Applying group dynamic assessment procedures to support EFL writing development: Learner achievement, learners' and teachers' perceptions

Heshmatollah Afshari, Zahra Amirian & Mansoor Tavakoli

University of Isfahan | Iran

Abstract: The present study investigated the effects of applying cumulative group dynamic assessment (G-DA) procedures (Poehner, 2009) to support EFL writing development in a university context in Iran. It focused on learner achievement, patterns of occurrence of mediation incidents, and learners' and teachers' perceptions towards G-DA. Quantitative data was collected from learners' performance on writing tests and the frequency of occurrence of mediation incidents involving EFL writing components based on Jacobs, Zinkgraf, Wormouth, Hartfield, and Hughey's (1981) scale. Findings revealed that G-DA was more effective than conventional explicit intervention for supporting EFL writing development. Also, it worked best for low ability learners as compared to mid and high ability ones. Besides, the number of mediation incidents declined from 27 in session one to 8 in the final session, confirming the efficacy of G-DA in promoting both EFL writing and learner self-regulation. Most teacher mediation involved language use, vocabulary, and organization and fewer incidents involved content and mechanics. Qualitative data analysis indicated that most learners and teachers held positive attitudes towards the efficacy of G-DA for supporting EFL writing development. However, a few participants asserted that the procedures were unsystematic, stressful, time consuming, and inappropriate for large classes.

Keywords: group dynamic assessment (G-DA), EFL writing development, frequency of mediations, learner perception, teacher perception

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Contact: Zahra Amirian, Department of English Language and Literature, Faculty of Foreign Languages, University of Isfahan, Isfahan, PO Box: 8174673441 | Iran - z.amirian@fgn.ui.ac.ir.

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An important issue in research on learning and teaching second languages (SLA) is linking the findings of developmental theories to classroom practice. Undoubtedly, one of the most influential theories in SLA research is Vygotsky's socio-cultural theory (SCT) of mental development (Wertsch, 1985). It has been used as a theoretical framework both in general education (e.g., Budoff, 1968, 1987; Feuerstein, Rand & Hoffman, 1979) and SLA research (e.g., Aljaafreh & Lantolf, 1994; Poehner, 2005, 2008, 2011; Poehner & Lantolf, 2013; and Swain & Lapkin, 2002). SCT-based research may open new horizons for studying and guiding practical classroom activities and at the same time help improve and shape the theory itself, a process called praxis by Vygotsky (Rieber & Carton, 1987). A number of SLA researchers (Gass & Mackey, 2007; Lantolf, 2010; Lightbown, 2000) believe that linking theoretically informed SLA research to classroom practice is premature and before establishing sound connections to teaching, the process of second language acquisition should be understood clearly. Thus, the theoretical concepts of SCT like the ZPD (Zone of Proximal Development) and DA (Dynamic Assessment) continue to be applied in research on second language acquisition.

DA-based research on L2 (second language) abilities has received increasing attention over the past two decades with the works of Aljaafreh and Lantolf (1994), Nassaji & Swain (2000), Anton (2003 & 2009), Poehner (2005, 2008, 2009 & 2011), Ableeva (2007, 2008 & 2010), Shrestha & Coffin (2012), and Shrestha (2017). In spite of all this research, there seems to be some gaps to be filled with sound empirical investigations before coming to valid conclusions regarding the pedagogical value of DA. First, DA based mediation in past research has mainly been carried out in an individualized, mediator-learner context while L2 learning basically occurs in classroom contexts. Thus, the value of G-DA (group dynamic assessment) in supporting the development of L2 abilities, particularly writing, is not well explored. Second, many L2 DA studies have either adopted a structuralist approach to intervention and assessment in focusing on micro-skills like Aljaafreh & Lantolf (1994) or Poehner (2009) studying the effect of G-DA on the development of L2 grammar and lexis. Such studies have not paid the necessary attention to the potential of DA to support L2 macro-skills like reading and writing. Third, very few L2 DA studies, with the exception of Shrestha & Coffin (2012), have investigated teachers' and learners' perceptions towards G-DA procedures. Last, a majority of DA projects have observed the linguistic behavior of single or a few cases over a few assessment-instruction sessions. There are few longitudinal L2 DA studies that closely document changes in learners' language over time. All in all, the developmental effects of DA, especially to support the ZPDs of groups of learners have not been examined satisfactorily in L2 acquisition literature.

Past DA studies have also ignored two important learning sources. The first is the group's appropriation of mediation directed to individuals when DA is carried out in a group. The second is the effect of positive feelings created in learners as a result of engaging in DA interaction. Among all L2 DA studies, only Shrestha and Coffin (2012)

reported learners' perceptions. This study pays attention to these learning sources alongside with those mentioned in the literature like the value of dialogic collaboration (Aljaafreh & Lantolf, 1994) or self-repair leading to development of self-regulation (Van Lier, 1988). It aims to fill the above gaps by investigating the value of G-DA in promoting EFL writing development from both experimental and qualitative perspectives involving data gathered on learner achievement, learner and teacher perceptions, and direct classroom observation. In the experimental phase, the efficacy of G-DA in promoting EFL writing is examined. In the qualitative phase, learners' and teachers' perceptions towards applying G-DA in academic EFL contexts are explored. As to SLA theory, this study is likely to contribute to findings regarding the role of G-DA in promoting EFL writing development, especially the quality of learners' writing.

1. Theoretical Framework

DA is grounded in the ZPD concept (Vygotsky, 1978). DA is a procedure for the better understanding of the psychological processes that a learner goes through while struggling to perform a task. It helps the researcher understand the learner's level of independent mental development as well as the degree of his responsiveness to mediation (Lantolf & Poehner, 2013). In DA, "assessment and instruction are dialectically integrated into the same development-oriented activity" (Poehner, 2007, p. 324). This helps the mediator explore what the learner can do independently, what he/she can do with assistance, and what he/she cannot do even with assistance. What the learner can do with assistance forms his next or proximal level of development or ZPD. Based on SCT, to access the full picture of an individual's cognitive functioning, both his actual and potential (mediated) levels of development must be observed, and DA is the means to this end (Luria, 1961; Sternberg & Grigorenko, 2002).

As to the relationship between assessment and instruction, DA involves assessing and transforming abilities through dialogic collaboration. Without this collaboration, the mediator's evaluation of the learner's abilities is incomplete. Vygotsky argues that static assessment can only measure development cycles that have already matured and cannot reveal those that are going to mature next. The dialectic unification of intervention and assessment in DA has strong implications for practical teaching in L2 pedagogy (Lantolf & Thorne, 2006; Poehner & Lantolf, 2005). DA places the assessor in a position to obtain a profound understanding of the learner's abilities and provide appropriate instruction geared to each individual's specific level of development (Ableeva, 2010; Anton, 2003).

There are two general approaches to applying DA: the interventionist and the interactionist. In interventionist DA, hints and suggestions are provided from a prefabricated list, arranged from the most implicit to the most explicit ones (Poehner & Lantolf, 2005; Sternberg & Grigorenko, 2000). Interventionist DA is basically psychometric in its orientation to assessment and tries to standardize administration and scoring procedures. The interactionist approach, adopted in the present study, has its

origins in Vygotsky's qualitative conceptualization of ZPD, emphasizing intervention-learning over measurement (Lidz & Gindis, 2003). This qualitative approach forms the basis of interactionist DA. Following this approach, the mediator is free to provide any hints or suggestions he thinks necessary to guide learner performance. Most L2 DA studies follow this approach (e.g., Ableeva, 2010; Aljaafareh & Lantolf, 1994; Anton, 2009; Lantolf & Poehner, 2011; Poehner, 2005; Shrestha & Coffin, 2012; Shrestha, 2017; Swain & Lapkin, 2002; Van Compernolle & Williams, 2012).

Poehner (2009) illustrates two approaches to applying G-DA: the "concurrent" and the "cumulative" (p. 478). In concurrent G-DA, the teacher directs all mediation to the entire class. He may provide mediation in response to one individual, but the interaction shifts rapidly between primary and secondary interactants. In cumulative G-DA, the teacher gets involved in individual interaction with each learner while the class tries to master a point. All subsequent mediation is directed to the same individual trying to master a problem as the class witness the interactions. So, one learner acts as the primary interactant with the teacher throughout the process of solving a problem. Here, the teacher's goal is to advance the whole class in its ZPD using negotiations with individuals in their specific ZPDs. As Poehner (2009) puts it, "cumulative G-DA attempts to move the group forward through co-constructing ZPDs with individuals, but concurrent G-DA supports the development of each individual by working within the group's ZPD" (p. 478). Mediational procedures applied in this study follow the principles of cumulative, interactionist G-DA.

2. Literature Review

One of the earliest studies investigating the relationship between DA and L2 writing was Aljaafreh and Lantolf (1994). They aimed to find out how corrective DA feedback and the unfolding negotiation process between the teacher and learners "leads or fail to lead L2 development" (p. 466). The participants wrote one in-class essay per week for a total of eight compositions. They were involved in DA interaction with an instructor during their tutorials. Aljaafreh and Lantolf (1994) provided "graduated, contingent, and dialogic" corrective feedback (p. 468), and focused on the development of four grammatical features: articles, tense marking, prepositions, and modals. The instructor went through a 12-level regulatory scale to help learners revise their writings. Analyzing the changes in learners' writings, they concluded that effective error correction depends on mediation provided by other individuals who dialogically co-construct a ZPD where feedback as regulation becomes relevant and can be appropriated by learners to modify their interlanguage systems. In order for the novice to gain self-regulation, the expert must be ready to relinquish control to him at the appropriate level. Otherwise, there would be no real development. Therefore, error correction procedures that promote learning cannot be determined independently of individual learners interacting with others, the practice of DA.

The potential of DA for supporting L2 writing was also studied by Anton (2009). He employed DA with third year Spanish language majors to assess their language abilities and intervene in learning. He conducted a five-part diagnostic test. The speaking and writing sections followed DA principles. The writing test consisted of a prompt asking learners to write about their experiences with the language and their plans after graduating. Then, following Aljaafreh & Lantolf (1994), they were asked to read their compositions to themselves and make any revisions needed. In the second phase of revisions, students were allowed to consult a dictionary and a reference grammar manual. Finally, they were invited to ask questions about their compositions and make changes once again. Analysis of students' writings revealed that revisions dealt mostly with word choice, verb morphology, spelling, accents, and punctuation and that most revisions yielded improvements to the compositions. Results revealed that DA allows for a deeper and richer description of learners' actual and emergent abilities and this enables programs to devise individualized instructional plans attuned to learners' needs.

Davin (2013) studied the efficacy of DA integrated with instructional conversations (ICs) to promote both development and assessment of novice level primary school students' control over grammar and lexis. Specifically, she focused on supporting students' ability in forming interrogative sentences. She employed DA procedures to guide each student to formulate the response correctly. Based on cumulative G-DA (Poehner, 2009), each interaction took place between the teacher and an individual learner. Davin (2013) argues that the value of cumulative G-DA lies in the fact that it allows the teacher to track learner progress through the use of systematized feedback responses. She believes that a byproduct of constructing individual ZPDs in the group setting is that even passive participants benefit from the mediation.

In fact, **one of** the most relevant studies of DA and L2 writing is Shrestha and Coffin (2012) carried out with two learners receiving mediation via e-mail. The writing task required the participants to write a case study analysis using a business study framework. When they finished their draft of the text, they were given formative DA feedback targeting their ZPDs, following Aljaafreh and Lantolf's (1994) regulatory scale. Final analysis of the students' writings showed that tutor feedback moves ranged from implicit (e.g., hints and prompts) to explicit (e.g., correct solutions) comments. Results also revealed that DA mediation provided the learners with an opportunity to improve their academic writing skills and develop their conceptual knowledge. This improvement was manifested in the type and amount of mediation required in addition to improvements in their independent performance.

Shrestha and Coffin's (2012) also explored students' and the tutor's perceptions towards DA. Both of their participants were reported to be very positive about DA. They repeatedly stated that their writing abilities improved greatly through DA sessions. Regarding DA as an assessment instrument, they said that it was more relaxed and built confidence in their academic writing abilities unlike traditional methods that often

cause stress and do not explain the reasons why they obtained a particular score. Both participants said that DA procedures were very supportive in enhancing their writing development. The learners' comments revealed that DA may not only make learning an enjoyable experience but it can also enhance writing development. The tutor's comments showed that learners made progress both with regard to their academic writing and their self-regulation abilities.

Shrestha (2017) is also related to the focus of the present study. He investigated the potential of DA in helping three undergraduate students transfer genre features and conceptual knowledge from an academic literacy course to business studies. He implemented interactionist DA through email, instant messaging or wiki comments over two DA tasks. He provided DA-based mediation and reformulated the task as needed until the learner mastered it. He recorded tutor and learner moves and evidence of improvements in the participants' writing. After the second DA task, he examined the transfer of genre features and conceptual knowledge from the second DA to another more challenging task called TA (transfer assignment). Finally, it was shown that all three students wrote a successful macro-Theme as learned and demonstrated in DA texts. Based on the results, Shrestha (2017) argues that these students have transferred their ability to write appropriate themes to a new and more challenging assessment context. That is, they have developed genre awareness through the DA procedures. In an interview, all the participants expressed positive attitudes about DA, repeatedly stating that they achieved greatly through participation in the DA procedures. They referred to interactive tutor feedback and writing of several drafts as the main reasons for their writing development. They said that DA was more relaxed and comfortable, and helped to build their confidence in academic writing. They also mentioned patience and encouragement as positive and effective attributes of DA. Shrestha (2017) asserts that "DA offers an innovative pedagogical approach which may not only make learning an enjoyable experience but also enhance writing development" (p. 14).

The value of dialogic collaboration, the heart of G-DA procedures, in promoting students' writing skills has also been appreciated in the works of Shi, Matos, and Kuhn (2019) and Negretti and Mežek (2019). The findings of Shi, et al. (2019) provide convincing support for the positive role of a dialogic approach in promoting students' argumentative writing, especially for academically low-performing students. Negretti and Mežek (2019), investigating the writing development of three successful Bachelor essay writers in literature, showed that their interaction with their supervisors promoted their development of writing regulation. Analyzing the writers' essays and their interview protocols, they have shown that "social interaction is crucial in supporting students' regulation of writing, effectively leading to an experience of individual learning and transformation" (Negretti and Mežek, 2019, p. 28).

The few DA studies investigating L2 writing (e.g., Anton, 2009; Shrestha & Coffin, 2012) have mostly examined writing at the micro-level of sentence formation. They have not considered learners' abilities in creating coherent texts. Anton (2009), for

example, mainly explored the type and number of revisions students made to their compositions. She did not examine the effect of DA on developing L2 writing. Regarding the state of research on L2 academic writing, as Black and McCormick (2010) state, this skill is essential for students' success in higher education, but conventional writing assessment methods do not match with the concept of learning advocated in higher education contexts.

To date, with the exception of Anton (2009), only few L2 studies have exclusively focused on the impact of G-DA on EFL (English as a foreign language) writing in an academic context. DA mediation has generally been delivered in an individualized rather than group format. Even Shrestha and Coffin (2012) and Shrestha (2017) provided only individualized DA mediation. In fact, most L2 DA studies have been case studies (e.g., Aljaafreh & Lantolf, 1994; Poehner, 2005). Formal L2 education typically occurs in classroom settings and thus, G-DA seems more appropriate for supporting L2 skills in such contexts. EFL writing has not received the attention it deserves in DA research, because most studies have examined oral skills (e.g., Ableeva & Lantolf, 2011; Poehner, 2005). Besides, few L2 studies have investigated the potential of G-DA in supporting EFL writing following a longitudinal design.

To assess the developmental effects of G-DA in an academic EFL writing context with sound empirical data and to look at the issue from the perspective of the principal actors in L2 teaching-learning contexts (i.e., teachers and learners), the present study was designed.

3. The Present Study

The present study aimed to contribute both to the practice of teaching EFL writing in higher education contexts and to L2 acquisition theory in general. This contribution was sought in light of the comprehensive look at the issue both by measuring students' achievement and by exploring teachers' and students' perceptions towards the value of G-DA for promoting EFL writing development. In academic EFL contexts, there is an urgent need to explore the capacity of alternative intervention methods like G-DA to support students' writing skills and to shed some light on learners' and teachers' perceptions towards such procedures. Also, the researchers hope to use the findings of the study to persuade decision makers and EFL instructors in higher education contexts to include G-DA in their educational programs. Accordingly, the study attempted to investigate the following research questions:

Does G-DA affect the writing abilities of EFL learners in terms of content, organization, vocabulary, language use and mechanics?

Does G-DA affect the EFL writing abilities of learners at three different levels (low, mid, and high ability levels) differently?

How does the frequency of mediation of EFL writing components (content, organization, vocabulary, language use, and mechanics) change throughout the G-DA intervention program?

What are students' and teachers' perceptions of applying G-DA to promote EFL writing development?

4. Method

4.1 Research Context

The study took place in Teacher Education University of Iran, Isfahan, Bahonar Branch with EFL learners studying English as their major. They received education to be high school English teachers after graduation. Data were collected from three groups of participants: 60 male TEFL (Teaching English as a Foreign Language) students, eight experienced EFL instructors in the university, and the course teacher. The students' age range was 18 to 21. To select the students and the teachers, non-random purposive sampling was used. Students with similar educational backgrounds were selected. All of them had learned English in public high schools with no extra language learning experience in private institutes. They were randomly assigned to two groups of G-DA (experimental) and comparison, each with 30 students.

The observing teachers were eight experienced instructors from the university's TEFL department. They were selected based on their teaching expertise and experience (more than 10 years). They watched the videos of the recorded G-DA sessions, read students' essays throughout the course, listened to the classroom teacher's explanations about how the course teacher applied G-DA procedures and then expressed their perceptions on the efficacy of G-DA by answering an open-ended questionnaire.

The classroom teacher for both groups (G-DA & comparison) was one of the authors with twelve years of experience in teaching EFL writing courses. He wrote field notes and observation reports after each session on a daily basis. He focused on the efficacy of G-DA as compared with explicit instruction, types and number of mediation incidents per session, and quality of teacher-student interaction in the G-DA class.

4.2 Design

The first phase of the study involved quantitative data collection and analysis methods. The second phase exploring learners' and teachers' perceptions towards G-DA, involved qualitative methods. Thus, the study followed an embedded, mixed-methods design involving a major experimental phase and a minor qualitative one.

4.3 Instruments

IELTS Tests (pre and post-tests)

Two IELTS (International English Language Testing System) writing tests from the academic module were adapted from the past paper collection of Cambridge English IELTS 10 (2015) and were used as the pre and post-tests (see Appendix A). The tests were used to assess the efficacy of G-DA in supporting EFL writing development as compared to explicit procedures. They assessed both groups' writing abilities at the beginning and end of the experimental program lasting for a course of 12 weeks. IELTS writing tasks were used as measurement instruments to ensure their validity. Students' essays were scored based on Jacobs, Zinkgraf, Wormouth, Hartfield and Hughey's (1981) scale (see Appendix B).

Jacobs et al.'s (1981) scale for assessing ESL composition

This is an analytic scale assessing English writing in terms of content, organization, vocabulary, language use and mechanics. As the designers explain, content refers to a learner's knowledge of the topic and his development of the thesis. Organization refers to cohesion and coherence. Vocabulary refers to a learner's skill in choosing effective and appropriate words and idioms to develop main ideas. Language use refers to learners' command of English structural rules. Mechanics refers to mastery of spelling, punctuation, capitalization, handwriting, and paragraphing.

This scale was used because it provides detailed criteria for each ability level in English writing and precise instructions for scoring composition. It assigns these weights to writing components: content (30%), organization (20%), vocabulary (20%), language use (25%) and mechanics (5%). The minimum score in Iranian universities is zero (0) and the maximum score is twenty (20). Thus, students' essays were scored within this range by three independent raters and the mean of the three scores was calculated and reported as the final score. The raters took two tutorial sessions on how to use the scale before starting their jobs. Satisfactory inter-rater reliability values existed between their scores on both pre and post-tests. The reliability values are presented in Table 1.

Table 1: Inter-rater reliability measures (three raters) for pre and post-tests of EFL writing

	Inter-rater reliability
Pre-test	0.82 (SD.06)
Post-test	0.79 (SD.09)

Open-ended questionnaires

Two open-ended questionnaires were used to explore students' and the observing teachers' perceptions towards G-DA (see Appendix C). They were piloted and validated through a rigorous consensus validation process by consulting twelve Applied Linguistics experts before administration. The first one was used to explore students' perceptions towards the efficacy of G-DA and the inclusion of G-DA in their regular

writing classes. The questions also explored learners' ideas about the comparison of G-DA with explicit instruction, the effect of G-DA on their motivation for learning EFL writing, and their perceived drawbacks of G-DA. Students were also asked to add any other ideas or feelings they had about G-DA, not included in the questions. The second questionnaire was used to explore observing teachers' perceptions towards the efficacy of G-DA to promote EFL writing ability.

Classroom observation

Direct observation was carried out by the classroom teacher throughout the course to gain a thorough understanding of the students' reactions to G-DA procedures, their degree of involvement in class activities and the related correction tasks, and their progress in improving writing skills. Field notes on classroom events were written both in class and outside. Outside notes were taken by watching the videos recorded from the G-DA sessions.

Video recording

After obtaining students' and university authorities' consent, all G-DA sessions were video recorded for later analysis. The videos were used for counting the frequency of mediation incidents involving EFL writing components during G-DA sessions, eliciting the observing teachers' perceptions on the efficacy of G-DA, and helping the classroom teacher to observe and analyze student and teacher activities after the class and complete his observation reports and field notes.

4.4 Procedure

First, the pre-test scores of G-DA (N = 30, M = 11.33, SD = 3.78) and comparison groups (N = 30, M = 11.30, SD = 3.68) were put in an independent samples t-test. As Table 2 indicates, no significant difference was observed between the two groups ($t(58)$ = 0.035, p = .97). Thus, they were considered homogeneous. Both classes were held from 10-12 in the morning on alternative days and were taught by the same instructor along a 12-session course on EFL writing. The students in both groups wrote 12 essays on the assigned topics selected from Williams (2011) and Cambridge IELTS Examination papers (2011 & 2015) throughout the course as their homework. The coursebook and the homework tasks were the same for both groups, but the teaching and error correction methods were different. Both classes received instruction in English structures, paragraph development, cohesion, coherence, vocabulary, language use, mechanics of writing and other topics related to standard essay writing. The students' main textbook on the rules of essay writing was Soles (2005) The Academic Essay.

Table 2. Results of t-test comparing the means of G-DA and comparison groups on the pre-test and post-test

	Levene's Test for Equality of Variances	*t*	df	*p* (2 tailed)	Mean difference

	F	*p*				
pre-test	0.035	0.852	0.035	58	0.972	0.03
post-test	7.133	0.010	2.560	49.38	0.014	1.85

In the comparison group, the teacher followed the principles of explicit instruction and error correction. He presented lengthy lectures on the different components of EFL writing. He corrected students' papers outside the class and wrote corrections or suggestions for improving the writing quality to be observed by them individually. He provided immediate, direct corrective feedback to students' errors and gave extra explanations. When students needed more explanation, he guided them individually. Here is an example:

> **Student:** *Shopping on the Net is cheaper, easier, and faster. Some people prefers this kind of shopping.
>
> **Teacher's feedback:** The underlined parts contain errors or inappropriate use of language. Read the explanations and correct your writing based on them. Shopping on the Net is cheaper, easier, and faster. [...] people prefers this kind of shopping.
>
> **Structure:** The subject "people" is a plural noun and needs a plural verb form. So, omit the third person singular marking suffix "s" from the verb "prefer."
>
> **Cohesion:** You should use an appropriate discourse marker such as "as a result or therefore" to connect the two sentences to increase the cohesion of your text.
>
> **Word choice:** It's better to replace the word "kind" by "way" in the second sentence. Internet shopping is a "way," not a "kind," of shopping. Also, you can use "online shopping" for "shopping on the net" to make your sentence more concise.
>
> **Alternative form:** Since online shopping is cheaper, easier, and faster, some people prefer this way of shopping.

In the G-DA group, the teacher gave lectures on EFL writing components, but he included most of his lessons in the G-DA interactions following students' errors. Here, the teacher provided G-DA based mediation for each student while others were witnessing. Every session, each student's essay was written on the board and the teacher tried to guide him to correct his errors going through Aljaafreh and Lantolf's (1994) regulatory scale (see Table 3). The teacher's mediational moves followed cumulative, interactionist G- DA framework. Thus, no pre-fabricated list of hints was used. A typical G-DA session was held in the following way:

A student wrote his essay on the board. Other students were asked to read the sentences silently. They were not allowed to mention the errors, provide corrections or guide the student on the board. Following Aljaafreh and Lantolf's (1994) regulatory

scale, the teacher first asked him to read his essay carefully and find and correct the errors he could detect by himself. Usually, students could find and correct some of their errors at this stage independently. For the errors the student could not notice, the teacher started guiding him with the most implicit hints and gradually moved towards more explicit ones. When the student was unable to complete the task even with the most explicit hints, the teacher turned to another student to go through the same procedures. Again, the teacher provided all types of indirect hints and suggestions for this student and gradually made them more explicit.

All sub-components of EFL writing could be the subject of G-DA-based interaction. To prevent bright students from dominating class activities, each time the teacher chose different students to try to act as primary interactants. When no student could correct an error, the teacher provided the correct answer and gave extra explanations. Table 3 shows the teacher's regulatory scale while providing mediation for the students. The teacher did not necessarily go through all the steps in providing mediation on all types of errors. Instead, he felt free to provide any mediation he thought as appropriate to guide a student to get to the correct answer. Following interactionist DA, he made any changes he felt necessary in the assistance levels in Table 3 and provided what hints he felt necessary in guiding students' corrective moves. The following is an example of a teacher-student interaction in the G-DA class.

Student 1: *Over the past ten years, <u>government</u> has increased the price of gas in Iran.
Traffic and pollution problems <u>haven't solved</u>. This is not a good solution.
Teacher: read your sentences once again and see if you have made any mistakes.
S1 (after two minutes of silence): article "the."
T: right, where should we use it?
S1: I think we need the definite article "the" before "government."
T: OK, you are right. What else?
S1 (Thinks for a minute): nothing.
T: what about the verbs?
S1: "increased?"
T: no, go to the second sentence.
S1: "haven't solved." I've used the present perfect.
T: the tense is correct. The voice?
S1: Oh! I got it. It must be in the passive voice.
T: how do we change it into passive?
S1: we add the verb "be" after "have."
T: "be" or "been?"
S1 (thinks for a minute): "been."
T: all right, but we can connect three sentences in another way to make
the text sound more natural and meaningful. Can you do it?
S1 (thinks for a minute): no, I can't do it.
T: asks another student (S4) to interact with him to improve the organization of the text.

S4: Increasing the price of gas can't solve traffic and pollution problems.
Iran's government has increased the price of gas over the past decade, but it hasn't solved these problems.
T: very nice, but how can we relate the sentences to each other to make them more effective in meaning?
S4: I don't exactly know what you mean.
T: do you remember the lesson on "cohesive devices."
S4 (thinks for a minute): "because," we add it to the second sentence.
T: (reads it with an interrogative tone) "because?"
S4: no, no. "for example" is the right connector.
T: OK, that's right.
*S= student *T= teacher

Student 1 could detect the definite article error in sentence one without assistance. Thus, even the mere presence of the teacher provided an affective support for the learner helping him find and correct his errors. Aljaafreh and Lantolf (1994) refer to this as "the collaborative frame" that marks the beginning of the collaborative interaction and functions as a source of feedback that was not available to the learner before interaction (p. 471). For the verb error in the second sentence, the student needs a higher level of assistance. The teacher gives a more explicit hint (level c in Table 3) guiding him to think about the verb. Then he rejects the student's unsuccessful attempt at correcting the error by rejecting the auxiliary "be" and finally asks the student to choose between "be" and "been." At this stage, the student gets to the correct answer. Here, the teacher asks him to revise the sentences to improve its cohesion and coherence. Since he is not able to revise the sentence, the teacher directs his guidance to another student (S4). This student is at a higher ability level and can revise the sentences with the most implicit hint, i.e. teacher's recast.

Table 3. Teacher's levels of assistance in G-DA sessions, adopted from Aljaafreh and Lantolf (1994)

The teacher asks the learner to read, find the errors, and correct them independently; (construction of "collaborative frame" prompted by the presence of the teacher before the G-DA interaction starts).
Prompted or focused reading of the sentence that contains the error by the learner or the teacher.
Teacher indicates that something may be wrong in a segment (What is wrong with this sentence, clause, paragraph, etc.?)
Teacher rejects the student's unsuccessful attempts at recognizing the error.
Teacher narrows down the location of the error (e.g., he repeats or points to the specific part containing the error).
Teacher indicates the nature of the error, but does not identify the error (e.g., "There

is something wrong with the tense marking here").
Teacher identifies the error (e.g., You shouldn't use the preposition "in" here).
Teacher rejects learner's unsuccessful attempts at correcting the error.
Teacher provides clues to help the learner arrive at the correct form (e.g., "It is not really past but something that is still going on").
Teacher provides the correct form and gives explicit explanation for use of the correct form and provides examples of the correct pattern when other forms of mediation fai1 to elicit an appropriate responsive action.

4.5 Data Analysis

Quantitative data

Two types of quantitative data were collected and analyzed. The first type included G-DA (*n= 30)* and comparison group (*n= 30*) scores on pre and post-tests of writing. The means of these scores were used to evaluate the efficacy of G-DA and to compare it with that of conventional, explicit methods in supporting EFL writing development. Data on pre and post-tests were also used to compare the performance of the three sub-groups (low, mid, and high ability learners) of the G-DA class to find out the differences in their achievement on the tests. The second type of quantitative data included the frequency counts of mediation incidents involving each writing component based on Jacobs et al.'s (1981) model. These frequencies were counted and recorded for each G-DA session throughout the entire experimental course using the video recordings. Here, the goal was to find out which writing component was mediated most frequently in the G-DA class and how the number of mediations per session changed throughout the course.

Qualitative data

Qualitative data included EFL learners' and observing teachers' answers to open-ended questionnaires on the efficacy of G-DA and the classroom teacher's field notes on his direct observation of classroom activities, interactions, and learners' progress throughout the course.

4.6 Analytical tools

Independent and matched pair t-tests

Independent t-tests were applied to check for homogeneity of G-DA and comparison groups before intervention and to compare their means after intervention to measure the efficacy of the methods. Matched pairs t-tests were applied to compare the means of the three sub-groups (low, mid, and high ability learners) of the G-DA group on pre and post-tests of writing to see how their performances differed after intervention.

Frequency counts

Video recordings of G-DA sessions were watched carefully by the researchers to find out how frequently EFL writing component (i.e., content, organization, vocabulary, language use and mechanics) was mediated both during each session and over the entire course. The goal was to find out which components were mediated more frequently and how the number of mediation incidents following students' errors changed throughout the course. The number of mediation incidents were used as an index of students' errors. A high frequency was interpreted as an indication of low quality writing and a low frequency as an indication of improved writing ability, confirming the efficacy of G-DA.

Content analysis

First, students' and visiting teachers' answers to the two questionnaires were carefully read, coded and categorized independently by the three researchers to explore their perceptions towards the efficacy of G-DA in supporting EFL writing. Then, the classroom teacher's field notes were independently read, coded and categorized by the three researchers and the most recurring themes were extracted. The researchers tried to develop the categories by closely examining and constantly reviewing, revising, and synthesizing the data as suggested by Miles and Hubermann (1994).

In analyzing the data gathered from all three sources, iterative thematic categorization was conducted to develop themes representing the data as best as possible. To ensure the quality of the results, the researchers used peer debriefing, member checking, and thick and rich descriptions as recommended by Eisner (1997) and Mackey and Gass (2012). Data was collected from three sources to enhance the quality. To ensure the credibility of data analysis, the researchers provided a colleague with raw data and their interpretations. The themes emerging from analysis of the data were reviewed by the researchers and their colleague. Discussions between the colleague and the researchers led to the researchers' assurance of their interpretations and minor modifications in some interpretations. For member checking, the researchers asked the participants to give regular feedback and to check if the researchers understood their comments rightly.

As Mackey and Gass (2012) assert, credibility in ethnographic research involves prolonged engagement and thick description. Credibility of the qualitative phase of the study was assured through the researchers' rather long engagement with the learners and the observing teachers lasting for a course of four months. During this period, the researchers could check, re-check, and ensure their understanding of the themes by listening to the learners' and teachers' comments and checking the final themes they found with them. Thick description of classroom practice was achieved through the detailed description of teacher and student activities and interactions throughout the course both through direct observation of class activities and by watching the video recordings. Besides, the participants' perceptions were solicited to either confirm or contradict the observational data.

5. Results

5.1 Efficacy of G-DA in Promoting EFL Writing:

An independent samples t-test was used to compare the scores of the two groups on the post-test. The results suggested that the G-DA group (M = 14.98, SD = 2.14) significantly outperformed the comparison group (M = 13.13, SD = 3.33); t (49.38) = 2.56, p = 0.014 on the post-test. Therefore, the analysis confirmed a significant effect for G-DA on EFL writing development. The analysis clearly indicated that students enjoying G-DA intervention significantly outperformed those in the comparison group on the post-test. This supported the hypothesized efficacy of G-DA in promoting EFL writing development and its superiority over conventional, explicit methods of intervention and error correction.

5.2 G-DA and EFL Learners' Ability Levels

To investigate the relationship between leaners' ability levels and their responsiveness to G-DA, first the G-DA learners were divided into three sub-groups based on their scores on the pre-test: *low, mid,* and *high* ability learners. Then, the means of each sub-group on pre and post-tests of writing were compared using matched-pair t-tests to check for the differences in their performance as a result of exposure to G-DA. Table 4 below illustrates the descriptive statistics for the three sub-groups on pre and post-tests and Table 5 summarizes the output of the t-test analyses.

Table 4. Descriptive statistics for the 3 sub-groups of G-DA on pre and post-tests of EFL writing

	Pre-test			Post-test		
Sub-groups	Mean	SD	Max.	Mean	SD	Max.
Low (n=11)	7.21	1.45	9.50	12.95	1.45	15
Mid (n=11)	12	1.40	14	15.22	1.03	17
High (n=8)	16.06	0.84	17	17.43	0.63	18.50

Max. = Maximum score

Table 5. Results of matched-pairs t-tests comparing the means of the 3 sub-groups of low, mid, and high ability learners in G-DA class from pre to post-test

Pairs pre-post	Mean Difference	t	Df	p (2 tailed)	SD
Low	5.72	23.23	10	≤0.001	0.81
Mid	3.22	14.86	10	≤0.001	0.47
High	1.37	8.77	7	≤0.001	0.40

The mean difference is significant at the *0.05* level

As Table 5 illustrates, the t-test analyses revealed significant differences between the means of all three sub-groups from the pre to the post-test; low: t (10) = 2.56, p = 0.000, mid: t (10) = 14.86, p = 0.000, high: t (7) = 8.77, p = 0.000. This increase in the learners' means is interpreted as the result of G-DA intervention. Considering the magnitude of t values, low and mid ability learners were more responsive to G-DA while low ability ones were the most responsive.

5.3 Frequency of Mediation of EFL Writing Components

As Figure 1 indicates, out of the five components, language use was the most frequently mediated one. It was mediated *93* times per student essay throughout the course. This means that learners used G-DA interactions to solve their problems of structure more than other four components throughout the intervention program.

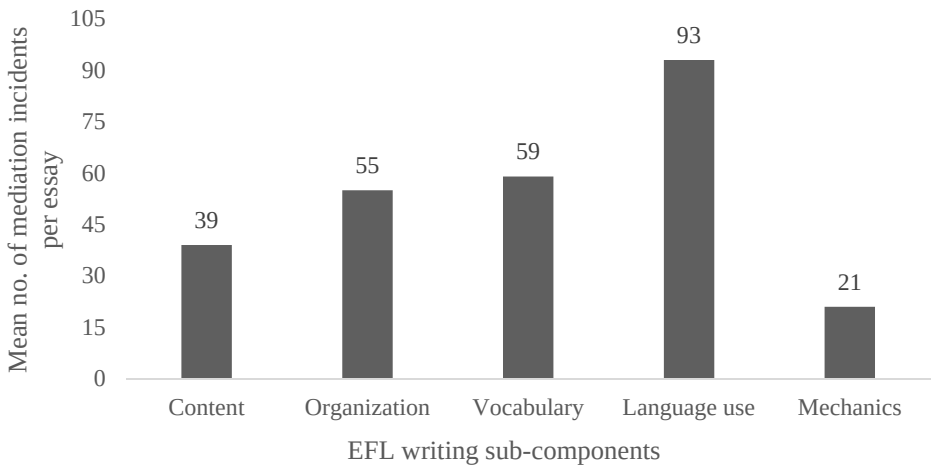

Figure 1. Mean number of mediation incidents per essay involving each EFL writing component.

The next most frequently mediated component was vocabulary, *59* times per essay. Although these students had already demonstrated satisfactory knowledge of vocabulary on a general proficiency test to enter the university, often they were not able to use their learned vocabulary actively in writing.

The next component involving the highest mean number of mediation incidents was organization (i.e., cohesion and coherence), corrected *55* times per essay throughout the course. This revealed students' weakness both in writing well connected sentences and in presenting well-organized and logical order of ideas. The mean number of mediations relating to content was only *39*. The least mediated component

was writing mechanics, mediated *21* times per essay over the entire course. Most errors here were related to punctuation and paragraphing.

Figure 2 provides a clear picture of the changes in the pattern of occurrence of errors requiring G-DA mediation over the entire course. It illustrates the fact that during the first five or six sessions, the frequency of errors was relatively high (on average, *25* to *31* mediation incidents per essay per session). But from week 6 to week 12, the second half of the course, the graph depicts a considerable decline in the mean number of mediation incidents. This is indicative of a considerable decrease in the number of students' errors, declining from *26* cases in week six to only *8* ones in week twelve.

5.4 EFL Learners' Perceptions about G-DA

Data on EFL learners' perceptions of G-DA were gathered using an open-ended questionnaire. Twenty-one students agreed to answer the questionnaire. The results are reported under 4 thematic topics in descending order based on the frequency of each topic as mentioned by the learners. Illustrative quotations of the topics are also provided.

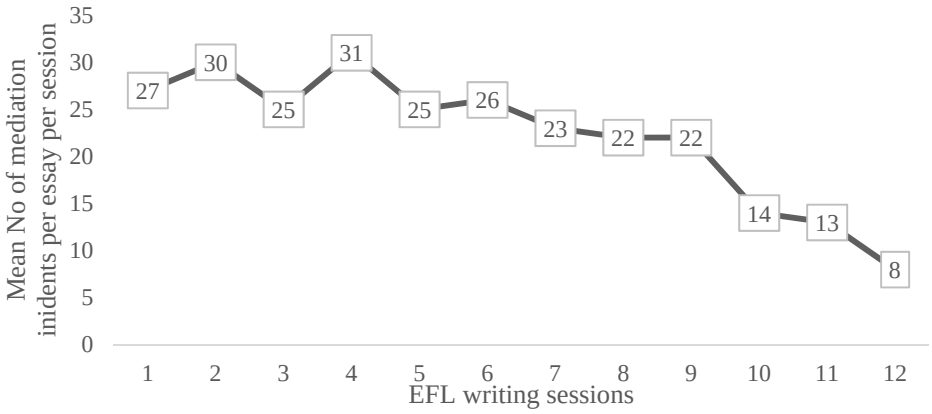

Figure 2. Changes in the mean number of G-DA mediation incidents throughout the course.

Efficacy of G-DA

All the respondents unanimously agreed that G-DA was efficient in helping them develop their EFL writing abilities. They expressed a very positive attitude towards applying G-DA in writing classes. They stated that the procedures significantly improved their writing skills. They mentioned these reasons for the efficacy of G-DA: prolonged engagement with language forms, learning from others' interactions with the teacher while acting as secondary interactants silently, enjoying group work, having a

chance to detect and self-correct errors in the presence of the teacher, and increased attention to writing components. Respondent 3 said:

G-DA was definitely more effective than conventional, explicit teaching methods. Take my own case. In the first session, I wrote a text of only 30 words, and it contained 12 errors. It was disappointing. Now, at the end of the course, I wrote a 250-word essay with only 18 errors. Now, I can write longer texts with fewer errors; I have got more interested in learning EFL writing; and I feel much more confident to write in English.

Comparison of G-DA with explicit instruction

Sixteen learners (76 percent) said that G-DA was more efficient than explicit teaching methods they had experienced in most of their high school and university EFL courses. Most of them compared the two methods in terms of their teaching and assessment potentials. As to teaching, they believed that G-DA better revealed their strengths and weaknesses and this helped the teacher to guide their writing development more effectively. Regarding assessment, they said that placement and selection decisions based on G-DA scores were more valid than conventional assessment practices since it measured their true abilities by examining actual performance. Student 6 wrote:

In our traditional exams, it happened frequently that we could answer a question only with the teacher's most implicit hints, but we were not allowed to ask questions. In traditional assessment, all learners who can't answer a question get the same score. We believe that scores assigned to our essays through G-DA were more valid and fair.

The effect of G-DA on learner motivation

Fourteen students (66 percent) agreed that G-DA increased their motivation for learning EFL writing considerably. They mentioned the intimate teacher-student relationship, active and exciting classroom atmosphere, challenging tasks, and expectations of more valid scores as the main reasons for their enhanced motivation. Student 18 wrote that before the course he had little interest in English writing and almost no confidence in his writing ability, but now he has decided to continue taking writing courses even after graduation to become a proficient writer.

Drawbacks of G-DA

Only three learners (14 percent) referred to some problems of G-DA. They mentioned its time-consuming nature, the stress and embarrassment created as a result of having one's errors displayed in public, and the unpredictability of future classroom activities as the main problems. Student 10 wrote: "It was a stressful situation for me to write my essay on the board and put it to the judgment of my peers." Another student (13) wrote: "G-DA activities mostly depended on students' writing, not on a fixed syllabus. So, we didn't know exactly what to expect for the next session and how to prepare for it."

5.5 Visiting Teachers' Perceptions about G-DA

The 8 observing teachers listened to the classroom teacher's explanations regularly, checked students' progress by reading their essays throughout the course, and watched

the video recordings. Then, they answered the questionnaire. The questions sought to find their perceptions about the efficacy of G-DA, the writing sub-components that best fit for G-DA mediation, their preferred method for teaching EFL writing, and the feasibility of applying it in regular EFL classes. The topics are reported here in descending order based on their frequency in the teachers' answers.

Efficacy of G-DA

All 8 teachers asserted that G-DA was more efficient than conventional, explicit instruction in promoting learners' writing skills. They mentioned the nature of G-DA interactions, learners' prolonged mental engagement time with the tasks, effective group work, intimate teacher-student relationship, peer and self-correction, and the teacher's awareness of students' strengths and weaknesses as the main sources of learning in this method. Teacher 3 wrote: "Considerable evidence of progress in students' writing abilities was observed both in terms of quality and length of the essays throughout the course. G-DA was really effective for teaching EFL writing."

EFL writing components that best fit for G-DA mediation

Six teachers (75 percent) stated that G-DA was more suitable for supporting English structures, word choice, and organization though it positively affected content knowledge and mechanics too. They thought that content and especially mechanics were not appropriate subjects for G-DA based mediation.

Teachers' preferred method

Five teachers (62.5 percent) wrote that they would definitely prefer G-DA to conventional explicit teaching and correction methods. They believed that G-DA was both more effective and more motivating than conventional explicit methods generally used in university classes. Teacher 7 stated: "If I'm given a choice, I'll definitely use G-DA to teach writing next semester. It can really enhance students' writing development."

Feasibility of applying G-DA in EFL writing classes

Five teachers (62.5 percent) agreed that G-DA can be applied effectively in EFL writing classes. Only two teachers said that although G-DA is an appropriate method, it is not suitable for university classes since the classes are normally large and G-DA is time-consuming and demanding for the teachers. They also said that G-DA classroom activities are stressful for weak students and do not follow a systematic syllabus.

5.6 Classroom Teacher's Perceptions about G-DA

The course teacher's field notes were read and coded by the three researchers. Iterative, thematic categorization of the data yielded these themes.

Efficacy of G-DA

The teacher had repeatedly mentioned the efficacy of G-DA for supporting EFL writing. He referred to students' prolonged engagement with language forms, student attentiveness, teachers' awareness of students' strengths and weaknesses, intimate teacher-student relationship, dialogic teacher-student collaboration, and peer and self-correction as the main sources of learning. He wrote: "In G-DA, even the weakest students get the most out of class time since they observe all teacher-student interactions and learn much from others' errors."

Effect of G-D on learner motivation

Repeatedly, the teacher wrote that as the course went on the G-DA group's motivation for learning writing increased considerably. He mentioned the close student-teacher relationship and the challenging and active nature of G-DA interactions as the main reasons.

Feasibility of applying G-DA

The teacher frequently mentioned that G-DA was effective for promoting EFL writing. However, he wrote that correcting the essays was time consuming. He strongly believed that G-DA can effectively be implemented in regular EFL courses, but not in large classes. Only twice, he wrote that some weak students got embarrassed while correcting their essays through G-DA.

6. Discussion and conclusions

This study investigated the efficacy of cumulative G-DA (Poehner, 2009) for supporting undergraduate university students' EFL writing development. It also explored students' and teachers' perceptions towards G-DA procedures. Analysis of quantitative data including EFL learners' performance on writing tests and frequency counts of mediation incidents throughout the course strongly supported the efficacy of G-DA for supporting EFL writing development. This improvement was higher for low and mid ability learners compared with high ability ones. The considerable decline in the number of mediation incidents in G-DA group throughout the course indicated a significant improvement both in learners' writing abilities and their independence from the teacher. This is particularly important when we consider the relative increase in the length of students' essays as the course went on. Also, the findings revealed that G-DA was more frequently used by learners for mediating problems of structure, word choice, and organization and less frequently for content and mechanics. Analysis of qualitative data revealed that the learners, the course teacher, and the observing teachers held positive attitudes towards applying G-DA in regular EFL writing courses.

The results confirmed the findings of L2 DA studies including Aljaafreh and Lantolf (1994), Poehner (2007 & 2009), Anton (2009), Ableeva (2010), Davin (2013), and Shrestha and Coffin (2012) regarding the efficacy of DA to support L2 development in general. The study provided empirical data in support of Aljaafreh and Lantolf's (1994)

argument that DA promotes learners' abilities both in forming grammatically correct sentences and in using appropriate words in writing. Findings also relate to the results of Anton (2009) on the potential of DA to support L2 writing indicating that students' revisions after receiving G-DA mediation led to improvements in their essays.

Particularly, the results correspond with Shrestha and Coffin's (2012) finding that DA helps promote L2 learners' academic writing abilities. The decrease in the number of mediations used to correct students' errors also confirms the growth of learner self-regulation as a result of enjoying G-DA interactions mentioned by Aljaafreh & Lantolf (1994), Poehner (2005), and Shrestha and Coffin (2012) as a positive effect of DA on L2 development. The study further confirms the finding of Poehner (2009) and Davin (2013) that G-DA supports L2 development in general. The results support their argument that G-DA meets both students' and teachers' needs in allowing the teacher to track learner progress through the use of systematized feedback responses and in helping learners gain control over language forms.

The findings also correspond with the results of Negretti and Mežek (2019) and Shi, et al. (2019) regarding the supportive role of dialogic collaboration, the heart of G-DA interactions, in promoting the development of writers' self-regulation and their academic writing abilities.

The fact that high ability learners' mean performance did not improve as much as that of low and mid ability ones may be because they were at a higher developmental level and had already completed their interlanguage development cycles and did not get involved in G-DA mediations. That is, they didn't feel the need to participate actively in G-DA. Low and mid ability learners' better performance may be because of the fact that they were at a lower level in their interlanguage development continuum and got more engaged in G-DA interactions. Therefore, they could integrate more of the corrected features of language into their interlanguage systems.

The main reasons for the efficacy of G-DA can be discussed in terms of the following learning sources. First, learners' involvement in a social activity helped them enjoy what Aljaafreh & Lantolf (1994, p. 471) call a "collaborative frame." This means that even the teacher's affective support provides the necessary motif for a learner to think more deeply on his writing, detect his errors, and use his metalinguistic knowledge to correct them. In line with Aljaafreh and Lantolf (1994), we believe that even the mere presence of the teacher as a dialogic partner helped the learner implicitly, but significantly. Learners had lots of opportunities to detect and correct their errors before the class, but they couldn't. This shows the importance of joint or social activity as compared with individual work in dealing with errors.

Another explanation for the efficacy of G-DA is learners' prolonged engagement with language forms resulting in what Schmidt (2001) refers to as "noticing" (p. 3). He argued that "unattended stimuli persist in immediate short-term memory for only a few seconds at best, and attention is the necessary and sufficient condition for long-term storage to occur" (p. 16). In line with Schmidt (2001), it is hypothesized here that

students' deliberate attention to language forms as a result of involvement in G-DA interactions increased the probability of long-term storage (i.e., learning) of the corrected forms. Attention to forms was also mentioned in learners' and teachers' answers to the questionnaires. In explicit instruction, learners' noticing of the language forms is reduced to a minimum level since the teacher provides the correct answer as soon as an error occurs and deprives the learner of the opportunity to attend to forms. Hence, his chances of learning decrease considerably.

Efficacy of G-DA can also be explained in terms of the appropriacy of the corrective feedback. Based on Vygotsky's arguments and theoretical and empirical work in SCT, effective feedback is "contingent," "graduated," and "dialogic" (Aljaafreh & Lantolf, 1994, p. 468). One explanation for the efficacy of G-DA procedures applied in the study can be that they met these conditions adequately.

Learners' self-mediation through silent participation in correction tasks called "private speech" in SCT research (Ohta, 2001 b, p. 16) can be another reason for the efficacy of G-DA. In line with Poehner (2009), we believe that in the G-DA class, a learner benefited both from mediation directed to himself and mediation directed to others. This is a major advantage of G-DA over explicit instruction and even individualized DA. In the G-DA group, this enhanced the development of their writing abilities. Therefore, the study supports Ohta's (2001 b) and Borer's (2006) argument that private speech induced by DA is effective in strengthening foreign language learners' learning and retention.

In the qualitative phase, the participants almost unanimously agreed on the efficacy of G-DA. This confirms the results of the quantitative phase and also the findings of other L2 DA studies like Shrestha and Coffin (2012), Poehner (2009) and Shrestha (2017). The qualitative phase particularly confirms two conclusions drawn by Shrestha and Coffin (2012). First, it confirms their argument that DA helps the teacher diagnose students' problem areas and second, the argument that DA helps learners to improve their writing. The students' and teachers' perceptions also corresponded with Shrestha and Coffin's (2012) participants' positive attitudes towards the efficacy of DA in promoting L2 academic writing. Learners in both studies shared positive attitudes towards applying DA to support L2 academic writing.

Most themes extracted from the qualitative data provided evidence for the aforementioned explanations on the value of G-DA for L2 writing development. The participants frequently referred to prolonged mental engagement time and students' learning from peers' interactions through private speech. The classroom teacher's awareness of students' problems through G-DA interactions stated by learners and teachers confirms Aljaafreh and Lantolf's (1994) conditions for effective corrective feedback. This corresponds with Poehner's (2009) argument that G-DA's contribution to L2 education is that it makes classroom interactions more attuned to learners' emergent abilities and so creates more effective learning conditions. Learners' and teachers' acknowledgement of the value of G-DA interactions carried out in the

presence of peers confirms Poehner's (2009) and Davin's (2013) argument that constructing individual ZPDs in the whole group setting helps even passive participants benefit from the mediations.

Overall, the results confirmed Aljaafreh and Lantolf's (1994) and Frawley's (1992) argument that successful error correction mainly depends on mediation provided by others who co-construct a ZPD with the learner where feedback becomes relevant and can be appropriated by the learner in modifying his interlanguage. Therefore, we argue that effective error correction is a dialogic process where the learner both improves his developing language system and gains an ever-growing control over it. We also argue that the most appropriate place for this form of teacher-learner interaction is the classroom context where groups of learners learn together.

The results also indicated that G-DA was most frequently used to mediate problems of structure, vocabulary, and organization, and less frequently for content and mechanics. One interpretation for this is that learners had already developed a good command of content and mechanics while their knowledge of other areas was insufficient.

Implementing G-DA in academic EFL writing programs is highly recommended to EFL writing instructors in academic contexts. However, instructors must have sufficient theoretical knowledge and training in G-DA and know the mechanisms of effective mediation. First, they should continuously assess learners' needs and tailor assistance to their ZPDs. Then, the process of uncovering learners' potential levels of development must be carried out dialogically. Without dialogue, it is almost impossible to explore learners' ZPDs. Assistance that does not meet these two criteria might be counterproductive and hinder learning and growth rather than promote them.

We admit that G-DA is a newly introduced intervention approach and has a long way to go in L2 pedagogy and research. First, we are aware of the fact that G-DA may not be appropriate for supporting the development of all EFL writing components or all linguistic features. Besides, as a few participants asserted, G-DA procedures were stressful and time-consuming for weak learners and the syllabus looked unsystematic for some. Future studies can investigate these problems and look for appropriate solutions. Also, all the participants were male and the sample size was small. Thus, to generalize the results validly to the whole population of EFL learners it should be replicated with both male and female participants and bigger sample sizes. Future work may also investigate the potential of G-DA for promoting the EFL writing development of other age groups or proficiency levels. An interesting suggestion is to conduct a similar study and ask the learners why they didn't use G-DA interactions to improve their knowledge of content and mechanics. Finally, considering the importance of learners' emotions in any teaching-learning activity, learners' affective reactions to G-DA may also be explored in future studies.

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Appendix A: Pre and post-tests of EFL writing, selected from Cambridge English IELTS 10 (2015)

The pre-test (Cambridge IELTS 10, test 2, writing task 2):

You should spend no more than 40 minutes on this task. Write about the following topic.

Some people think that all university students should study whatever they like. Others believe that they should only be allowed to study subjects that will be useful in the future, such as those related to science and technology.

Discuss both these views and give your own opinion.

Give reasons for your answer and include any relevant examples from your own knowledge or experience.

Write at least 250 words.

The post-test (Cambridge IELTS 10, test 1, writing task 2):

You should spend about 40 minutes on this task. Write about the following topic.

It is important for children to learn the difference between right and wrong at an early age. Punishment is necessary to help them learn this distinction.

To what extent do you agree or disagree with this opinion?

What sort of punishment should parents and teachers be allowed to use to teach good behavior to children?

Give reasons for your answer and include any relevant examples from your own knowledge or experience.

Write at least 250 words.

Appendix B: Jacobs, et al.'s (1981) scale for assessing second language writing proficiency

Score	Level	Criteria
Content	30-27	Excellent to very good: knowledgeable, substantive thorough development of thesis, relevant to assigned topic
	26-22	Good to average: some knowledge of subject, adequate range, limited development of thesis, mostly relevant to topic, but lacks detail
	21-17	Fair to poor: limited knowledge of subject, little substance, inadequate development of ideas
	16-13	Very poor: does not show knowledge of subject, non-substantive, not pertinent or not enough to evaluate
Organization	20-18	Excellent to very good: fluent expression, ideas clearly stated/supported, succinct, well organized, logical sequencing, cohesive.
	17-14	Good to average: somewhat choppy, loosely organized but main ideas stand out, limited support, logical but incomplete sequencing
	13-10	Fair to poor: non-fluent, ideas confused or disconnected, lacks logical sequencing and development
	9-7	Very poor: does not communicate, no organization, or not enough to evaluate
Vocabulary	20-18	Excellent to very good: sophisticated range, effective word/idiom choice and usage, word form mastery, appropriate register
	17-14	Good to average: adequate range, occasional errors of words/idiom form, choice, usage, but meaning not obscured
	13-10	Fair to poor: limited range, frequent errors of word/idiom form, choice, usage, meaning confused or obscured
	9-7	Very poor: essentially translation, little knowledge of English vocabulary, idioms, word form, or not enough to evaluate
Language use	25-22	Excellent to very good: effective complex constructions, few errors of agreement, tense, number, word order/function, articles, pronouns, prepositions
	21-18	Good to average: effective but simple constructions, minor problems in complex constructions, several errors of agreement, tense, number, word order/function, articles, pronouns, prepositions but meaning seldom obscured

	17-11 10-5	Fair to poor: major problems in simple or complex constructions, frequent errors of negation, agreement, tense, number, word order/function, articles, pronouns, prepositions and/or fragments, run-ons, deletions, meaning confused or obscured Very poor: virtually no mastery of sentence construction rules, dominated by errors, does not communicate, or not enough to evaluate
Mechanics	5 4 3 2	Excellent to very good: demonstrates mastery of conventions, few errors in spelling, punctuation, capitalization and paragraphing Good to average: occasional errors of spelling, punctuation, capitalization, paragraphing but meaning not obscured Fair to poor: frequent errors of spelling, punctuation, capitalization, paragraphing, poor hand-writing, meaning confused and obscured Very poor: no mastery of conventions, dominated by errors of spelling, punctuation, capitalization, paragraphing, handwriting illegible, or not enough to evaluate

Appendix C: EFL Learners' and teachers' questionnaires on the efficacy of G-DA for supporting EFL writing development.

Students' questionnaire

Dear student,
This questionnaire contains a number of questions about your perceptions towards G-DA procedures that you experienced throughout your EFL writing course last semester. You are asked what you yourself think about these questions. There is no right or wrong answer. Your opinion is what is wanted. Please express your own perception when you answer the questions. You will not be judged in any way for your answers and your answers will be kept secret.

1. Do you think that the teaching method applied in the past course (group dynamic assessment) has been effective in supporting your EFL writing development? Why? Explain in detail.
2. How do you compare the efficacy of G-DA with that of conventional explicit teaching methods of teaching and error correction that you have experienced in your grammar and writing courses before? Which method was better? Explain it.
3. Do you think that with G-DA the quality of your writing improves faster than conventional explicit methods?
4. How do you compare the validity and fairness of scoring in G-DA with traditional static assessment? Do you think that G-DA makes the scoring of your essays more valid?
5. In your idea, what are the strengths and weaknesses of G-DA procedures applied in your EFL writing classes?
6. What do you think about the placement and student selection decisions based on G-DA procedures? What about material development based on G-DA?
7. Do you think that applying G-DA made scoring and assessment of EFL writing ability more logical and fair?
8. How did G-DA experience affect your motivation for participating in EFL writing classes, learning the writing skill and continuing learning outside the university? Explain.

Add any other points you like about applying G-DA procedures in EFL writing courses.

Teachers' questionnaire about their evaluation of G-DA as a method of supporting EFL writing development.

Dear teacher,
This questionnaire is designed to explore your perceptions towards G-DA as an intervention method for supporting EFL writing development. Based on your observation of class videos and your analysis of students' essays written throughout the course, you are asked to express your perceptions about these questions. There is no right or wrong answer. Your opinion is what is wanted. Please express your own perception when you answer the questions. You will not be judged in any way for your answers and your answers will be kept secret.

1. Do you believe that G-DA is an efficient method for teaching EFL writing? Why? Explain it.
2. How does G-DA work for teaching English structures, vocabulary, organization, content and mechanics of writing? In your opinion, which components fit best for G-DA type mediation?
3. Do you think that G-DA is an effective method for diagnosing students' strengths and weaknesses in writing and gearing instruction to students' actual developmental levels?
4. Do you think that G-DA is an effective method for helping students express what they mean and minimizing the discrepancy between their thoughts and their expressed forms in writing essays?
5. Do you think that after taking part in G-DA sessions students could write well-formed and grammatically correct sentences with fewer errors?
6. Do you think that through G-DA the teacher could help students revise their essays to make them more well-formed and coherent?
7. What are the weaknesses of G-DA as a method for teaching EFL writing?
8. How do you compare G-DA with conventional explicit methods for correcting students' errors? Which method is more effective for strengthening learning and recall? Explain it.
9. How does G-DA work in helping students activate their passive vocabulary and use it in writing essays?
10. If you are given a choice for the next semester, will you use G-DA or explicit teaching and correction methods for teaching EFL writing?
11. What do you think about applying G-DA in regular EFL writing classrooms in university contexts? Add any other points or subjects you think were not included in the questionnaire.