examination in China. We developed a continuation English writing task according to the outline of the national English test. Students first read an approximately 350 words English story, and then wrote two paragraphs (150 words in total) based on the content of the story and with the hints provided at the beginning of each paragraph. Owing to the importance of the National College Entrance Examination, the continuation English writing task is the most frequently practiced writing task for Chinese high school students in their daily learning. The validity of the continuation English writing task has been examined in a recent empirical study (Shi et al., 2020).

Data Collection

Students spent approximately 40 minutes finishing the continuation English writing task and another 20 minutes responding to the questionnaire. Data were collected with the assistance of classroom teachers.

Two experienced raters provided analytic ratings on four sub-dimensions of students' writing: coherence, content, grammar and vocabulary, and linkage; scores ranged from 1 to 25 for each sub-dimension. The rating rubrics were developed based on the rubrics used in the National College Entrance Exam's English test and have been used in existing research on English continuation writing (Ye et al., 2021). To ensure inter-rater reliability, the raters first received a two-hour training session and evaluated five example writings that were excluded from the formal rating. The Pearson correlation coefficients of the four sub-dimension scores were 0.89, 0.90, 0.88, and 0.90 (all ps < 0.001), respectively. Note that the scores on the four sub-dimensions were averaged for each rater. We then took the means of the scores assigned by the two raters to denote the students' English writing competence (ranging from 1 to 25).

Data Analysis

SPSS version 22.0 was used for preliminary analysis, including descriptive statistics, Cronbach's alpha, and bivariate correlations among key variables. Mplus version 8.3 (Muthén & Muthén, 2017) was used to perform the subsequent analyses. We first examined the construct validity of the questionnaire using confirmatory factor analysis (CFA). Specifically, the items for growth and fixed mindsets, three goal orientations, and two feedback-seeking approaches were loaded onto their respective factors. Several model-data fit indices were checked, including the chi-square statistic (χ^2), comparative fit index (CFI;

good > 0.95), root-mean-square error of approximation (RMSEA; good < 0.06), and standardized root mean square residual (SRMR; good < 0.05) (Meyers et al., 2016).

Before conducting path analysis, we reverse-coded the three growth mindset items and averaged the six language mindset items to create a new variable named "language mindsets" for each student, following Lou and Noels (2017). This allowed us to examine the role of language mindset within a single model. A high (low) value for this variable indicates a strong fixed (growth) mindset. We also created the three variables for the three goal orientations and two variables for the two feedback-seeking approaches by averaging their respective items. The interaction effects between language mindsets and English writing competence were created by taking the product of the two variables.

We then configured a hypothesized "language mindsets-goal orientations-FSB" model (Figure 1) according to extant literature. The relationships between language mindsets, English writing competence, interaction effects, and the three goal orientations were established based on the Lou and Noels' (2017, p.242) "Mindsets-Goals-Responses" model. The direct path from language mindsets to learning goals is negative, as we hypothesize that a high score on the language mindsets variable (fixed mindset) is related to a low score on learning goals (Lou & Noels, 2019, 2020). In addition, we hypothesize that the interaction between language mindsets and English writing competence is related to the two performance goals. Highly (less) competent fixed mindset students may pursue performance-approach (performance-avoidance) goals (Yao et al., 2021b). Thus, the interaction effects were positively (negatively) associated with performance-approach (performance-avoidance) goals. Note that to test the interaction effects in the model, the direct paths from language mindsets and English writing competence to the two performance goals must be specified. Finally, some have observed that learning and performance-approach goals may positively lead to both feedback inquiry and monitoring, and that performance-avoidance goals may be

negatively related to the two feedback-seeking approaches (Papi et al., 2019; Papi et al., 2020; VandeWalle, 2003). Accordingly, we specified the direct paths among these variables.

[Insert Figure 1 Here]

As our model involved interaction effects, we transformed all variables into standardized Z-scores to reduce multicollinearity (Cohen et al., 2003). Another reason was that Mplus did not provide standardized estimations for some results in models involving interaction effects, and standardizing the data in advance can provide standardized beta (β) coefficients for subsequent analyses (Klein & Moosbrugger, 2000). The chi-square statistic (χ^2), CFI, RMSEA, and SRMR were used to test the model fit. The bootstrap approach with 5000 samples was used to examine the mediating effects in the model and 95% confidence intervals not including zero indicated significant mediation effects.

Results

Descriptive statistics and bivariate correlations between the key variables are listed in Table 2. The skewness and kurtosis statistics indicate that the dataset had acceptable levels of central tendencies (Meyers et al., 2016). Fit indices for the CFA model were good, with χ^2 (254) = 632.38, $p < 0.001$, CFI = 0.943, RMSEA [90% CI] = 0.057 [0.051–0.062], and SRMR = 0.049. The factor loadings for the items ranged from 0.637 to 0.924, with most hovering between 0.70 and 0.80. The factor correlations are shown above the diagonal in Table 2. Generally, students' growth mindset was negatively associated with having a fixed mindset and performance-avoidance goal; however, it was positively associated with their learning and performance-approach goals, and the two feedback-seeking approaches. Meanwhile, students' fixed mindset was only positively related to their performance-avoidance goal but negatively related to all other variables. Together with Cronbach's alpha coefficients for the key variables, these results demonstrate the reliability and validity evidence of the

questionnaire.

[Insert Table 2 Here]

The Impact of Language Mindsets on FSB via Goal Orientations

The fit indices indicated that our hypothesized "language mindsets-goal orientations-FSB" model fit the data well: χ^2 (8) = 24.312, $p < 0.01$, CFI = 0.971, RMSEA [90% CI] = 0.066 [0.037–0.097], and SRMR = 0.037. The standardized path coefficients are shown in Figure 2. The language mindsets variable (fixed mindset) was positively related to having a performance-avoidance goal. In addition, the direct effects of language mindsets on learning and performance-approach goals were negative, with almost identical path coefficients (-0.31 and -0.30). This suggests that fixed mindset students (high value on the language mindsets variable) may probably pursue performance-avoidance goals, but not learning and performance-approach goals. In contrast, growth mindset students (low value on the language mindsets variable) may have high intentions to pursue either learning or performance-approach goals, but low intentions for performance-avoidance goals.

Regarding the relationships between goal orientations and FSB, learning and performance-approach goals were positively related to the two feedback-seeking approaches, whereas performance-avoidance goals were only negatively related to feedback inquiry. Notably, learning goals had stronger effects on feedback monitoring than feedback inquiry (0.43 vs. 0.24), while it was vice versa for performance-approach goals (0.21 vs. 0.35). The squared multiple correlations of feedback inquiry and feedback monitoring were 0.234 and 0.292, respectively. This indicates that the model explained approximately 23.4% and 29.2% of the variance in the two variables, respectively.

[Insert Figure 2 Here]

We further examined the mediating effects of goal orientations. The standardized

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estimations, standard errors, and 95% confidence intervals for each indirect path are presented in Table 3. Except for the interaction effects, all indirect paths from language mindsets to FSB were negative. This indicates that growth mindset students (low scores on the language mindsets variable) may be guided by their diverse goal orientations to using the two feedback-seeking approaches, while fixed mindset students (high scores on the language mindsets variable) were less likely to do so. Among the three goal orientations, performance-avoidance goals only mediated the influence of language mindsets on feedback inquiry with a weak effect (β = -0.02). Learning and performance-approach goals were significant mediators of the two feedback-seeking approaches. Growth mindset students with learning goals were more likely to use feedback monitoring than feedback inquiry (-0.13 vs. -0.07), whereas those with performance-approach goals were more likely to use feedback inquiry than feedback monitoring (-0.10 vs. -0.06). Thus, growth mindset students would choose different feedback-seeking approaches depending on their diverse goal orientations. For fixed mindset students, the situation became more nuanced after considering the interaction effects of language mindsets and English writing competence.

[Insert Table 3 Here]

The Interaction Effects of Language Mindsets and English Writing Competence

As shown in Figure 2, the interaction effects of language mindsets and English writing competence were only related to performance-approach goals. Simple slope analyses revealed that for fixed mindset students (+1 SD), the direct effect of English writing competence on performance-approach goals was evident: β = 0.19, S.E. = 0.06, p < 0.001, and 95% CI = [0.07, 0.29]. Thus, a high level of English writing competence may lead fixed mindset students to pursue performance-approach goals. For growth mindset students (-1 SD), this direct effect was insignificant: β = -0.04, S.E. = 0.07, p = 0.555, and 95% CI = [-0.18, 0.09].

Thus, growth mindset students' English writing competence was not related to their performance-approach goal orientation. These findings are consistent with the language-mindset meaning system.

Our model showed a significant mediated moderation (Preacher et al., 2007), as the interaction between language mindsets and English writing competence influenced performance-approach goals (mediator); this, in turn, influenced the two feedback-seeking approaches. To further unpack the mediated moderation, we finally examined the indirect effect of English writing competence on FSB via the performance-approach goal using simple slope analyses at different levels of language mindsets (Figures 3 and 4). As shown in Figure 3, the indirect effect on feedback inquiry was evident only for fixed mindset students ($\beta = 0.09$, S.E. = 0.03, $p = 0.002$, and 95% CI = [0.04, 0.15]), but not for growth-mindset students ($\beta = -0.01$, S.E. = 0.03, $p = 0.789$, and 95% CI = [-0.07, 0.05]). Similarly, the indirect effect on feedback monitoring was only evident for fixed students ($\beta = 0.07$, S.E. = 0.02, $p = 0.002$, and 95% CI = [0.03, 0.12]), but not for growth-mindset students ($\beta = -0.01$, S.E. = 0.03, $p = 0.788$, and 95% CI = [-0.06, 0.04]) (Figure 4). In general, fixed mindset students with high English writing competence tended to both inquire and monitor teacher feedback on their writing, with a slight inclination toward feedback inquiry. Further, their performance-approach goal orientation was a significant mediator in this process. However, less competent fixed mindset students were unlikely to do so.

[Insert Figure 3 Here]

[Insert Figure 4 Here]

Discussion

The Relationships between Language Mindsets, Goal Orientations, and FSB

Generally, path analyses results in the present study confirmed that the associations

between language mindsets and goal orientations in general L2 education also held true in L2 writing education. Fixed mindset students were more likely to pursue performance-avoidance goals, in line with the literature (Dweck, 1999; Lou & Noels, 2019). However, this relationship was only moderate probably because the study participants came from one of the best high schools in a major city. Most fixed mindset students may have felt competent in their English writing ability, and thus, were more oriented toward performance-approach goals than performance-avoidance goals. Meanwhile, growth mindset students were equally likely to pursue either learning or performance-approach goals. This contradicts the argument that a growth mindset is related only to learning goals (Yao et al., 2021b; Lou & Noels, 2017). One plausible explanation may be traditional Asian culture, which highlights great achievements through painstaking efforts (Lou & Noels, 2019). Dweck (1999) noted that Asian students emphasized the malleability of intelligence and the importance of effort in academic learning (growth mindset). However, they were also overwhelmed by the great anxiety and pressure to get good grades in various examinations, which creates a "performance-oriented system" (p. 149). For them, "learning and growth are secondary to getting the highest grades and getting into the best schools" (Dweck, 1999, p. 149). The students in this study were 12th grade high school students facing the upcoming National College Entrance Examination. They needed to study hard and outperform others to be admitted to universities, particularly to key national institutions. Therefore, fierce competition among peers may have resulted in the close relationship between these students' growth mindset and performance-approach goal orientation.

Concerning the relationships between goal orientations and FSB, students' performance-avoidance goals were moderately and negatively related to feedback inquiry. This is reasonable because students with such a goal orientation are afraid of receiving negative comments on their poor performance (Yao et al., 2021b; Lou & Noels, 2017, 2019).

Further, they may feel that inquiring about feedback from teachers could threaten their self-presentation and ego. Given the moderate direct effect, the mediating role of performance-avoidance goals was weak. Meanwhile, having learning and performance-approach goals was positively associated with both feedback inquiry and monitoring, in line with extant literature (e.g., Leenknecht et al., 2019; VandeWalle, 2003). However, we found that performance-approach goal was a stronger predictor of feedback inquiry; meanwhile, learning goal was a stronger predictor of feedback monitoring. This contradicts VandeWalle's (2003) prediction that performance-oriented individuals may "prefer the monitoring method of seeking" (p. 590). Our observation particularly held for growth mindset students. These unusual findings may be attributed to the examination-oriented learning environment around the Chinese high school students.

Wong (2016) maintained that students in an examination-oriented environment "were eager to receive teacher-provided answers, rather than learn through self-exploration" (p. 261), as they believed that these answers were directly related to test performance. As growth mindset, performance-approach oriented students focus on good academic performance (Dweck, 1999), the usefulness of teacher feedback in improving academic performance (expectancy value) may play an important role in their actively inquiring about teacher feedback. Notably, Papi et al. (2020) indicated that L2 writers' perceived expectancy value in feedback is more about the long-term development of L2 writing competence. However, here, the concept of expectancy value is more related to its conventional meaning: "the usefulness of feedback-seeking behavior for improving performance" (VandeWalle, 2003, p. 585). Moreover, monitoring teacher feedback may have high effort costs for those students, as it requires observing and interpreting the meaning in the feedback. Direct inquiry of feedback from teachers may be a more efficient way to obtain their desired information. Therefore, despite the risk of exposing their inadequacies and weaknesses, feedback inquiry is a more

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favorable feedback-seeking approach for these students.

Meanwhile, growth mindset and learning oriented students tend to perceive high values and low costs in teacher feedback, and thus, both inquire and monitor teacher feedback for self-improvement (Papi et al., 2019). However, as their primary purpose is to improve their English writing skills in the long run, they are not as eager as the performance-approach oriented students to explicitly seek feedback from teachers in return for immediate improvement of academic performance and positive comments. Instead, they tend to monitor teacher feedback by implicitly observing and interpreting comments from teachers, which allows them more time to better comprehend and absorb the information in feedback.

The Role of Students' English Writing Competence in their Goal Orientations and FSB

We found that highly competent fixed mindset students were more likely to pursue performance-approach goals, whereas those with low English writing competence were less likely to do so. Meanwhile, English writing competence of growth mindset students was unrelated to this goal orientation. These findings align well with the theoretical language-mindset meaning system in general L2 education (Lou & Noels, 2017, 2019). While the issue of domain-specificity of language mindsets has been raised (Lou & Noels, 2020), it appears that the framework established for general L2 education can be applicable to L2 writing education.

Concerning the indirect effect, having performance-approach goals was a significant mediator between fixed mindset and the two feedback-seeking approaches for highly proficient students, with feedback inquiry being slightly preferable. The expectancy value in the feedback may play a role in this process. These students may not believe that their English writing competence can be improved (Yao et al., 2021a, 2021c). However, they are still guided by performance-approach goals to actively inquire about feedback from teachers

to improve and validate their performance (rather than competence), and consequently, get a good grade. Alternately, these highly proficient students may expect positive comments on their writing. They seem to ignore the potential self-presentation and ego costs, but focus on the impression management value in teacher feedback. This is line with Papi et al.'s (2019) observation that fixed mindset and performance-approach oriented L2 learners may regard feedback inquiry "as a tool to make a good impression on their teachers" (p. 215).

However, unlike Papi et al. (2019), we found that fixed mindset students, guided by their performance-approach goals, were also likely to monitor teacher feedback. This inconsistency may be attributed to the different L2 class types. In the L2 speaking classes in Papi et al. (2019), teachers commonly provided oral feedback, and neither positive nor negative comments will have a long-lasting effect on performance-oriented students. Consequently, they are less likely to spend time monitoring the teacher feedback. In L2 writing classes, students typically receive written feedback. For highly proficient, fixed mindset students, rereading and interpreting teachers' positive comments may be an enjoyable experience, satisfying their performance-approach goal orientation. Therefore, monitoring is also a possible feedback-seeking approach for these students.

Notably, less proficient fixed mindset students are less likely to either inquire about or monitor teacher feedback on their writing. For these students, inquiring or monitoring teacher feedback may have a high effort cost and a low expectancy value. On the one hand, they do not believe that undertaking great efforts, such as spending substantial time and energy on learning, can help improve their English writing competence (Papi et al., 2020). On the other hand, given their current low writing proficiency, they may not regard teacher feedback to be useful in improving their writing performance. In addition, seeking teacher feedback on their poor writing performance may have high self-presentation and ego costs and low impression management value. In fact, as Ashford and Cummings (1983) indicated, "it is perhaps the

poor performers, those that need feedback the most for its utilitarian value, who will be the most reluctant to seek it because of potential ego damage" (p. 377).

Pedagogical Suggestions

We argue that teachers should understand L2 writers' mindsets, given their substantial influence on students' goal orientations and FSB. As Yao et al. (2021c) suggested, teachers should survey students' mindsets regularly to track changes in their beliefs about writing competence. This can uncover the underlying factors that shape students' behaviors in L2 writing classes; based on this, teachers can provide tailored assistance to students with different beliefs.

Growth mindset students, regardless of their writing competence, are willing to actively inquire about and monitor teacher feedback. However, teachers should understand their diverse goal orientations regarding writing learning. For example, performance-approach oriented students may appear to proactively inquire about teacher feedback, while their primary purpose of immediately achieving good performance can be a myopic attitude which may be detrimental to their long-term L2 writing competence improvement. To obtain good grades, these students may recite some writing templates or even work on guessing the writing topic in the examinations, instead of developing a solid foundation for writing competence by improving their language and thinking skills, and applying learning strategies. Lou and Noels (2019) also note that performance-approach goals can lead L2 learners to feel anxious and helpless when they experience failure and challenges. The development of L2 writing ability is "a challenging task that typically requires years of persistence and practice" and "students will encounter various difficulties in this process" (Yao et al., 2021c, p. 11). Thus, certain growth mindset, performance-approach oriented students may have a high probability of experiencing negative emotions, such as anxiety,

while learning L2 writing. Teachers should guide these students to have a learning goal orientation and help them focus on improving their writing competence, rather than having a good academic performance. This will help students in developing more optimistic and resilient mentalities when they face difficult and challenging situations while learning L2 writing.

Meanwhile, teachers should help highly proficient fixed mindset students realize that they can further improve their writing competence with sufficient effort and appropriate strategies. In addition, teachers should remind them that receiving positive feedback is not just a reward but also a means for self-improvement. Importantly, the less proficient fixed mindset students may need special attention, as they may have negative beliefs about their writing competence and may be reluctant to seek teacher feedback. Teachers should counsel these students that the comments on their less-desirable writings are by no means negative judgments on them and encourage them to proactively seek clarification from teachers when they are confused about the comments.

Conclusion

Owing to the popularity of student-centered instruction, L2 writers' proactive agency and personal beliefs in writing learning have received increasing research attention in recent years. This study created a path model to investigate the relationships among language mindsets, English writing competence, achievement goals, and FSB in a sample of Chinese high school students. Particularly, we examined the interaction effects between language mindsets and English writing competence. Our work contributes to the literature in three important ways.

First, we find evidence supporting the hypothesized associations among language mindsets, L2 competence, and goal orientation for L2 writers, which have been observed in

general L2 education (Yao et al., 2021b; Lou & Noels, 2017). We show that growth mindset students may be learning oriented, regardless of their L2 writing competence. Highly competent fixed mindset students may pursue performance-approach goals, whereas less competent fixed mindset students may not. Second, we show that goal orientation plays a mediating role between L2 writers' language mindsets and FSB. Students with a growth mindset, guided by learning and performance-approach goals, may both monitor and inquire about teacher feedback. However, only highly competent fixed mindset students are led by their performance-approach goals to the two feedback-seeking approaches. Third, we extend the sparse research on L2 writers' FSB by adding perspectives from an East Asian and examination-oriented context. This study's participants demonstrate some unique characteristics regarding their goal orientation and FSB. Specifically, growth mindset students have an approximately equal probability of pursuing learning and performance-approach goals. Moreover, learning (performance-approach) goals are related more to feedback monitoring (feedback inquiry). These findings highlight the necessity of replicating the existing empirical L2 research in various contexts, particularly for newly introduced frameworks.

However, this study has at least two limitations that merit further exploration. First, the study participants were from a single prestigious public high school in a major city. These students have a better learning environment and materials than students from other regions in mainland China. Thus, performance-avoidance goals may not play an obvious role. Location (i.e., rural vs. urban) and family socioeconomic status can influence students' mindsets and academic performance (Yao et al., 2021b; Claro et al., 2016). Future research may examine the impact of demographic variables, such as location and socioeconomic status, on students' language mindsets and FSB. Second, owing to the cross-sectional design, the relationships among the key variables in this study may be better interpreted as associations rather than

predictions. Students' language mindsets can be changed through appropriate classroom interventions (Yao et al., 2021c; Lou & Noels, 2016). From a longitudinal perspective, future research can examine whether students' initial mindsets determine their FSB one semester or one academic year later. Another interesting area is exploring whether fixed mindset students may become growth oriented and how this transformation in beliefs may affect their FSB.

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