

Tracing Lexical and Discourse Development in a Chinese EFL Learner: A Longitudinal Case Study

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Abstract

In this longitudinal single-case study, the English writing development of one Chinese senior high school learner was examined through three picture-based narratives. The analysis focused on how growth unfolded in two areas: vocabulary use (“word” system) and the development of propositional content (“mind” system). Lexical change was tracked using the type–token ratio, and discourse expansion was examined by identifying idea units. Over the six-month period, TTR rose slightly (0.52 → 0.54), while idea units showed a more noticeable increase (14 → 24 → 30). Follow-up interviews indicated a shift in the learner’s orientation—from mainly completing tasks out of obligation to taking a more self-directed interest in English, partly influenced by exposure to English-language media. These developmental patterns were interpreted within a dynamic systems perspective, which helps explain the uneven and sometimes nonlinear nature of change across linguistic and affective dimensions. The study also reflects on methodological choices and offers implications for EFL instruction and for future longitudinal work on individual learner development.

Keywords: Lexical Richness, Idea Units, Learner Attitudes, Complex Dynamic Systems Theory, EFL Writing, Longitudinal Study

Introduction

Understanding how learners develop their L2 writing ability requires attention not only to linguistic growth but also to the psychological factors that shape learning trajectories over time. Research in applied linguistics has long noted that progress in writing is seldom linear. Teachers often observe extended periods of limited change followed by sudden gains in vocabulary use or discourse organization. These patterns highlight the value of longitudinal work that follows individual learners, since group-level analyses can easily obscure the irregularities and fluctuations that characterize actual learning. Looking closely at development within a single learner therefore provides a more nuanced view of how linguistic and psychological factors interact during L2 writing development.

Despite increasing interest in this area, relatively little is known about how lexical features and discourse-level meaning-making develop together in adolescent EFL learners, especially in senior high school settings. Most longitudinal research has focused on university students, and studies that bring together textual analysis and learners' affective experiences remain relatively rare. Consequently, our understanding of how linguistic growth intersects with attitudes or engagement is still limited. Moreover, learners' attitudes and motivational shifts, which often co-evolve with linguistic development, remain underexplored in adolescent EFL writing. Addressing these gaps is important not only for describing developmental patterns more accurately but also for supporting instructional decisions for adolescent writers.

In response to these gaps, the present study follows one Chinese senior high school learner over a six-month period to document changes in lexical richness, propositional content, and attitudes toward English. By considering linguistic development alongside affective factors, the study aims to show how these dimensions evolve together in a natural classroom context. Its contribution lies in combining textual evidence with learner psychology in a single-participant, school-based longitudinal design—an approach that offers fine-grained insights rarely reported in existing research.

Research Aim

The present study aims to investigate how one Chinese EFL learner develops in lexical complexity, discourse organization, and attitudes toward learning English. Using three picture-based narratives produced under classroom conditions, the study further seeks to determine whether the learner shows observable developmental improvements over time in vocabulary complexity, idea-unit elaboration, and attitudes toward English learning.

Our approach to analysis is tentatively descriptive. Variations are expected, and progress is seen as evidence of local restructuring in the language system, as proposed by dynamic models of language development (Larsen-Freeman, 2006; Fogal, 2022). Lexical development is gauged by calculating the type token ratio (TTR), which is sufficient as an indicator for classroom studies, although references are made to other measures less sensitive to text size issues (Zenker & Kyle, 2021; Kyle, Sung, Eguchi, & Zenker, 2024). Development of discourse is gauged by segmenting units of discourse on the basis of clausal links, with follow-up verification of select and random samples (Carrell, 1985; Ellis & Barkhuizen, 2005; Johnson, 1970). Finally, attitudes toward learning are ascertained by conducting two interviewing sessions in order to provide textual behavior context and indication of motivational shifts (Schumann, 1978; Ellis, 1994).

Literature Review

Lexical Richness and Writing Quality

Lexical richness is generally understood as the range, diversity, and sophistication of vocabulary that learners are able to draw on in their writing, and it is widely treated as an indicator of their underlying lexical development (Laufer & Nation, 1995; Read, 2000). Writing quality is typically defined as the overall effectiveness of a text in fulfilling its communicative purpose, including the clarity, coherence, organization, and linguistic appropriateness of the written work (Weigle, 2002). Much research evidence now indicates that lexical diversity is strongly correlated with human judgments of writing quality, although the metrics for

computing lexical features may differ for varying lengths of text and tasks. Research on other Chinese EFL learners offers comparable evidence. Zhang et al. (2022) found that learners' written output developed unevenly across different dimensions—such as complexity, accuracy, and fluency—which is consistent with the view that writing develops through gradual and sometimes irregular shifts.

Many scholars have pointed out that linguistic indicators cannot be interpreted in isolation. It has also been widely acknowledged that lexical measures fluctuate depending on task demands. The type–token ratio (TTR) remains one of the most frequently used indicators because it is straightforward and accessible for teachers (Hoover, 2003; Djiwandono, 2016). However, more recent studies suggest that length-robust measures such as the moving-average type–token ratio (MATTR) and the mean segmental TTR (MTLD) yield more reliable comparisons across texts of different lengths (Zenker & Kyle, 2021; Kyle, Sung, Eguchi, & Zenker, 2024). Large-scale empirical research further confirms that lexical richness indices can predict human ratings in EFL writing (Yang, Yap, & Mohamad Ali, 2023) and other L2 contexts (Hao, Jin, Yang, Wang, & Liu, 2023). At the classroom level, however, TTR remains a useful tool for tracking development on the same writers, as long as one is aware of the methodological restrictions of this technique, and as long as the texts compared are of comparable size.

A substantial body of work in L2 writing research has demonstrated that different linguistic subsystems often develop at uneven rates, which makes it essential to consider multiple indicators when assessing learner progress. It is well established that lexical and discourse measures tap into distinct but related dimensions of writing ability, and that each provides insight into aspects of development that may not be visible through a single metric alone. As a result, examining both levels together offers a more comprehensive understanding of how learners' written performance changes over time. Taken together, these studies show that lexical indices provide useful—but imperfect—insights into L2 writing development. Recent work on Chinese secondary EFL learners has shown that writing development progresses gradually and somewhat unevenly. Wang, Qin, and Wang (2025) found that high school students' syntactic complexity increased across grades, though different linguistic features developed at different rates.

Discourse Development and Idea Units

Although variety in vocabulary is informative on the dynamics of writing development, discourse metrics provide insights into how learners arrange their ideas and link statements in text. As a unit of analysis, idea units capture how meaning is distributed across a text, making them especially useful for tracking changes in propositional content over time. The core structural role of linguistic units within text and reading comprehension was foundational in early research on idea units (Carrell, 1985; Johnson, 1970), and more explicit research on clause-unit segmentation enabled the analysis of language learner writing (Ellis & Barkhuizen, 2005). On this basis, research on language complexity, accuracy, and fluency, and their interconnected development over time, as shown through time series analysis (Larsen-Freeman, 2006), underpins longitudinal research today. Current research advances in linguistics make it now feasible to semi-automatically segment and align units of idea through computers (Gecchele, et al., 2022), enabling novel applications within text analysis research in the classroom.

Affective Dimensions and Learner Investment

Paralleling linguistic growth, there is mounting evidence on the crucial role of emotions in foreign language learning.

There are quantitative models explaining the linkage of foreign language enjoyment and boredom with overall attainment and clarifying the influential role of the behaviors of teachers in this process (Dewaele, Botes, & Greiff, 2023). In the case of EFL education in China, complexity of tasks and affective experiences are proven to shape EFL writing behavior, affecting fluency, complexity, and accuracy in writing tasks (Zhang & Wang, 2024). The discovery logically confirms the classical theories on the crucial part of attitudes toward the target language speakers on motivational and long-lasting investments in foreign language learning activities (Schumann, 1978; Ellis, 1994).

Complex Dynamic Systems Theory

Complex dynamic systems theory (CDST) offers a useful lens for explaining why learner performance often fluctuates rather than progresses in a strictly linear manner. From a CDST viewpoint, second language development results from the continual interplay of interconnected linguistic, cognitive, and affective subsystems, whose trajectories shift and reorganize as learners adapt to changing conditions (Larsen-Freeman & Cameron, 2008). Because these components evolve at different rates, learners commonly exhibit brief periods of stability, sudden spurts of progress, or temporary regressions as the system restructures itself (Larsen-Freeman, 2006; Fogal, 2022; Zhang, Zhang, & Zhang, 2022).

CDST has also been applied in Chinese EFL writing research, revealing the non-linear nature of learner development. In a longitudinal study, Zhang, Zhang, and Zhang (2022) observed frequent fluctuations and asynchronous growth across lexical, syntactic, and fluency measures in Chinese learners' writing. This perspective aligns well with classroom-based writing data, where momentary plateaus and rapid bursts of progress are typical features of individual developmental trajectories.

Positioning the Present Study

Overall, these approaches show the value of both lexical and discourse research in understanding writing development over time. The present study combines both approaches and employs the constructs of lexical richness and idea units as mutually informative metrics of development, under the guiding principle of complex dynamic systems theory (Fogal, 2022; Zhang, Zhang, & Zhang, 2022). In this framework, TTR is used to trace within-writer change across comparable task lengths, while length-normalized indices such as MATTR and MTLD are noted as useful alternatives for future studies working with longer or more variable text samples (Zenker & Kyle, 2021; Kyle et al., 2024). The value of the interview component is in reflecting on attitude modifications, potentially co-varying within textual patterns (Schumann, 1978; Ellis, 1994). The research intends to accumulate evidence, meaningful and interpretable within the contexts of both pedagogical and research applications.

Methodology

The research adopted a longitudinal single-case design, which took place in a senior high school English language learning classroom setting at a Chinese educational institution. The participant in this research was a male second-year senior high school student with more than

six years of learning experience in English language education, and the text compositions took place three-monthly, namely March, June, and September in the year 2025. The compositions were carried out under exam settings without any use of learning references. Informed ethical consents were obtained from the participant and his guardian, and any individuals were anonymized.

The corpus consisted of three stories, designated as 001, 002, and 003. The type token ratio (TTR) served as the means for calculating lexical complexity, whereas discourse extension was explored by segmenting units of idea at high point clause boundaries and proportional statements, following an efficient set of guidelines. The aims of improving the accuracy and reproducibility of this process were ensured by peer review, wherein 20% of the collected data was independently validated by a secondary rater, and the process of discrepancy explanation was carried out by discussion, as often follows in classroom research on language measurement and observation (Ellis & Barkhuizen, 2005; Larsen-Freeman, 2006; Gecchele, et al., 2022).

In order to understand the textual variation, two structured interviews were carried out in Chinese after the first and third writing tasks. The three core questions were as follows: (1) How are you feeling about learning English? (2) How important is English learning to you? and (3) What is your behavior towards learning English? The data collected through the interviews were translated into English and examined for attitude and motivational variation throughout the research period.

Data analysis entailed three stages. Firstly, TTR calculations were carried out on all narratives, and trends were charted to observe patterns of language development (Figure 1). Second, idea units were segmented and counted for all three writing tasks, and the numerical trends were charted to show how propositional content expanded over time (Figure 2). Next, the identification and matching of idea units were carried out through all three writing tasks to observe discourse development (Figures 3-4).

Finally, qualitative observations on interview transcripts were undertaken to determine trends in attitudes toward English learning (Figures 5-7). Given the sensitivity of TTR measures to text size, interpretations were considered with some reservations, and it is suggested that future studies confirm findings through length- independent metrics, as proposed by Zenker & Kyle (2021) and implemented by Kyle et al. (2024).

Data Analysis

Lexical Index (TTR)

The type-token ratio (TTR), obtained by dividing the no. of types by the total no. of tokens, was used to capture the value of lexical richness. The value is expressed as a proportion ranging between 0 and 1, which is very easy to understand, especially in educational settings, and is appropriate for measuring variation in cases involving comparable text lengths (Hoover, 2003; Djiwandono, 2016). However, as the text size increases, the TTR is likely to reduce, whereas the measure of conceptual vocabulary is actually constant, and hence any comparison in this regard should be carried out with utmost caution. In this case, the TTR is used here merely as an auxiliary tool to furnish evidence of developmental patterns

and is not used for accurately measuring any absolute value. The ranking also considers other length-insensitive lexical measures discussed in recent research, such as MATTR and MTLD (Zenker & Kyle, 2021; Kyle et al., 2024).

Discourse Index (Idea Units)

The process of discourse elaboration was explored through the evaluation of 'idea units' – an approach to analyzing clue-like segments of text which correspond to meaningful propositions. This notion is rooted within existing literature on reading and narratives, adapted within the scope of this research into written narratives (Johnson, 1970; Carrell, 1985; Ellis & Barkhuizen, 2005). Although this process is necessarily subjective, attempts were made to mitigate this through the use of an 'editing/research book' and mutual verification via joint reading by a research partner, as well as evidence toward emerging 'quantitative tools' for improving this process's reproducibility (Gecchele, Yamada, Tokunaga, Sawaki, & Ishizuka, 2022). In light of the fact this writing task represented picture narration, evaluation on the basis of 'idea units' is immediately pertinent to textual communication requirements (Ellis & Barkhuizen, 2005).

Findings and Discussion

Lexical Richness (TTR)

Figure 1 presents that the type-to-token ratio (TTR) of the learner exhibits, albeit moderately, an increasing trend. The series starts at 0.52, sustains itself at the same level in the second narrative, and then increases to 0.54 in the third, registering an absolute increase of 0.02, or about 3.8 percent compounded from the baseline. Despite being very small, this steady improvement indicates the progressive enhancement of his vocabulary for six months. The plateau phase indicates, as reported in various CDST studies, stabilization as a precursor to progress (Fogal, 2022; Zhang, Zhang, & Zhang, 2022).

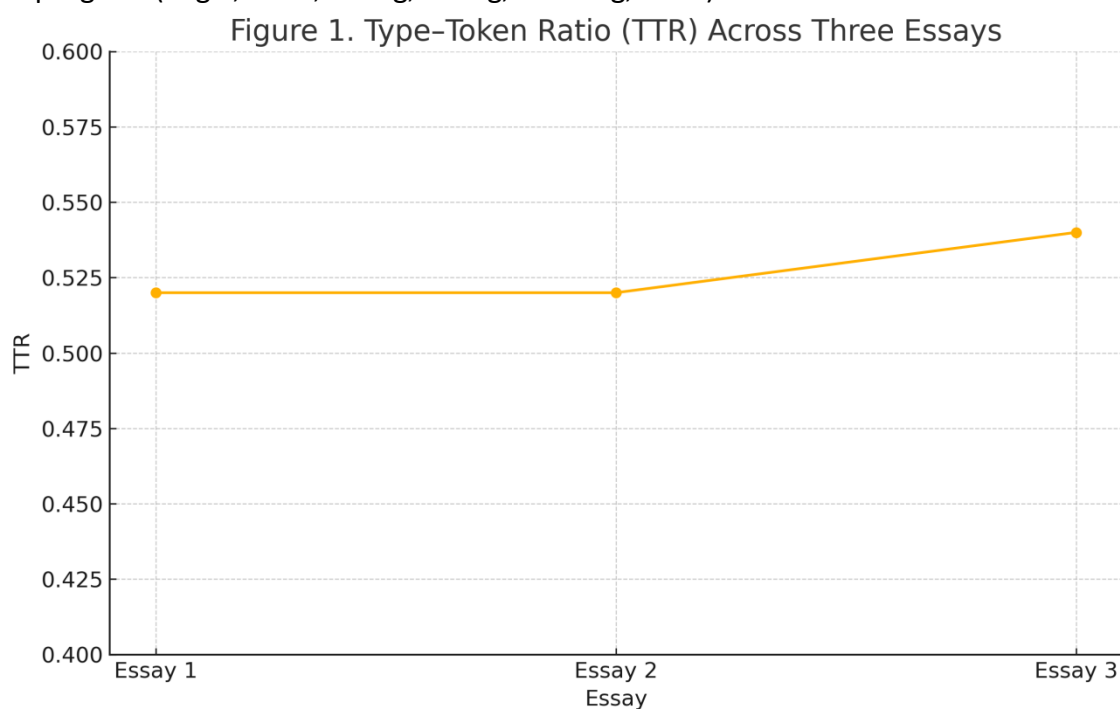


Figure 1. Type–Token Ratio across narratives 001–003.

Discourse Development (Idea Units)

In Figure 2, there is an evident rise in the units of ideas, from 14 in the first narrative to 24 in the second and subsequently to 30 in the third. The significant growth in propositional content from the first to the second essay is achieved without any growth in the word variety, as evidenced by the constant value of TTR (0.52).

This trend shows that discourse development and word variety may grow at non-synchronous rates, which is evident in multi-component language development, whereby various language components grow asynchronously (Larsen-Freeman, 2006). In the third essay, both measures grow concurrently, thereby showing signs of entering the phase of synchronized development, where growth in vocabulary and discourse development are becoming proportional.

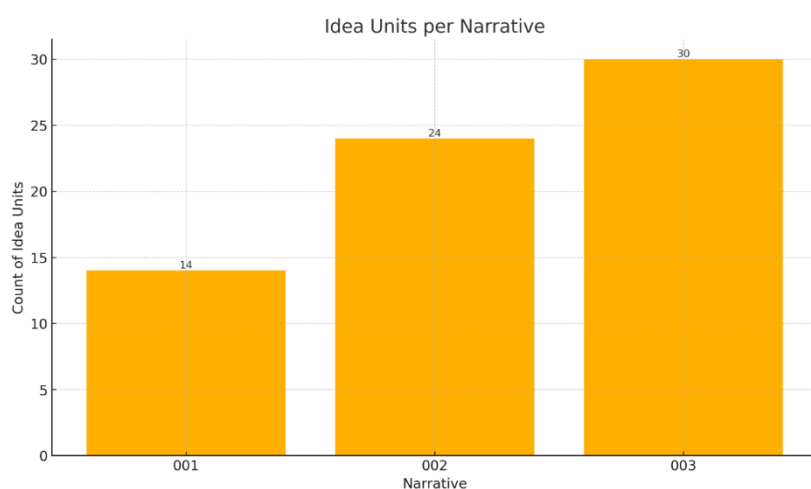


Figure 2. Idea-unit counts for narratives 001–003.

Qualitative Alignment

Figures 3 and 4 offer side-by-side comparisons of the three narratives and show how local text features changed over time. The beginning texts are comprised of short, simply stated clauses—including, for example, “In summer, it becomes a little changeable.” These are declarative sentences with very general meaning and no detail or cohesion. In contrast, the later texts show more complex syntax, as in “and appreciating the green sea beside the road” and “just when you scuttle on the road ... lightning flashes ... roads become muddy.” The addition of detail enhances imagery and narrative flow, suggesting greater facility with discourse integration as the writer is now able to link his ideas cohesively, crossing various clauses, as is evident in his writing.

9	In summer, it becomes a little changeable.	In summer, it becomes a little changeable.	In summer, it becomes more variable, you can never predict
10			The road is dry at one time and wet and sticky at another.
11	In the morning, you walk on the road happily, enjoying the fresh air.	In the morning, you walk on the solid road happily and casually, enjoying the fresh air.	In the morning, you walk on the solid road happily and casually, enjoying the fresh air and appreciating the green sea beside the road.
12		At noon, there are some cracks in the road owing to the strong sunlight.	At noon, there are some cracks in the road owing to the strong sunlight.
13	However, just when you scuttle on the road, it rained heavily.	But, then it rained heavily.	But, just when you scuttle on the road, it rained heavily.
14			And you have nowhere to go and hide.

Figure 3. Aligned excerpts (001 vs. 003): Summer description.

22			What a pathetic path!
23	In winter, it becomes a nuisance.	In winter, it transfers into a nuisance.	In winter, it becomes groundless.
24		Glorious and lightful.	Glorious and lightful, its transparent, glass-like coat is cleaner than before.
25	It is cleaner than before.	It's cleaner than before with its transparent glass-like coat.	
26	How pleased you should be you see such a beautiful road.	How pleased you should be you see such a lovely, beautiful and fantastic road.	How delighted you would be to see such a beautiful and magical path.
27	When you are too excited to pay attention to your step, you slip over heavily.	When you are too excited to pay attention to your step, you slip over heavily.	Nevertheless, it's at this time you are so excited that you don't notice your footing and you slip heavily.
28			If it's unfortunate enough, you might get a broken bone.
29	When it snows, the road will play more tricks on you.	When it snows, the road will play more tricks on you.	When it snows, this road will play more tricks on you.
30		What a naughty road!	What a naughty but hateful road!
31	I love this road and I enjoy its changing seasons.	I love this changeable, beautiful and naughty road!	I love this changeable, beautiful and naughty road and I also enjoy the changing seasons!
32		Also, I enjoy the changing seasons!	
33		No matter how this path changes, it is always the way to my elementary school.	No matter how the road changes, it would be always the way leading me to my primary school, so it is also a tough road, standing still there all

Figure 4. Aligned excerpts (002 vs. 003): Later-narrative elaboration.

Interpreting Divergence Across Indices

The Second Narrative indicates the presence of greater units of ideas without an accompanying measure of increased lexical diversity, and this is to draw attention to the fact that 'lexical diversity and propositional density are related but distinct aspects of writing development'. In other words, the writer may develop his/her ideas by recasting already known lexicons into novel sentence or rhetorical patterns, and this may happen before the lexicons themselves are actually increased. This, as evidenced by this study, fits well into dynamic systems theories, wherein 'the linguistic subsystem(s) may oscillate and temporarily compensate for one another during processes of change and consolidation' (Fogal, 2022; Zhang, Zhang, & Zhang, 2022).

Comparison with Previous Research

The developmental patterns observed in this study are broadly consistent with findings from a substantial body of longitudinal research in applied linguistics. Earlier work has repeatedly shown that learner progress in L2 writing tends to fluctuate over time rather than follow a steady upward trajectory (Larsen-Freeman, 2006). Studies tracking younger EFL learners have similarly documented short-term variations across lexical and discourse dimensions, suggesting that developing linguistic systems remain highly sensitive to instructional conditions, task demands, and learners' affective states (Housen & Kuiken, 2009; Biber, Gray, & Staples, 2016).

The present results also parallel previous analyses reporting that different components of writing ability do not always advance at the same pace. Prior research on adolescent EFL writers has noted that lexical measures may stabilize while discourse-related features continue to develop, reflecting the asynchronous growth of co-existing subsystems (Kormos, 2012; Mazgutova & Kormos, 2015). Evidence from Chinese EFL contexts shows comparable tendencies, reinforcing the argument that stretches of stability, small regressions, and sudden spurts of progress are common features of individual learning trajectories (Wang & Wen, 2002; Lu, 2011; Zhang, Zhang, & Zhang, 2022). Taken together, these converging findings support the widely acknowledged view that non-linearity and uneven growth are characteristic outcomes of long-term L2 writing development.

Methodological Reflections

Owing to the sensitivity of TTR to text length, small discrepancies in the value of this measure may very well capture the variation in text length and may fail to serve as an indicator of actual lexical variation. To address this limitation, this study considered comparable lengths in the texts and used descriptive statements only. The next, and perhaps more logical, step in this process is the calculation of other text-length-independent measures, such as MATTR and MTLD, alongside TTR and text normalization, as suggested by Zenker and Kyle (2021) and Kyle, Sung, Eguchi, and Zenker (2024). Turning to 'idea units,' future studies should pursue agreement and calculate the emerging utility of semi-automatic tools for text segmentation and the improvement of research transparency and reproducibility as suggested by Gecchele, Yamada, Tokunaga, Sawaki, and Ishizuka (2022).

Interview Evidence

The learner's textual development process and growth were illuminated by two interviews conducted after the first and third writing tasks. In his first interview, he did not show much interest in learning English, as it is obligatory in the school system. But by the time of the second interview, his interests were roused by viewing an English movie and learning about visiting the city of London, and thus English was significant to him personally (Figure 5).

There was the same trend evident in his views on the value of the language. The language learner did not have any intentions to use English other than in examinations, but afterwards, his goals changed and wanted to travel or study overseas, hence realizing the value of the language (Figure 6).

There were also shifts apparent in his study behaviors. The learner reported spending more time and taking more directed approaches, like vocabulary practice and self-monitoring, as indications of greater engagement and his feeling of control over overcoming language learning obstacles (Figure 7).

Overall, these attitude shifts reflect the theories long hypothesized as being relevant within the process of second language acquisition, namely the central import of motivation and investment (Schumann, 1978; Ellis, 1994). In addition, they are reflected in the most current research to effect, namely enjoyment and lack of boredom correlate positively with educational success (Dewaele, Botes, & Greiff, 2023; Li, Wei, & Lu, 2023). Although no causal assumption may be inferred from this single-case study, qualitative evidence pertinent to textual progress is suggested by the interview perceptions, and this reinforces the supposition being proposed, namely affective engagement and linguistic development are interconnected.

1) Do you love English? How do you feel about learning English?

Answer:

1st: I **don't feel much** about English, I can't say I like it or dislike it. But **it is a compulsory subject in school, so I study it.**

2nd: **I'm super into English right now,** and a while ago **I watched the movie called Fantastic Beasts 3.** Oh my God, it was so good, and I watched the other two which were also very enjoyable. **I want to travel to England now! So I have to learn English well.**

Figure 5. Interview Q1—attitude toward learning English (before vs. after).

2) How do you believe English is essential?

Answer:

1st: I'm not planning to work abroad or study abroad, and translators are everywhere these days. Chinese influence is so strong that for me right now, **learning English or not is fine.**

2nd: **Now, for me, it's essential. Because I want to travel to England, I have to be able to speak English and maybe I can apply to schools there** hahaha.

Figure 6. Interview Q2—perceived importance of English (before vs. after).

3) How do you behave towards learning English?**Answer:**

1st: I was able to complete all the homework assigned by the teacher, and I would memorize the words and occasionally listen to the tapes and read the text. My test scores are not bad. So for me, it's enough!

2nd: Now I recite the words, listen to the tapes and memorize the texts every day. Then I also asked my mom to buy me some bilingual books from the Bookworm series for junior high school to read on weekends. I can't understand many of them yet, but I believe I can learn English well if I persist.

Figure 7. Interview Q3—learning behaviors (before vs. after).

Conclusion

Across the three narratives and two interviews, the learner showed gradual changes in both vocabulary use and how ideas were put together in writing. The increase in idea units was much more noticeable than the rise in TTR, but taken together they suggest that the learner was able to draw on slightly more varied vocabulary and, more importantly, to stay with a topic and develop it more fully over the nine-month period. Looking across matching parts of the texts, the writing also shifted from short and loosely linked clauses to longer stretches where ideas were connected in a more purposeful way. The interview comments point in the same direction: the learner moved from being largely uninterested in English to taking a more active and self-directed interest in learning.

From a complex dynamic systems perspective, this kind of uneven progress is not surprising. Periods where little seems to change, followed by sudden improvement or temporary gaps between different aspects of language ability, are often reported in long-term studies of learner development. The pattern seen in the second narrative—more idea units but no change in TTR—illustrates how different parts of writing ability can move at different speeds before coming into closer alignment later on.

These results fit well with earlier work showing that the development of L2 writing rarely follows a smooth or predictable path. Studies with adolescent EFL learners also note that vocabulary growth and discourse development do not always progress together, which reinforces the need to look at more than one indicator when trying to understand how learners develop over time. The agreement between what the texts show and what the learner described in interviews also suggests that combining textual measures with learners' own reflections can give a clearer picture of individual learning trajectories.

Overall, this study offers a close look at how one adolescent learner's vocabulary use, discourse development, and attitudes toward English changed over time. While the findings cannot be generalized because only one learner was involved, the analysis provides a detailed view of how different parts of writing ability unfold and shows the value of linking textual evidence with learners' perceptions in both research and classroom decision-making.

Pedagogical Implications

Instruction

In classroom practice, priority is often given to the communicative strength and overall coherence of learner output, with accuracy considered only after meaning and discourse organization have been established. A substantial body of pedagogical research has suggested that second language learners benefit from tasks that encourage them to explore the meanings of words and phrases through rehearsal, as well as from activities that require them to expand a text by adding additional “chunks” of meaning—such as explanations, supporting evidence, or counter-arguments. Classroom techniques such as peer evaluation can draw learners’ attention to issues of discourse structure and organizational quality, while sentence-combining tasks have long been recognized for helping students practice clause chaining and develop greater flexibility in their syntactic choices (Ellis & Barkhuizen, 2005).

Furthermore, task design has important motivational implications. Research on foreign language enjoyment and boredom has shown that increased task complexity can contribute to higher levels of engagement and improved learning outcomes, as more cognitively demanding activities tend to stimulate curiosity and reduce monotony (Dewaele, Botes, & Greiff, 2023; Zhang & Wang, 2024). These findings collectively highlight the need to integrate communicative goals, textual development, and affective factors when planning writing instruction.

Assessment

In longitudinal follow-up studies on individual learners, type-token ratios must be combined with measures less sensitive to text length, for example, MATTR or MTLD, and discourse metrics, for example, Units of Idea or rhetorical vectors. In evaluating longitudinal development, it is crucial to monitor and quantify the size of prompt and text distinctions. In discourse analysis, accuracy may be improved by calculating inter-rater agreement or by compiling the segmentation code book. In this case, full transparency may be achieved by Zenker & Kyle (2021); Kyle, Sung, Eguchi, & Zenker, 2024; and Gecchele, Yamada, Tokunaga, Sawaki, & Ishizuka, 2022).

Research

In future studies, this paradigm should be replicated under various learners and contexts to track developmental pathways more thoroughly. The triangulation of TTR with other robust measures, such as the use of either MATTR or MTLD, and the specification of time as a predictor in models, along with confidence intervals, will improve longitudinal inference. There is also scope for more research on the interaction of task complexity and affective processes, focusing on the development of both lexicon and discourse in EFL learning processes in Chinese settings (Zhang & Wang, 2024; Yang, Yap, & Mohamad Ali, 2023; Hao, Jin, Yang, Wang, & Liu, 2023).

Strengths of the Analytic Approach

The two-fold textual lens enables the capture of two different aspects of development, namely both the lexical and propositional, and hence yields insights into language learning processes through the lens of complex dynamics, which are rooted in the longitudinal approach and emphasize the role of within-writer variation (Fogal, 2022; Zhang, Zhang, & Zhang, 2022).

Equally critical, then, is the attention to methodological clarity reflected throughout this analysis. Index choice, segmentation procedures, and known caveats, such as the sensitivity to sentence length of TTR, are all spelled out, and this enhances the interpretive as well as the trustworthiness of the results. Also, the use of interview data adds an important layer of complexity here, as it shows that the learner's English writing is contextual, reflecting the view of Schumann (1978) and Ellis (1994) that opportunities are co-constituents of affective orientation.

Limitations and Future Directions

Since this study is a single-case longitudinal study, this research provides a detailed, contextual, and longitudinal description of the learning process of the single case, yet the scope of this research will inherently limit generalizability. The phenomena detected within this research will be considered illustrative, as they are non-representative. Extended studies may be conducted on this topic by considering multiple cases or different learning environments to test whether the same patterns are identified.

Another limitation is related to the scope of measurement. The current research used TTR and segmentations by idea units as central metrics, and although they are interpretable and useful, they are only partial measures of language and discourse development. Future research may broaden the scope by including other metrics like complexity of syntax, cohesion, and lexical sophistication so as to get a full picture.

Further, while the value of the interview component is appreciated for the light it shed on qualitative observations, their regular occurrence or keeping a learning journal might have clarified cognitive fluctuations and learning approaches in more detail. The mixture and comparison of qualitative and time-series data may also expose more defined dynamic properties within both lexical and discourse development.

Finally, given the ecologically driven nature of classroom research, issues like task, peer interaction, and feedback are considerations deserving exploration. Variations and combinations of task type, peer interaction, and feedback may shed more light on the role of classroom environments within the context of individual developmental pathways and engagement.

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