



The Journal of Language Teaching and Learning™

2017

Volume 7/Issue 1

Article 1

Web-based Versus Face-to-Face Interactionist Dynamic Assessment in Essay Writing Classrooms – A Comparative Study

Alireza Ahmadi, Shiraz University, arahmadi@shirazu.ac.ir

Fateme Besharati, Shiraz University, fpa.besharati@gmail.com

Recommended Citations:

APA

Ahmadi, A., & Besharati, F. (2017). Web-based Versus Face-to-Face Interactionist Dynamic Assessment in Essay Writing Classrooms – A Comparative Study. *The Journal of Language Teaching and Learning*, 7(1), 1-29.

MLA

Ahmadi Alireza and Fateme Besharati. "Web-based Versus Face-to-Face Interactionist Dynamic Assessment in Essay Writing Classrooms – A Comparative Study." *The Journal of Language Teaching and Learning* 7.1 (2017): 1-29.

The JLTL is freely available online at www.jltl.org, with neither subscription nor membership required.

Contributors are invited to review the Submission page and manuscript templates at www.jltl.org/Submitonline

As an online journal, the JLTL adopts a green-policy journal. Please print out and copy responsibly.





The Journal of Language Teaching and Learning, 2017(1), pp. 1-29

Web-based Versus Face-to-Face Interactionist Dynamic Assessment in Essay Writing Classrooms – A Comparative Study

Alireza Ahmadi¹, Fateme Besharati²

ARTICLE INFO

Article History:

Received August 01, 2016

Revisions completed October 17, 2016

Published January 16, 2017

Key Words:

Sociocultural theory

Dynamic assessment

Microgenetic development

Argumentative essay writing

Google Docs

ABSTRACT

The present mixed-method study attempted to investigate the efficacy of using an interactionist dynamic assessment procedure to assist university EFL learners in writing argumentative essays. It also sought to discover the differential effect of dynamic assessment in face-to-face versus web-based modes of delivering mediation. The quantitative component of the study revealed the outperformance of the experimental group on the posttest. However, the two modes of delivering mediation had no differential impact on the degree of improvement of the two experimental groups in the essay writing ability. Furthermore, with regard to the transfer tasks, the experimental groups could successfully transfer their learning to the near and far transfer tasks. The qualitative analysis of the negotiations also demonstrated an improvement in the essay writing ability of the participants over the sessions. Merging the quantitative and qualitative analyses, the study found that interactionist dynamic assessment, in both modes, can have positive effects on the learners' ability to write better argumentative essays.

© Association of Applied Linguistics. All rights reserved.

Teaching and assessment of writing skill are popular research areas and a good deal of research has been conducted on them. However, research on writing has largely been allocated to the effectiveness of using corrective feedback in its most conventional form. Although corrective feedback has long been a common practice by writing teachers, efforts to correct learner errors sometimes seem to be only efforts-paying and time-spending as learners might not incorporate the given feedback into their linguistic repertoire. This justifies employing more dynamic methods of providing feedback introduced in Vygotsky's Sociocultural Theory of Mind.

From sociocultural perspective, good feedback embodies constructing a dialogic interaction with the learners wherein they can develop. Nassaji and Swain (2000) maintain that unlike the conventional

¹ Shiraz University, arahmadi@shirazu.ac.ir

² Shiraz University, fpa.besharati@gmail.com, 09177612733

perspective on corrective feedback, sociocultural theory considers error correction as a social activity in which the teacher and the learner jointly construct an interaction; an idea that is closely linked to Vygotsky's theories of ability and development. Vygotsky (1978) believed that human mental functions develop as a result of participation in social activities mediated by others and cultural artifacts. For him, abilities are not stable traits that can be measured; they are emergent and dynamic rather than innate. He observed that cognitive abilities mature as a result of individuals' engagement in activities. He further suggested that individuals' abilities always include both fully internalized functions and those that are still in the process of maturing. From a Vygotskian perspective, assessment should attempt to understand the full range of these abilities. To capture this full understanding, he proposed his famous concept of Zone of Proximal Development (ZPD) as 'distance between the actual development as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance or in collaboration with more capable peers' (p.86).

Moreover, employing a dynamic assessment procedure concurs with Vygotsky's attempt toward a full integration of assessment and instruction. Establishing this monistic view in an educational setting can assist assessors in mediating examinees' performance to uncover the full picture of their abilities. In fact, assessing within ZPDs makes it possible for teachers to use classroom interactions as an opportunity to gain insight into learners' abilities and simultaneously support their development through mediation (Poehner, 2009). Vygotsky challenges the conventional educational paradigms by arguing that in the conventional paradigm, where individuals' independent problem solving is only observed, the assessor can only monitor the functions that are fully internalized with no insight into those functions that are in the process of maturing. A complete understanding is obtained when various forms of support are offered to learners; the support which ultimately improves development. (Vygotsky, 1978).

Although ZPD has had different interpretations and implications in education since its inception, it is best realized through dynamic assessment (DA). Lussier and Swanson (2005) define DA as a procedure that aims to use mediation to modify learner performance while simultaneously understanding their learning potential.

According to Lantolf and Thorne (2006), it is mediation that makes a procedure dynamic or nondynamic. Through co-construction of a joint activity, teachers / mediators negotiate with learners. In this dialogic interaction, learners are provided with affordances, their responses are carefully observed and their development is diagnosed. Lantolf and Poehner (2010) insist that mediation is not only an assistance that is offered to learners to complete a task at hand, but it should attempt to transition the individual toward internalization and self-regulation.

Based on the quality of mediation, DA falls into two main approaches. In an interventionist approach, a prescribed inventory of hints, prompts and clues from implicit to explicit is used. This approach strives for standardizing the assessment procedure favored in psychometric testing as learning is quantified by the amount of assistance a learner requires to reach a specific level (Poehner, 2008). In interactionist DA, however, an open-ended dialogic interaction is established between mediator and learner. There is no pre-selected script to follow as the mediation should be attuned to learner needs (Lantolf & Poehner, 2010).

Furthermore, Luria (1979) called for an additional crucial piece of information in dynamic assessment which is related to learners' ability to transfer the new learning to other tasks. Vygotsky argued that development has no end point, because there are always new problems to solve and new forms of mediation available. Poehner (2008) states that without transcendence or transfer (TR), DA would not be successful in a complete unification of assessment and instruction. He (2007) also mentions that TR is another phase of tracking the development.

Hence, the present study aimed to benefit from the potentials of dynamic assessment in providing students with valuable feedback to improve in argumentative essay writing ability. Also importantly, the

study attempted to compare mediation delivered face-to-face to mediation delivered through a web-based application, Google Docs. Although the merits of face-to-face negotiations cannot be denied, with the increasing requirements of the technological age and the limitations writing teachers often experience in providing individual feedback (particularly dynamic feedback which demands more time) to all learners, delivering mediation out of classroom space and time borders seems to be rewarding.

2. Related Literature

Literature on the effectiveness of dynamic assessment in various language learning areas is rich including a great many prominent studies (Ableeva, 2010; Aljaafreh & Lantolf, 1994; Anton, 2003; Davin & Donato, 2013; Kozulin & Garb, 2002; Poehner, 2005, 2008, to name only a few). More specifically, many researchers have investigated writing ability from sociocultural perspective. A case in point is Shrestha and Coffin's (2012) study where they examined the role of tutor mediation in developing academic writing in two business students in the context of open and distance education in UK. The researchers made use of the Aljaafreh and Lantolf's (1994) regulatory scale to give both implicit and explicit feedback / mediation on students' writings through a wiki environment. They found that a web-based DA can be used to identify the problematic areas in students' writing, provide appropriate support to remove the problems and ultimately develop the skill in them.

As another example, Zhang (2013) attempted to construct a framework based on DA principles for a web-based teaching of writing skill to Chinese tertiary students. Combining the features of process writing approach and DA principles, the researcher tried to teach and scaffold students in their writing activities. The framework incorporated an online teaching system, an online automated scoring system and scaffolding strategies designed for each specific stage of writing. The researchers suggest that their framework can be advantageous if the quality of mediation, coherence of DA interactions and the objectives are well determined and explained.

Furthermore, a mixed-method study by Hadidi (2012) examined the microgenetic development of argumentative writing ability in a group of adult pre-university EFL learners based on Toulmin's model of argumentation. The researcher aimed to improve writing ability and argument quality through cognitive strategy training and teaching of reflective processes within the zone of proximal development. The findings proved that the procedure could help reveal learner abilities better than traditional summative assessments of writing.

Many other researchers have practiced DA in the area of second or foreign language writing either through a web-based application or a computerized program (Thouesny, 2010; Thouesny & Bradly, 2014; Wang, 2010, etc.). The most frequently applied web-based applications include Facebook, blogs, Skype, wikis, chat rooms, discussion forums, etc. As for Google Docs, DA studies seem to be scarce. As an example in the area of writing, Suwantarathip and Wichadee (2014) conducted an experimental study to compare collaborative writing in a face-to-face classroom and in Google Docs in a group of undergraduate students at Bangkok University. Students received constructive feedback on their writings which led to their meaningful revisions of the early drafts. They found that the Google Docs group outperformed the participants in the face-to-face group. In addition, the Google Docs group showed more positive attitudes toward collaboration in writing.

Research up to this point has put sustained effort into the issue of dynamic assessment through various media. However, a comparison between two modes of delivering mediation seemed to be an unaddressed issue. The novelty of the present research lies in its attempt to make comparison between face-to-face and web-based interactionist dynamic assessment through a mixed methods research approach guided by the following research questions:

Quantitative research questions:

1. Does an interactionist dynamic assessment procedure have any impact on the students' essay writing ability?
2. Does web-based versus face-to-face interactionist dynamic assessment improve the essay writing ability of students differently?
3. How successfully / differently do learners of each group transcend the learned concepts to new problems?

Qualitative research question:

1. How do the learners receiving individual mediational intervention change in their essay writing ability?

3. Method

3.1. Design

To broaden the understanding of development in learners, the present research utilized a concurrent embedded design (QUAN + qual) of mixed method approach to research, attempting to add to the validity of the findings through triangulation of the data. The quantitative component was carried out via a quasi-experimental method while in the qualitative component, the researcher-participant dyads were descriptively analyzed through a sociocultural lens. Yet, the two types of data were not given equal weight or priority but the qualitative data was embedded within the larger quantitative part.

In concurrent design, the researcher collects both quantitative and qualitative data separately but virtually at the same time. The analyses and interpretation of each set of data are done separately, but then the inferences are integrated in the conclusion. This allows the researcher to converge the findings to achieve triangulation (Ary et al, 2010, p. 563). Also, 'the researcher may embed one smaller form of data within another larger data collection in order to analyze different types of questions' (Creswell, 2009, p. 18).

3.2. Participants

A group of 45 EFL sophomore university students, both male and female, were selected through availability sampling for the purpose of this study. They were members of intact classes attending their essay writing course at Islamic Azad University of Bandar Abbas, Iran, randomly assigned to three groups, each including 15 participants. In experimental group 1, the participants underwent a face-to-face interactionist dynamic assessment while experimental group 2 received a web-based form of mediation. All the participants in experimental group 2 had a basic familiarity with computer and the internet. Group 3 was a comparison group receiving nondynamic written corrective feedback on their essays.

3.3. Instruments

3.3.1. Pre / posttests

Several argumentative essay writing prompts from IELTS' academic writing module, task 2 served as the pre and posttests and all the writing tasks came in between. The students were required to write all their writing tasks from the pretest to the posttest in the style of argumentation presented in table 1. They received sufficient instruction during the term on how to write their essays using this style.

Table 1. Argumentative style 1 (Wyrick, 2011, p. 291)

Introduction	Motivator Thesis statement Blueprint
First central	Pro 1
Second central	Pro 2
Third central	Con(s) + refutation
Conclusion	Reworded thesis statement Clincher

3.3.2. Near transfer (transcendence) task

This included an argumentative essay writing prompt from IELTS' academic writing module, task 2 to be written in a different style of argumentation. Near transfer 'involves the principles learned originally but in different combinations' (Campione & Brown, 1990, p.152); hence, a more demanding writing prompt to be written in a new style could be considered as a near TR task. The students had no previous practice in this style; therefore, they were first instructed on how to use it to write their essays. The new style is given in table 2.

Table 2. Argumentative style 2 (Wyrick, 2011, p. 291)

Introduction	Motivator Thesis statement Blueprint
First central	Pros and cons
Second central	Pros and cons
Conclusion	Reworded thesis statement Clincher

3. 3. 3 Far transfer (transcendence) task

A Speaking task from TOEFL iBT was used as the far transfer task. According to Campione and Brown (1990), far transfer tasks are more novel and complex; hence; a different modality (speaking) could better serve as a completely novel task for the students. Having internalized what they achieved on argumentation, structure and vocabulary in writing modality, the participants were then expected to transfer those achievements to their speaking skill. They were required to answer to a speaking task 1 prompt from TOEFL iBT in forty-five seconds. The rubric to score the students' answers was the TOEFL iBT Speaking Rubric (2014).

Many DA researchers have incorporated transfer tasks in their studies. To clarify the rationale for the transfer tasks of the present study, two instances of such tasks from the previous studies will be presented below.

Poehner (2008) carried out DA sessions to improve L2 French learners' use of past tense in an oral narration of several video clips from the comedy *Nine Months*. For the near transfer task, he asked the learners to have an oral narration of a more complex scene from a movie with a different genre, *The Pianist*. A far transfer task, however, was a narration from an episode from Voltaire's *Candide* in a different modality, writing.

Still another prominent study was conducted by Davin (2011) focusing on the use and formation of interrogative structures in Spanish in students' writing assignments. The near transfer task included the formation of interrogatives based on a section of a travel magazine. The purpose was to investigate learners' ability to extend their knowledge of interrogatives to a new context. The researcher arranged the far transfer task of the study in a new modality, speaking, requiring the participants to play the role of a

study abroad director and an interested student and have an interview. The purpose was to know if learners could extend their knowledge to even further contexts.

3.4 Rater and Rating

All writing samples were rated using Qin's (2009) argumentative essay writing rubric by the mediator who had a 12-year experience in teaching and assessing foreign language writing. However, to ensure the consistency of the rating, thirty actual writing samples of the study were randomly selected to be rated by a second rater who was an EFL teacher teaching and assessing foreign language writing for about ten years.

Due to the abnormality of the distribution, rater consistency could not be calculated through Pearson product moment correlation. Cross tabulation (Luoma, 2004) was used instead to represent the degree of agreement between the two raters. The results indicated that there was a .76 percent agreement between the two raters on the selected writing tests.

3.5 Researchers / Mediators

The mediations were carried out by the second researcher of the study under the supervision of the first researcher who had sufficient prior experience in dynamic assessment. Hence, although the mediator was not formally trained for mediation, she could benefit from her own familiarity with DA and the direct supervision of the first researcher to run an acceptable DA study. The mediator was also the first rater of the study.

3.6 Data collection procedure

The study included a two-phase procedure with the qualitative phase incorporated within the larger quantitative one. The quantitative phase embraced pretesting, giving intervention, post-testing, near-transfer and far-transfer testing. The qualitative part, however, was associated with the intervention embodying the recorded dialogic negotiations between the mediator (one of the researchers of the study) and the learners. The overall procedure of the study was as follows:

For the initial step, the students attending already-formed essay writing classes were randomly assigned to three groups (two experimental and one comparison group) through simple random sampling method. This random assignment aimed to rule out pre-existing differences between the participants. The groups attended their weekly sessions (their routine class hour) to receive instruction on essay writing and practice samples of essays and the instruction was the same across the groups.

Then, all the participants were asked to write their first essay as the pretest. This independent performance provided the mediator with an insight into learners' current level of ability and helped her identify their zone of actual development (ZAD). Also, it was a start point to commence mediation in the experimental groups and provide red-pen corrections for the comparison group. Following that, in the experimental group 1, individualized face-to-face dialogic interactions (additional to the routine class hour) were established with the participants targeting errors on grammar, vocabulary, and argumentation. The reason why this research, contrary to the existing research on dynamic assessment, had a broad scope in mediation and did not target specific focal points was because the research was part of the participants' regular schedule and the teacher as researcher should have worked on all the three areas in essay writing. Hence, the results could be used in and generalized to the real writing classes.

The DA approach utilized in this study was interactionist as it attempted to deliver individual mediation adjusted to learner needs; though it also resorted to quantification of learning to help make

comparisons across groups possible. Mediations aimed to provide the students in the experimental groups with sufficient support to both uncover their potential level of development and further develop their skills in writing. It was partly delivered using the regulatory scale developed by (Aljaafreh and Lantolf, 1994). This partial application was due to the reason that mediation was delivered through an interactionist approach which necessitates an open dialogue in which support is adjusted and readjusted to learner needs. As mediation in the interactionist approach has an emergent nature, part of it should emerge from the collaborations with learners. Hence, this regulatory scale was only a point of departure for the mediator and not a rigid set of hints and prompts to adhere to. Besides, this scale has emerged from Aljaafreh and Lantolf's research and it cannot be blindly applied to any research context.

When encountered with an erroneous point in the draft, the mediator began her mediation with the most implicit hints (such as highlighting or underlining the whole sentence containing the error) assisting and scaffolding the mediatee to spot the error and correct it for himself / herself. Success in self-correction on the part of the mediatee ended the mediation at this point; whereas failure in self-correction showed that the mediator should make use of more explicit hints and prompts. Finally, scaffolding terminated when the mediatee was provided with a metalinguistic explanation and the correct form. The process continued until the draft was revised through a joint attempt of the mediator and the mediatee.

In the experimental group 2, individualized mediation was delivered through Google Docs following the same procedure as in group 1. As the participants were supposed to receive mediation through a web-based application, the researcher first provided them with instructions on how to use the application. Options and accessories provided by the Google Docs were used for the mediator's commenting and mediatee's editing activities. All the mediational activities were carried out in the written form through a dialogue chat box in the application. Here again, the implicit hints and prompts included highlighting and underlining the whole sentence focusing on the same types of error as in experimental group 1. For explicit hints, the metalinguistic explanation was provided either through Google Docs or materials with an adequate focus on the addressed areas were e-mailed to the student after the mediation. The application made it possible for the mediator / learners to retain a history of all previous drafts which not only assisted the mediator in her future analyses but also helped learners to observe their own progress. The participants of this group were physically away from the research site

As the routine class time did not allow the researcher to provide individual mediation for the experimental groups and individual corrective feedback for the comparison group, extra sessions were needed for all the participants. DA sessions were held on a weekly basis (one or two times per week) for a period of 12 weeks each lasting 20-50 minutes depending on the needs of the mediatee. For the comparison group, the correction sessions lasted somewhat less than this as red-pen correction generally takes less time than mediation. However, regarding the number of sessions, the comparison group benefited from the same number of sessions as the two experimental groups. The corrective feedback in this group, too, targeted the same linguistic features.

Having received either mediation (experimental groups) or feedback (comparison group) on the final draft, all groups undertook an argumentative writing posttest in the same style as the previous tasks. Two weeks after the posttest, when learners in groups 1 and 2 had possibly passed from a stage of other-regulation to self-regulation showing more autonomy and agency, the mediator arranged for a near and far transcendence or transfer session. Transfer tasks assist the mediator to observe if the learned concepts and forms have been internalized by the learners. The near TR task was a more demanding writing prompt on a different style of argumentative essay. Learners' control over the previously mediated areas indicated how able they were in transferring the learned forms to a more challenging context, which is also closely linked to the generalizability of the results. Simultaneously, a speaking task of TOEFL iBT served as the far TR task. Here, the participants' ability to transfer their learning to a different modality was assessed, hence contributing to the extrapolation of the study.

Group 3, the comparison group, did not benefit from any dynamic procedures as the teacher only provided them with written corrective feedback - the routine teaching behavior in most writing classrooms. Also, the participants of this group did not undertake the transfer tasks.

Totally, all the participants had five writing tasks in the course of research followed by related DA or feedback sessions. To ensure comprehension as well as to create an affectively safe atmosphere for the struggling learners to express themselves, the mediator switched to Farsi judiciously to help interactions advance.

As for the qualitative phase, all the mediational interactions between the mediator and the learners were recorded for the future scrutiny of the traces of microgenetic development or instances of improvement in essay writing ability in particular. This qualitative analysis, along with the quantitative analyses of the pretest, posttest, near TR and far TR scores, aided the researchers to obtain a better picture of the participants' development.

Table 3. Schematic representation of the procedure

G	Pretest	Task 1	Task 2	Task 3	Task 4	Task 5	Posttest	NT	FT
Face-to-Face DA	Non-DA	DA	DA	DA	DA	DA	Non-DA	Non-DA	Non-DA
Web-based DA	Non-DA	DA	DA	DA	DA	DA	Non-DA	Non-DA	Non-DA
Co G	Non-feedback	feedback	feedback	feedback	feedback	feedback	Non-feedback	∅	∅

4. Results

4.1 Quantitative analyses

As for the quantitative part of the study, a number of statistical procedures were performed on the data. Checking the homogeneity or the potential differences between the groups prior to the study was an initial step. However, this could not happen without verifying the legitimacy of parametric tests first. The result of the normality test suggested a violation of this assumption regarding the pretest scores of the three groups. As the sample size in each group was also small, a non-parametric test was used to check the homogeneity of the participants. A Kruskal-Wallis test was used to serve this purpose.

Table 4. Descriptive statistics of the pretest

Groups	N	Mean	Std. Deviation
Face-to-face G	15	2.93	1.03
Web-based G	15	3.13	.74
Co G	15	2.73	1.16
Total	45	2.93	.98

The descriptive statistics show that the groups are almost close to each other with regard to their mean scores.

Table 5. The Kruskal-Wallis test results for the pretest data

Groups	N	Mean Rank	Chi-Square	df	Asymp. Sig	Median
Face-to-face G	15	23.17				3.0000
Web-based G	15	25.47	1.239	2	.538	3.0000
Co G	15	20.37				3.0000
Total	45					3.0000

The p value of $.538 > .05$ and the χ^2 of 1.23 reveal that the difference between the groups is not statistically significant, hence the groups were homogenous at the outset of the study.

Secondly, to investigate the efficacy of the intervention and see whether applying a dynamic procedure could enhance learners' ability to write argumentative essays, the performance of the experimental groups (as one group) and the comparison group on the posttest should be compared. As the posttest data deviated from the normality and the sample size was small, the non-parametric test of Mann-Whitney U was utilized to compare the performance of the experimental and the comparison groups.

Table 6. Descriptive statistics of the posttest

Groups	N	Mean	Std. Deviation
EX Groups	30	3.70	.79
Co G	15	2.86	1.06
Total	45	3.42	.96

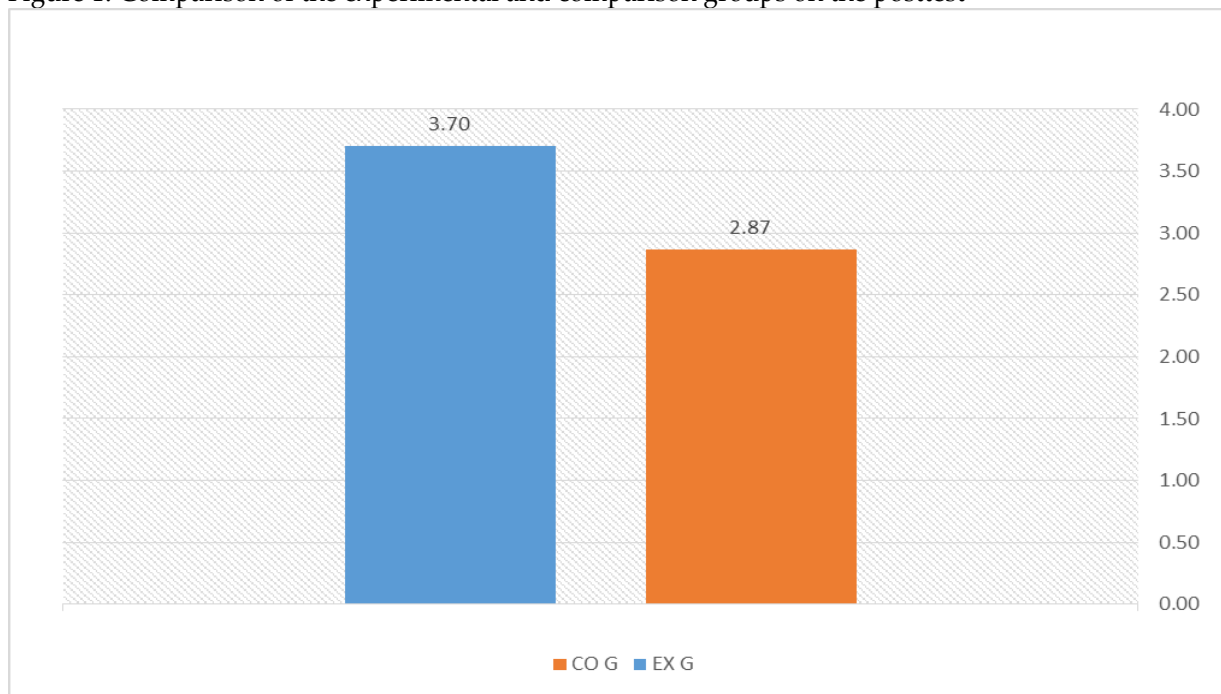
It can be seen that the groups had somewhat different means; however, this should be checked to be statistically significant.

Table 7. The Mann-Whitney U test results for the posttest of experimental & comparison groups

Groups	N	Mean Rank	Sum of ranks	Mann-Whitney U	Wilcoxon W	Z	Asymp. Sig	Median
EX Groups	30	26.43	793.00					4.0000
Co G	15	16.13	242.00	122.000	242.000	-2.607	.009	3.0000
Total	45							3.0000

As table 7 with the p value of $.009 < .05$, U value of 122 and the z value of -2.607 indicates, the two groups performed differently on the posttest, with a median of 4 for the experimental and a median of 3 for the comparison group suggesting a better performance for the experimental group. The effect size calculated for this test ($r = .38$) is considered a medium effect according to Cohen's (1988) guidelines. The performance of the experimental and the comparison groups on the posttest is graphically displayed in figure 1.

Figure 1. Comparison of the experimental and comparison groups on the posttest



The bar graph confirms the outperformance of the experimental group on the posttest, endorsing the effectiveness of the intervention for the participants of this group.

Furthermore, seeking to understand the differences in the performance of the two experimental groups (if any at all) with regard to the medium of delivering mediation, further analysis of the posttest scores of the experimental groups was needed. It aimed to see whether face-to-face mediation could affect the participants' essay writing ability in group 1 any differently from that in group 2 where the participants received mediation through Google Docs. The inspection of the parametric assumptions indicated a violation and the sample size was small; hence a Mann-Whitney U test was conducted.

Table 8. The Mann-Whitney U test results for the posttest of experimental groups

Groups	N	Mean Rank	Sum of ranks	Mann-Whitney U	Wilcoxon W	Z	Asymp. Sig	Median
Face-to-face G	15	15.73	236.00					4.0000
Web-based G	15	15.27	229.00	109.000	229.000	-.156	.876	4.0000
Total	30							4.0000

It is manifest from the test results ($p = .876 > .05$, $U = 109$, $z = -.156$) that the two groups are not different in terms of their posttest scores. To put it another way, they performed rather similarly on the posttest, meaning the medium of mediation had no special impact on the degree of their improvement in essay writing.

However, the performance of the experimental groups did not end on the posttest. Since the two groups underwent two TR tasks as well, a dual analysis concerned examining the improvement of each group from the posttest to the far transfer task as well as a comparison of the two groups regarding the TR tests. As the data did not meet the normality assumption and the sample size was small, the between-group as well as within-group performances were scrutinized through non-parametric tests. In the first place, a Friedman test was used to see if the experimental group 1 could transfer learning from the posttest through the far transfer task.

Table 9. Descriptive statistics of the experimental groups on posttest, NT and FT

Groups		Posttest	NT	FT
Face-to-Face G	Mean	3.73	3.13	3.33
	N	15	15	15
	Std. Deviation	.961	1.125	1.11
Web-based G	Mean	3.66	3.46	3.60
	N	15	15	15
	Std. Deviation	.617	.639	.632
Total	Mean	3.70	3.30	3.46
	N	30	30	30
	Std. Deviation	.794	.915	.899

The descriptive statistics of the two groups show that the mean scores of the groups on NT and FT have minimally dropped compared to the posttest means. However, this reduction is not statistically significant according to the results of the Friedman test.

Table 10. The Friedman test results for experimental group 1

Tests	N	Percentiles	Mean Rank	Chi-Square	df	Asymp. Sig
		50th				
Posttest	15	4.0000	2.33			
NT	15	3.0000	1.73	3.733	2	.155
		3.0000	1.93			
FT	15					

The Friedman test run on the test scores of the experimental group 1 across the posttest, near transfer and far transfer tests shows that the participants could sustain learning after the posttest. The slight decrease observed in the median values of the group from the posttest (Md = 4) to the near transfer (Md = 3) was not meaningful.

Additionally, the performance of the experimental group 2 across the same three measures was subjected to scrutiny. Another Friedman test was used for this purpose.

Table 11. The Friedman test results for experimental group 2

Tests	N	Percentiles	Mean Rank	Chi-Square	df	Asymp. Sig
Posttest	15	50th				
NT	15	4.0000	2.10			
		4.0000	1.93	.500	2	.779
FT	15	4.0000	1.97			

Test statistics in table 11 ($p = .779 > .05$, $\chi^2 = .500$) indicate that the participants in the experimental group 2 also managed to transfer learning to the near and far transfer tasks.

Additionally, the two groups were compared with respect to their performance on the near transfer task employing a Mann Whitney test. Table 10 shows the results.

Table 12. The Mann-Whitney U test results for NT

Groups	N	Mean Rank	Sum of ranks	Mann-Whitney U	Wilcoxon W	Z	Asymp. Sig	Median
Face-to-Face G	15	13.90	208.50					3.0000
Web-based G	15	17.10	256.50	88.500	208.500	-1.058	.290	4.0000
Total	30							3.0000

The values ($p = .290 > .05$, $U = 88.50$, $z = -1.058$) display a non-significant difference in the performance of the two experimental groups with regard to their scores on the near transfer test.

Still another Mann Whitney test was used to check if the two groups gained dissimilarly on the far transfer task.

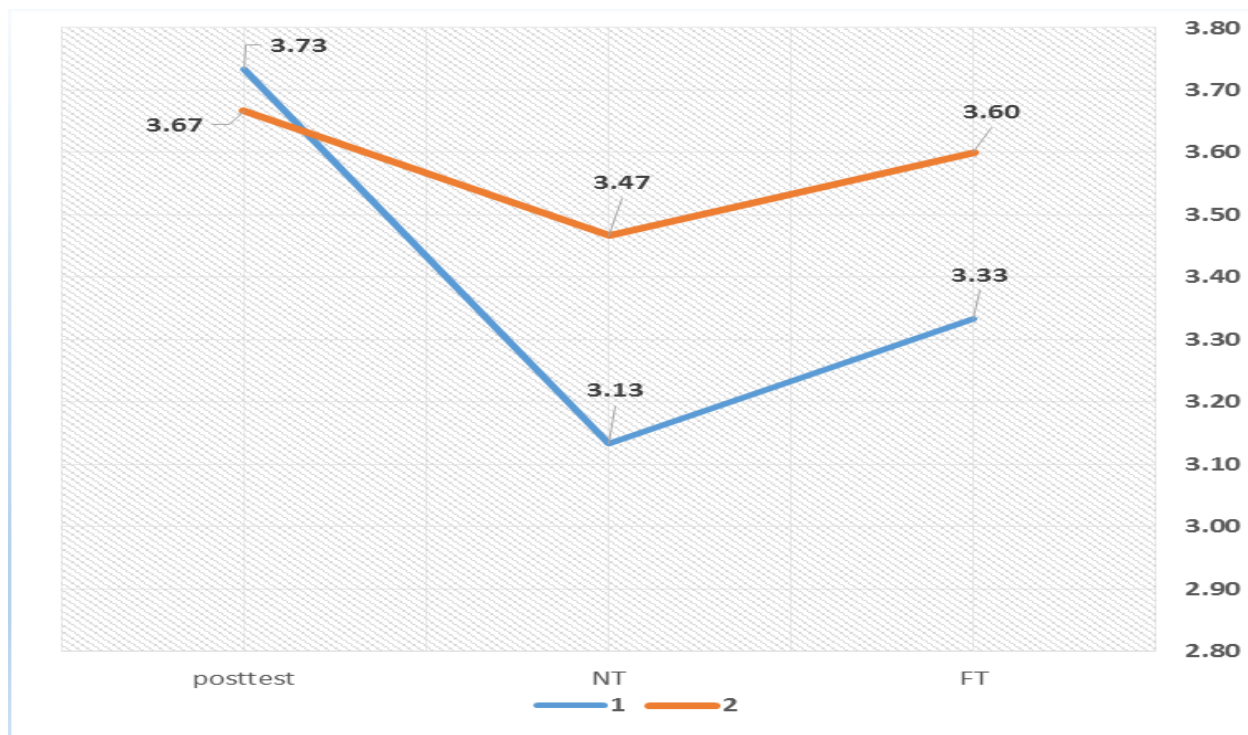
Table 13. The Mann-Whitney U test results for FT

Groups	N	Mean Rank	Sum of ranks	Mann-Whitney U	Wilcoxon W	Z	Asymp. Sig	Median
Face-to-Face G	15	14.60	219.00					3.0000
Web-based G	15	16.40	246.00	99.000	219.000	-.600	.549	4.0000
Total	30							3.0000

The test statistics in table 13 ($p = .549 > .05$, $U = 99$, $z = -.600$) suggest a non-significant difference in the far transfer scores of the two experimental groups.

The performance of the two experimental groups on the transfer tasks can be better compared with the line graph in figure 2.

Figure 2. Performance of the two experimental groups on the posttest, NT and FT tasks



As observed in the line graph, there is a reduction in the mean scores of both groups on the near transfer task followed by a growth in the mean scores of the far transfer task. The minimal decrease and then increase were experienced by both groups almost equally, suggesting no significant difference in how the two groups performed on the transfer tasks.

Also, all the negotiational dyads in DA sessions 1 and 5 were analyzed with regard to the total number of errors, the number of errors corrected by the mediator as well as those corrected by the learners to better track the changes occurred in each single learner. The results are tabulated in table 14.

Table 14. An Error Count of Sessions 1 & 5

Learners	Session 1			Session 5		
	Total Number of Errors	Learner-corrected Errors	Mediator-corrected Errors	Total Number of Errors	Learner-corrected Errors	Mediator-corrected Errors
A	16	5	11	7	6	1
B	12	6	6	6	6	0
C	20	9	11	13	11	2
D	19	11	8	6	5	1
E	18	7	11	9	6	3
F	10	3	7	7	5	2
G	12	3	9	11	9	2
H	11	6	5	8	6	2
I	12	7	5	11	9	2
J	9	4	5	14	12	2
K	14	3	11	11	10	1
L	9	7	2	6	6	0
M	7	3	4	6	4	2
N	13	9	4	9	6	3
O	17	0	17	10	4	6
P	16	7	9	6	4	2
Q	9	5	4	24	16	8
R	17	9	8	20	20	0
S	14	3	11	9	6	3
T	20	6	14	9	7	2
U	8	4	4	10	9	1
V	15	3	12	11	8	3
W	12	8	4	11	9	2
X	15	7	8	11	8	3
Y	12	10	2	11	10	1
Z	6	2	4	6	5	1
AA	4	3	1	4	4	0
AB	15	6	9	11	9	2
AC	19	6	13	13	10	3
AD	5	3	2	2	2	0
Total	386	165	221	292	232	60

Comparing the frequency of the total number of errors, the number of learner-corrected errors and the number of mediator-corrected errors in session 1 with those in session 5 reveals a positive change

in the performance of the participants. The totaled values depicted in the following graphic representation will allow for a better comparison.

Figure 3. A Comparison of Errors in Session 1 and Session 5



The bar graph shows a decrease in the total number of errors made in session 5. Equally important, is the number of errors corrected by learners. It is obvious that this number increased in session 5 suggesting an improvement on the side of learners in correcting their mistakes. On the other hand, the number of mediator-corrected errors also reduced substantially in session 5.

4.2 Qualitative analyses

To corroborate the quantitative findings, a description of the participants' response to mediations over the sessions was also carried out to see if their control over structure, vocabulary and argumentation has improved as a result of the mediator's dialogic assistance. Extracted from a huge bulk of qualitative data, the following excerpts are instances of dialogic interactions or the researcher-participant dyads of only four learners (for brevity reasons) analyzed for traces of microgenetic development which is ensured by comparing both the quality and quantity of assistance the learners received within one session as well as across the sessions. It should be noted that mediations were delivered in English; however, in a few situations when a mediatee couldn't get the mediator's point, the mediator switched to Farsi to help the negotiation progress. The learners are given pseudonyms to ensure confidentiality.

Kian

Episode 1, session 2 (12 minutes)

1. M (mediator): Read the introduction paragraph and find your mistake here.
2. L (learner): (after reading for a couple of minutes) I can't find my mistake! Is it the thesis?
3. M: No, it's about the blueprint. Can you make it correct?
4. L: What's the problem then? I don't know.

5. M: The items are not parallel.

6. L: Silent, giving a blank look.

7. M: I mean the first element is a clause but the second and third ones are noun phrases.

8. L: (after a couple of minutes) I think I have to write: *overeating* instead of *children eat too much food* to match *lack of physical activity and genetic factors*.

9. M: Yes good.

It can be realized that the learner was unable to spot the error and correct it unless the mediator explained the specific site of error and the problem with it. He needed several levels of support in a progressive fashion to overcome the error. The learner's introduction paragraph in the next writing task didn't show the same problem with the blueprints, which can rightly be interpreted as a sign of his appropriation of the mediation:

... Video games can have many positive effects on children including better problem solving, hand-eye coordination and accuracy.

Episode 2, session 2 (7 minutes)

10. M: Now let's see what other mistakes you have made here. (Highlighting the sentence *for many years, obesity has been a very important topic in our society and has been seen among children and many researchers wonder what are the causes of child obesity*). Can you find the mistake?

11. L: Is it grammatical or word usage?

12. M: Grammatical.

13. L: Should I use *cause* instead of *causes*?

14. M: No (underlining *are*).

15. L: Should it be *was*?

16. M: No, you have made an indirect question but the structure is wrong.

17. L: Long silence.

18. M: *Many researchers wonder what the causes of obesity are* (followed by a metalinguistic explanation).

In the second episode, the learner was unsuccessful to identify the error even when he received an explicit prompt on that. The negotiation ended with the mediator providing the correct form. The learner was able to use an indirect question correctly in session 4:

...you don't know what places you should visit when you are there.

Episode 3, session 5 (4 minutes)

19. M: Highlighting the sentence *Some people's blame the computers and other tools for making teachers less needed*.

20. L: Should it be *peoples*?

21. M: *Peoples*?!

22. L: Sorry *people*.

23. M: Yes.

The episode describes that the learner elicited less help from the mediator to discover the error and could correct it after only two prompts. The learner did not commit the same mistake in the subsequent tasks.

Episode 4, session 5 (4 minutes)

24. M: highlighting the sentence *With the help of computers students can learn faster and more easily and they can do all their homeworks without the necessity of a teacher to tell them what to do and what not to do.*

25. L: *Can do all of their homeworks?*

26. M: Underlining *homeworks*.

27. L: *Homework?*

28. M: Yes, why?

29. L: It is non-countable?

30. L: Yes, ok.

Here again, the learner's improvement is evident as he was able to correct himself after two implicit hints. The negotiation shows that he was able to notice the error right after receiving the most implicit prompt. Comparing the episodes, one can notice that the learner could successfully find and correct the errors toward the final episodes which signals his moving along his ZPD.

Hessam

Episode 1, session 2 (26 minutes)

31. M: (looking at his introduction paragraph) Can you tell me the elements of an introduction paragraph?

32. L: Topic sentence and the blueprint?

33. M: You mean thesis statement?

34. L: Yes.

35. M: Where in the introduction paragraph do we write a thesis?

36. L: The thesis is the intro of a text, for example the first three sentences, right?

37. M: No, thesis is not the first element. What is the motivator then?

38. L: Is it after the thesis?

39. M: No, it comes before the thesis including a couple of sentences.
40. L: Oh ok.
41. M: Read the paragraph and tell me what elements you have written here.
42. L: It's a motivator?
43. M: Yes, where are the thesis and blueprint then?
44. L: No thesis and no blueprint!
45. M: Can you write a thesis now?
46. L: *The modern lifestyle has changed a lot comparing to the old days.*
47. M: This is again general. Our specific topic is the causes of obesity in children.
48. L: *Kids are getting more obese than ever before.*
49. M: Good. Now what can be your blueprint?
50. L: Blueprint is the reasons of obesity, right?
51. M: Exactly. They are the points you discuss in the central paragraphs.
52. L: *Parents prefer to provide fast food for their kids because they are cheaper and take less time to prepare.*
53. M: No no no, you should just itemize!
54. L: *Fruits being removed from the diet, driving everywhere instead of walking, etc.*
55. M: Better to use short structures.
56. L: *Unhealthy food, lack of physical activity...*
57. M: Good.

The learner was gradually provided with a range of implicit and explicit prompts to understand how he can write a better introduction paragraph and he could only manage to write a good thesis and blueprint upon receiving several levels of support from the mediator. Here is the introduction paragraph he wrote in task 5:

With the advancements in technology, some believe that time has come to replace teachers with robots. It can be a big improvement or a big mistake. I personally believe that robots are better than human teachers. The reasons are discussed below.

Episode 2, session 5 (11 minutes)

58. M: highlighting the area *Robots are able to be programmed to reach the precision of 100%. They can acquire the knowledge for the subject they are teaching and the chances for the lack of information is lower than humans.* This paragraph is not explanatory enough. See if you can add a couple of sentences to it.

59. L: (after several minutes) *Unlike human teachers, they don't forget the details, they don't get distracted at all and all the information is stored in their hard drive.*

60. M: Good. Why hadn't you written these minor supports in your paragraph before?

61. L: Nemikhastam ziad beshe (I was trying to avoid writing too much).

62. M: But you can write up to 250 words.

63. L: Ok.

The learner did not sufficiently explain and support a major idea in a central paragraph. Yet, he was able to provide an explanation immediately after the mediator's request for that.

Episode 3, session 5 (6 minutes)

64. M: Ok, now, there is a grammatical mistake in this paragraph.

65. L: *Chances of* instead of *chances for*?

66. M: Yes. What about this part? *If they hold grudge against their students for skipping his/her class, then it is considered a nightmare.*

67. L: *Skipping their class* instead of *skipping his / her class*?

68. M: Yes.

As can be seen, only one level of assistance in the most implicit form could hint the learner to spot the errors and correct them. This difference in the amount of help given to the learner from the first session to the last one can be taken as an indicator of his improvement in correcting the mistakes.

Mina

Episode 1, session 1 (21 minutes)

69. M: highlighting *Let's pretend the world without education and knowledge, almost the world will go back to 1000 years ago, When people just thought about food and cave.*

70. L: Is it about *let's pretend*?

71. M: Not about *let's* of course.

72. L: Is *pretend* wrong? Then what word can I use here?

73. M: What do you mean by *pretend*?

74. L: *Tasavor konim* (imagine).

75. M: And you don't know any other word for *tasavor kardan*?

76. L: Long silence.

77. M: *Imagine.*

78. L: (shyly) Sorry!

79. M: Ok, there is also another mistake.

80. L: I think it is the verb. I should say *go back*?

81. M: Yes it is the verb but you are talking about an imaginary condition.

82. L: *Went*?

83. M: No, *would go back*. (Metalinguistic information was provided).

84. M: highlighting *His invention influenced around the world and still we are using the benefits of his inventions.*

85. L: Is it the verb?

86. M: No. take time.

87. L: I should say *all around the world*?

88. M: No! (Underlined the preposition).

89. L: Long silence.

90. M: Is this preposition correct?

91. L: It should be *on*?

92. M: No, *aslan harfe ezafeh mikhad*? (Does *influence* need a preposition at all?)

93. L: I'm not sure.

94. M: It doesn't need.

95. M: Oh ok.

96. M: highlighting *Most of people study just for finding a good job, they prefer to choose a major which is more important in countries because they can find job easier and earn more money.* Can you find the mistake?

97. L: *For finding*?

98. M: No.

99. L: *Job easier*?

100. M: Yes, what is the correct form?

101. L: *Easy*? No *easily*?

102. M: Yes *easily* or *more easily*.

103. M: Highlighting *So our salary depends to our job and our job depends to our degree and our degree depends to our education.*

104. L: *Depends on?*

105. M: Yes good.

At the beginning of the negotiation, she had difficulty in identifying the error and failed to correct it even after an explicit mediation. However, as the negotiation moved along, she needed much less help. Towards the end of the negotiation, she was able to locate the error immediately after the first implicit prompt and correct it afterwards. Signs of internalization could be traced in sessions 4 and 5 for two of the mistakes she made in session 1. She could use the right preposition with *depend* in session 4:

Different people choose different ways for travelling. They maybe like tour traveling or solo traveling. It depends on their interest to choose one of them.

Also, in session 5, it was observed that she could use the word *imagine* correctly:

...in future they will make new robots to do many things that I even cannot imagine it but I'm sure robots cannot have an important thing which human has it and it's feelings.

Episode 2, session 5 (13 minutes)

106. M: **highlighting** *Human do every simple things by new technology and in the future more and more of us will learn from social robots specially kids.*

107. L: *Human does.*

108. M: Yes. **Highlighting** *In future they will make new robots to do many thing that I even cannot imagine but I'm sure robots cannot have an important thing which human has and it is feelings.*

109. L: *Thing?*

110. M: Yes. What's wrong with it?

111. L: It should be plural. *Things.*

112. M: Good. What do you mean by *limited given* in this sentence?

113. L: *Daadehaye mahdood* (limited input).

114. M: Don't you know another word for *daadeh*?

115. L: No.

116. M: *Input*. Ok, there is an irrelevant sentence in this paragraph, can you find it?

117. L: (reading the paragraph for a couple of minutes) But I think all are relevant

118. M: There is a sentence which discusses a different point.

119. L: Is it the last sentence?

120. M: Yes good. Do you know why?

121. L: Perhaps because the other sentences discuss teacher's relationship with students but this one is about teacher's knowledge.

122. M: Excellent.

This episode rightly shows how the learner improved over time. In this final DA session, she was able to locate and correct the errors promptly. Only in one case, she received an explicit mediation and that was on a vocabulary item.

Sheila

Episode 1, session 1 (17 minutes)

123. M: highlighting the sentence *It has many benefits and that is an another reason for people to educate.*

124. L: Is *that* wrong?

125. M: No, *that* is ok.

126. L: Is it the verb?

127. M: No. (Underlined *an another*)

128. L: I meant *yeki digeh* (another).

129. M: Yes, I got the meaning. There is a grammatical problem.

130. L: I don't know.

131. M: There is something extra here.

132. L: silence.... Is it *an*?

133. M: Yes, why?

134. L: I can't explain.

135. M: Metalinguistic explanation.

Several levels of prompt were used to help the learner come up with the location of the error. Although she finally discovered the error, she was unable to make it correct.

Episode 2, session 1 (9 minutes)

143. M: highlighting *By going to school and continue it, they can have a good job in future*

144. L: *It*? Should I say *that* instead of *it*?

145. M: No, (read the sentence emphasizing *continue*).

146. L: Is it the meaning?

147. M: No, underlining *continue*.

148. L: Should I add something?

149. M: Like what?

150. L: *Ing, continuing?*

151. M: Why?

152. L: Because it should be progressive?

153. M: Metalinguistic explanation.

The mediator provided her with a range of hints until she could recognize the incorrect form and overcome it; though not realizing the reason for using it. In task 3, Sheila showed that she learned to correctly use gerunds after a preposition:

...so parents can control these negative effects by controlling the time that children play and encouraging them to play safe games.

Episode 3, session 5 (24 minutes)

154. M: highlighting *Their knowledge have limited because if one of the students wants to know more, they can't answer he / she.*

155. L: *Limited* is wrong?

156. M: No.

157. L: *Is limited* is correct.

158. M: Yes.

159. M: Can you find another mistake here?

160. L: (whispering) *Their knowledge* is ok, *one of the students* is ok, *wants* is ok....*is he / she* wrong?

161. M: Yes.

162. L: What should I use?

163. M: Do you need object pronouns or subject pronouns?

164. L: Object.

165. M: What are these?

166. L: I think subject. I have to use *her / him*.

167. M: Yes good.

168. M: highlighting *Most of us were comfortable in our class because of our teacher's behavior.*

169. L: Explained the meaning in Farsi.

170. M: The meaning is ok.

171. L: *Are comfortable?*

172. M: Yes.

173. M: Highlighting *But robots doesn't have any sensation, they only teach. So certainly, classes will become a boring class.*

174. L: *Doesn't* is wrong.

175. M: What should it be?

176. L: *Don't.*

177. M: Yes.

178. M: Highlighting *Most of people think using robots instead of human teachers are interesting and better because it causes to decrease students' stress. But I think this reasons are not good.*

179. L: *Is.* Not *are.*

180. M: Yes. What else? Any other mistakes?

181. L: *This reasons* should be *these reasons.*

182. M: Yes good.

In the final DA session, Sheila needed fewer prompts to locate the errors and correct them. Comparing her initial negotiations with the final ones, it can be noticed that she gradually needed less support to correct the mistakes, which signals her microgenetic growth. The improvement of the four focal learners is concluded below.

Kian

The analysis of the dyads showed that he was quite unsuccessful in locating the errors in session 2 even after he received several levels of assistance from the mediator. He could correct the error related to an organizational point earlier in session 1 but was unable to correct a grammatical error later in the same session. Having received mediation for three more subsequent sessions, he performed satisfactorily in session 5 where he could instantly spot and correct the mistakes. This improvement across the sessions can be taken as an indicator of his gradual development and his moving well along his ZPD.

Hessam

His writing a poor introduction paragraph in the first session with no thesis statement and no blueprint can be attributed to his misunderstanding of the instruction or his inattentiveness. Although he failed to discover the problem even after receiving a range of implicit and explicit prompts, he finally managed to write an acceptable thesis and a blueprint in session 1. Being highly responsive to the intervention in session 5, he was successful in both locating and removing the problems only after the most implicit prompts were given to him. Needing less assistance in session 5, compared to session 1, is a sign of his improvement in appropriating the mediation and internalizing the learned structures.

Mina

A variety of implicit and explicit assistance helped her identify the errors in session 1; nevertheless, she could only make two of them correct leading to the provision of correct forms for the rest by the mediator. In session 5, however, she was very successful in recognizing the problem as well as correcting them right after the first implicit prompt was given. Only in one case she received the correct form and that was a vocabulary item. Since words belong to a broader category than grammar, stretching the mediation until eliciting the correct form from the learner was irrational.

Sheila

In episode 1 of session 1, she struggled to find the mistake she made and she almost received the exact site of error, being unable to explain why. This problem persisted in the second episode too showing her lack of responsiveness. Yet, toward the end of session 1, as shown in episode 3, she could finally remove the problem though having difficulty in finding it at the beginning. In session 5, she was extremely good in identifying and correcting the mistakes such that she only needed a couple of implicit prompts to spot the errors, correcting all promptly. She was a shining example of a highly responsive learner to the mediation who showed a noticeable improvement over the sessions.

5. Discussion

Utilizing a mixed method design, this study investigated the implementation of an interactionist dynamic assessment procedure in an essay writing course to see whether it could help the learners improve in writing argumentative essays. Attempts were made to approach three research goals quantitatively and one qualitatively.

In accordance with the robust literature on the effectiveness of dynamic assessment, the present study also found that establishing individual dialogic interactions and supportive negotiations with learners in the form of interactionist dynamic assessment, can yield fruitful results for them. More specifically, the study notified us that mediating learners on how to revise their essays helped them identify and overcome their mistakes more efficiently. Yet, more remarkable progress could have occurred if the mediations targeted one specific focal point in writing or the overall length of the intervention could be extended since expecting a sudden change in a short period of time is basically illogical. The findings are consistent with the results of studies by Hassaskhah and Javan Haghparast (2012), Rahimi et al. (2015), Miao and Lv (2013), Shrestha and Coffin (2012) and many others who came to realize that dynamic assessment can contribute substantially to microgenetic development in learners' writing ability.

The analyses also proved the efficacy of the mediation regardless of the medium through which it was delivered; the participants in the two experimental groups performed equally well on the posttest. To put it another way, both face-to-face and web-based DA groups benefited equally from the negotiations. This unanticipated finding is probably because of the affectively supportive and friendly atmosphere created in the negotiations for both groups. Still another possible explanation can be the comfort of the participants in the experimental group 2 with the digital environment. Being *digital natives*, the young generation of learners may no longer experience any anxiety associated with an unfamiliar method of instruction or assessment. This acquaintance with technology may even make non-face-to-face interactions a more preferable option for some young individuals of today. The user-friendliness of the application, with its easy chat option of course, may add to this comfort. Also, the mediator's judicious use of Farsi in both groups can be considered a positive factor which helped them express themselves without being concerned about their inability to have a negotiation in English with the mediator.

Furthermore, the achievement of the two experimental groups on the repeated measures of posttest, near transfer and far transfer tasks was monitored through two non-parametric tests. Expectedly, the findings demonstrated that both groups were successful in transcending the learned materials from the posttest to the transfer tasks. Yet, the mean values of both groups reduced slightly after the posttest, indicative of a minor regression. This reduction was not meaningful in either group, though in group 1, it was a bit more. The slightly lower performance of the groups on the TR tasks can possibly be due to the participants' not having sufficient practice with the argumentation style of the near TR task as well as the totally different modality of the far TR task which made the task difficult for them. Moreover, the quantitative analyses of the between-group differences in the near transfer and far transfer tasks of the two experimental groups showed no differential gains; the two groups did not perform differently on the TR tasks.

Finally, the instances of dialogic negotiations between the mediator and the learners in five mediational sessions were qualitatively analyzed to track traces of microgenetic development in the learners. More specifically, the focus was on their ability to internalize the learned concepts and structures and reach the point of self-regulation needing less assistance from the mediator. Episodes of interactions from the beginning sessions were compared to those from the final ones looking for the signs of improvement in learners' ability to locate and correct the errors.

The four focal learners demonstrated signs of microgenetic development across the sessions, which could be truly recognized in the other learners within the experimental groups, too. While variations were observed in the learners' level of response, the amount of assistance needed and their level of internalization over the sessions, overall, the majority of the learners showed a positive developmental trend from the beginning sessions to the final one. However, there were instances where some learners performed worse on the subsequent sessions. This can be linked to the concept of regression in Vygotsky's ideas who argued that 'development in education is not linear but spiral'. In fact, learners' progress toward a higher level of understanding is not continual and they sometimes experience a certain type of regression (Van Der Veer & Valsiner, 1991, p. 309). Also as Zebroski (1994) puts it, the model of development proposed by Vygotsky is simultaneously progressive and regressive. Not all learners of the experimental groups benefited from the DA procedure equally, however. The so-called 'ceiling effect' occurred for a few distinctive cases. These were a few high-scoring participants who reached the highest possible score or the ceiling on the writing tasks in between, leaving no room for improvement with regard to the target of this study. For such cases, DA should target higher levels of writing performance, which was beyond the scope of the present study.

A possible direction for further research can be applying dynamic assessment to other types of essay through other web-based applications as well as drawing comparisons between various media for the dialogic interactions. Further follow-up studies may be carried out in other settings as each context can have its own particularities.

6. Conclusion and Implications

The present study found that interactionist dynamic assessment can be employed by writing teachers to both uncover the potential abilities in learners and provide individual support to enhance their level of functioning in writing argumentative essays. It also explored that face-to-face and web-based media of delivering mediation made no differential impact on the degree of improvement in learners. Furthermore, learners in both experimental groups could transfer their learning equally well. The findings have both theoretical and practical implications in the field.

Theoretically, as more studies can refine, revise or extend existing knowledge in the area under investigation, the current study has also made a contribution to the overall understanding of the field. Within the sociocultural paradigm, the present observations converge with the research on the efficacy of

dynamic assessment in assessing as well as enhancing development in language learners. The findings also endorsed the superiority of dynamic assessment to the conventional practices of writing teachers in providing feedback and backed the claims that DA can be a partial solution for the problems associated with conventional paradigms of assessment. Moreover, consistent with what Vygotsky theorized about internalization, the study found evidences for the effectiveness of dialogic negotiations in moving the learners from a stage of other-regulation to a stage of self-regulation, confirming the idea of transcendence. The findings have also added to our existing knowledge of DA by shedding light on the importance of the medium through which mediations can be delivered to learners.

Practically, the findings of the present study can be considered an enlightenment within the teaching pedagogy and assessment practice, having far-reaching implications for both. For classroom-based teaching and assessment, in particular, the study can illuminate the path through which writing teachers can assist their learners to have a higher performance and simultaneously develop in writing ability. Building upon the findings of the present research, EFL writing teachers should define writing not as a static, unilateral skill but as a social ability which can be jointly developed through co-constructing supportive interactions in their classes. Additionally, the findings of the study with regard to the comparison of face-to-face and web-based ways of providing feedback should be taken into consideration by writing practitioners. Conclusively, dynamic assessment can be a better performance indicator in teaching and assessing writing skill than its static counterparts; yet, its feasibility in today's educational context remains an issue to be resolved.

As any research might be hindered by a number of factors, several side notes need to be mentioned which may drive the reader to treat the findings of the present study with caution. One is related to the duration of the mediational and feedback sessions. As mentioned earlier, the experimental and comparison groups benefited from the same number of sessions; however, the mediational sessions for the experimental groups lasted marginally more. This can be justified on the grounds that mediation by nature takes more time than a conventional feedback. Moreover, the mediator's wait time to elicit response from the mediatee might have lengthened the sessions. Hence, time can be a confounding variable affecting the validity of the findings. Still another limiting factor is the small sample size included in the present research which may have influenced the results of some statistical tests. This is a normal restriction in studies that are carried out in real educational settings where research is part of the participants' regular schedule. Also related to this is the sampling method. The participants of this study were selected through availability sampling; the results would be different if other sampling procedures were utilized. One more consideration refers to the type of statistical tests used in the quantitative analyses. Although the researcher was obliged to make use of non-parametric tests due to the violation of parametric assumptions, the results should be accepted with caution as these are naturally less precise than their parametric counterparts. Furthermore, considering that mediating a large number of participants individually is demanding and labor-intensive, limitation in its applicability to other educational contexts may prove its generalizability restricted. The findings are also directly related to the quality of mediations utilized by the researchers of this study only; different mediators might come up with different results with the same participants.

All in all, it should be reiterated that a DA-based instruction can bring about many benefits for classroom praxis. An assessment of the resources and a consideration of the particularities of each context remains to be done by teachers before embarking on its implementation.

References

- Ableeva, R. (2010). Dynamic assessment of listening comprehension in second language learning (Unpublished doctoral dissertation). The Pennsylvania State University, University Park.
- Aljaafreh, A. & Lantolf, J.P. (1994). Negative feedback as regulation and second language learning in the zone of proximal development. *The Modern Language Journal*, 78, 465-483.
- Anton, M. (2003). *Dynamic assessment of advanced foreign language learners*. Paper presented at the American Association of Applied Linguistics, Washington, D.C.
- Ary, D., Jacobs, L. Ch., Razavieh, A. & Sorensen, Ch. K. (2010). *Introduction to research in education* (8th ed.). Wadsworth: Canada.
- Campione, J. C. & Brown, A. L. (1990). Guided learning and transfer: Implications for approaches to assessment. In N. Frederiksen, R. Glaser, A. Lesgold & M. G. Shafto (Eds.), *diagnostic monitoring of skill & knowledge acquisition*. Hillsdale, NJ: Erlbaum.
- Cohen, J. W. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Hillsdale, NJ: Lawrence Erlbaum Associates.
- Creswell, J. (2009). *Research design: Qualitative, quantitative and mixed methods approaches* (3rd ed.). Sage Publications: United States of America.
- Davin, K. J. (2011). *Group dynamic assessment in an early foreign language learning program: Tracking movement through the zone of proximal development*. (Doctoral dissertation). Retrieved from http://d-scholarship.itt.edu/7269/1/DAVINKJ_ETD.pdf
- Davin, K. J., & Donato, R. (2013). Student collaboration and teacher directed classroom dynamic assessment: a complementary pairing. *Foreign Language Annals*, 46 (1), 5-22.
- Hadidi, A. (2012). *Fostering argumentative writing ability in the zone of proximal development: A dynamic assessment*. Paper presented at the Canadian Association for the Study of Discourse and Writing Conference, Wilfred Laurier and University of Waterloo, Ontario, 26-28 May 2012.
- Hassaskhah, J. & Javan Haghparast, M. (2012). A comparative study of the impact of DA models on the writing ability and attitude of Iranian EFL learners. *The Buckingham Journal of Language and Linguistics*, 5, 38-51.
- Kozulin, A. and Garb, E. (2002). Dynamic assessment of EFL text comprehension of at-risk students. *School Psychology International*, 23, 112-127.
- Lantolf, J. P. & Poehner, M. E. (2010). Dynamic assessment in the classroom: Vygotskian praxis for L2 development. *Language Teaching Research*, 15, 11-33.
- Lantolf, J. P. & Thorne, S. L. (2006). *The sociogenesis of second language development*. Oxford: Oxford University Press.
- Luoma, S. (2004). *Assessing speaking*. Cambridge: Cambridge University Press.
- Luria, A.R. (1979). *The making of mind: A personal account of Soviet psychology*. Cambridge, MA: Harvard University Press.
- Lussier, C. M. & Swanson, H. L. (2005). Dynamic assessment: A selective synthesis of the experimental literature. In G.M. Van der Alsvoort, W. C. M. Resing, & A. J. J. M. Ruijssenaars (Eds.), *learning potential assessment and cognitive training: Actual research and perspectives in theory building and methodology* (pp. 65-87). New York, NY: Elsevier.
- Miao, T. & Lv, M. (2013). *Dynamic assessment in ESL writing classroom*. Paper presented at International Conference on Education Technology & Management Science (ICETMS 2013).
- Nassaji, H. & Swain, M. (2000). A Vygotskian perspective on corrective feedback in L2: The effect of random versus negotiated help on the learning of English articles, *Language Awareness*, 9 (1), 34-51.
- Poehner, M. E. (2005). *Dynamic assessment of oral proficiency among advanced L2 learners of French* (Unpublished PhD dissertation). Pennsylvania State University. Retrieved from <https://etda.libraries.psu.edu/paper/6627/1890>.
- Poehner, M. E. (2007). Beyond the test: L2 dynamic assessment and the transcendence of mediated learning. *The Modern Language Journal*, 91(3), 323-340.
- Poehner, M. E. (2008). *Dynamic assessment: A Vygotskian approach to understanding and promoting second language development*. Berlin: Springer Publishing.
- Poehner, M. E. (2009). Group dynamic assessment: Mediation for the L2 classroom. *TESOL Quarterly*, 43, 471-491.

- Qin, J. (2009). The analysis of Toulmin elements and use of sources in Chinese university EFL argumentative writing (Unpublished PhD dissertation). Northern Arizona University.
- Rahimi, M., Kushki, A. & Nassaji, H. (2015). Diagnostic and developmental potentials of dynamic assessment for L2 writing. *Language and sociocultural theory*, 2 (2), 185-208.
- Shrestha, P. & Coffin, C. (2012). Dynamic assessment, tutor mediation and academic writing development. *Assessing Writing*, 17, 55-70.
- Suwantarathip, O. & Wichadee, S. (2014). The effects of collaborative writing activity using Google Docs on students' writing abilities. *Turkish Online Journal of Educational Technology*, 13 (2), 148-156.
- Thouësny, S. (2010). Assessing second language learners' written texts: An interventionist and interactionist approach to dynamic assessment. In proceedings of the world conference on Educational Multimedia, Hypermedia and Telecommunications. (ED-MEDIA), Toronto, Canada, 2010. (pp. 3517-3522). Chesapeake, VA: AACE [online]. Available from: < <http://www.editlib.org/p/34803>>.
- Thouësny, S., & Bradley, L. (2014). Applying dynamic assessment principles to online peer revisions in written English for specific purposes. In S. Jager, L. Bradley, E. J. Meima, & S. Thouësny (Eds), *CALL design: Principles and practice, Proceedings of the 2014 EUROCALL Conference, Groningen, The Netherlands* (pp. 368-373). Dublin: Research-publishing.net. doi:10.14705/rpnet.2014.000247
- Van Der Veer, R. & Valsiner, J. (1991). *Understanding Vygotsky: A quest for synthesis*. Cambridge: Blackwell.
- Vygotsky, L. S. (1978). *Mind in society: The development of higher psychological processes*. Cambridge, MA: Harvard University Press.
- Wang, T. H. (2010). Web-based dynamic assessment: Taking assessment as teaching and learning strategy for improving students' e-learning effectiveness. *Computers & Education*, 54, 1157-1166.
- Wyrick, J. (2011). *Steps to writing well: With additional readings* (8thed.). Boston, MA: Wadsworth Cengage Learning.
- Zebroski, J. T. (1994). *Thinking through theory: Vygotskian perspectives on the teaching of writing*. Portsmouth, N.H: Boynton / Cook-Heinemann.
- Zhang, Y. (2013). The theoretical construction of a dynamic assessment mode in Chinese tertiary EFL writing class with online teaching and scoring systems. *CALL-EJ*, 14 (2), 38-50.