



Direct Classroom- Versus Flipped WebQuest-Based Instruction: Toward a More Productive Writing Practice

Fatemeh Nami*

Corresponding Author, Department of Foreign Languages, Amirkabir University of Technology, Tehran, Iran.

f.nami@aut.ac.ir

Abstract:

Writing is one of the most challenging language skills for both teachers and language learners. As a productive language skill, writing needs ample time and practice to be effectively developed, requirements that are not usually satisfied in conventional lecture-based second or foreign language classrooms. In effect, learners' ability to produce cohesive and coherent texts usually lags behind their general language proficiency. Inverted classroom designs that enable learners to be engaged in inquiry-oriented activities such as WebQuests prior to classroom meetings might be solutions to this problem. Reversing the order of instruction and practice enables teachers to dedicate more in-class time to systematic interaction and learner practice which can be particularly fruitful for writing skill development. This paper reports an experimental study on the possible impact of flipped WebQuest-oriented writing instruction and practice on foreign language learners' ability to produce cohesive multi-paragraph essays. Analyzing the data obtained from pre- and post-treatment essays written by language learners in control and experimental groups (N = 20 each), we observed that while both treatments were productive, learners in the flipped classroom produced longer essays containing more frequent and diverse markers of cohesion namely reference words, substitution, ellipsis, conjunctions, and lexical cohesion. The results indicate that when inquiry-based learning outside of the classroom setting is coupled with systematic in-class interaction and practice, it can better enhance learners' writing proficiency.

Keywords: WebQuests, flipped classroom, writing instruction, EFL learners.

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1. Introduction

Of different language skills and sub-skills, writing can perhaps be considered the most challenging one for both teachers and learners in second and foreign language (SL/FL) learning classrooms. Different factors such as classroom time limitations, the design of instructional coursebooks, and the nature of writing practice usually result in the inadequate development of learners' writing proficiency (Wu et al., 2020). Awada et al. (2020) attribute it to "the heavy requirements of the writing course as well as their [learners'] negative perceptions regarding teaching and learning process" (p. 2). In practice, language learners' ability to write cohesive and well-structured pieces of text largely lags behind their general language proficiencies (Samadian & Mohseny, 2019).

Effective writing instruction and practice necessitate the design and application of dynamic learning environments that not only enable the teacher to move beyond the temporal confines of conventional language classrooms but also engage learners in productive writing practice through problem-solving and inquiry. Inspired by constructivist and inquiry-based theories of learning, it is suggested that problem-solving and active engagement in the process of learning through interaction with the instructional content, the peers, and the teacher positively contribute to cognitive knowledge construction (Nami et al., 2018). Inverted classroom design, or the flipped classroom model, which entails well-designed problem-oriented instructional materials which are shared with students prior to classroom meetings (e.g., WebQuests) can be a solution to satisfy these needs (see Huang & Hew, 2018).

While research on language learning in inverted classroom designs is growing (e.g., Hsieh et al., 2017; Zarrinfard, Rahimi, & Mohseny, 2020; Zou & Xie, 2019), empirical data on how writing instruction and practice in inverted language classrooms which draw on inquiry-oriented materials such as WebQuest may contribute to learners' ability to write cohesive and coherence texts is almost unavailable. As Aydin (2016) rightly acknowledges, "WebQuest efficiency in acquisition and learning processes should be evaluated to guide teachers in teaching activities and researchers in further research on the issue" (p. 765). In an attempt to shed some light on this important research path, the present paper reports an experimental pre-test, post-test design study which was conducted on two groups of foreign language learners to explore the possible impact of flipped WebQuest-based writing instruction and practice on learners' ability to produce cohesive multi-paragraph essays.

2. Theoretical Background

When it comes to technology-enhanced learning, constructivism is perhaps the most widely applied guiding theory (Putri et al., 2017). It is generally believed that knowledge is a social construct that should be created by the learner playing an active role in the process of learning through inquiry and interactions with peers, the teacher, and instructional content. Research suggests that shifting the instruction to learners' personal learning time out of the classroom setting provides learners with opportunities for reflective inquiry and frees classroom time for more systematic interaction (see Bergmann & Sams, 2012; Haghghi et al., 2019; Muhamed & Lamia, 2018). In effect, it can facilitate knowledge construction.

The inverted classroom design, largely known as the flipped classroom (FC) model, has the potential to satisfy this need. It is suggested that the reversed instruction/practice in the FC model largely facilitates cognitive processing by preserving more room for learner-learner and learner-teacher interaction and project work (Huang & Hew, 2018; Hsieh et al., 2017). Having access to the instructional materials prior to the classroom meetings, learners can review and study the content as many times as they find convenient. As Wang (2019) puts it, the knowledge transmission is moved to the pre-classroom phase and in-class time can be better dedicated to knowledge construction and internalization.

By facilitating systematic interactions during the classroom meetings, the FC model promotes learner inquiry and problem-solving (Nami et al., 2018). The significance of inquiry-oriented learning is widely established in SL/FL learning research. Deeply rooted in constructivist theories of learning, inquiry-based learning (IBL) highlights the essence of situating learners in a learning environment that enables them to get engaged in research, reflective practice and information sharing (Nami et al., 2016). Largely associated with inductive pedagogical approaches, IBL sets the ground for meaning negotiation and knowledge construction through activities that require problem-solving and individual and/or collective project work. WebQuests are good examples.

Built on the tenants of IBL, WebQuests draw on the potential of the Web to develop learners' cognitive knowledge by engaging them in the process of individual or collective inquiry and problem-solving. Inquiry-based learning is built on the assumption that "learning can be enhanced when participants are given the opportunity to engage... in tasks demanding detailed research and inquiry" (Awada et al., 2020, p. 2). Through such research, learners collect pieces of information which will be then scrutinized to complete the task or answer the

question in the WebQuest. Hence, multiple skills, including higher-order thinking, reflection, and critical analysis are developed in learners (Ebadi & Rahimi, 2018).

In addition to learners' cognitive knowledge development, inquiry-oriented pedagogical approaches positively enhance learners' perceptions of the process of learning and the skills they usually find intricate and boring (see Bikowski & Vithanage, 2016). This can be fruitful for the learning language skills that the students, particularly in SL/FL learning contexts, may find them more difficult (e.g., writing).

Furthermore, by extending learner reflection and inquiry out of the confines of the physical classrooms, WebQuests, as instruction and learning vehicles, help teachers optimize in-class time (Torres, 2007). This is another quality that turns WebQuests productive for SL/FL contexts in which one or more language skills—usually writing—might be moved to the periphery of the classroom due to time limitations.

3. Review of Literature

3.1. Cohesion and EFL writing

One of the basic characteristics that distinguishes a written text from a group of unrelated sentences which are meaninglessly put one after the other is cohesion (Johnstone, 2008). Cohesion stands for “the linguistic devices by which the speaker can signal the experiential and interpersonal coherence of the text, and is thus a textual phenomenon” (Thompson, 2004, p. 180). Contrary to coherence, cohesion entails explicit textual markers (Rostami Abusaeedi, 2010). Cohesion in writing can be achieved via the application of different textual devices, namely reference words, substitution, ellipsis, conjunctives (i.e., additives, adversatives, casuals, and temporals), and lexical cohesion (i.e., collocation, same-word, synonym, super-ordinate, and general word) (see Halliday & Hasan, 1976).

References can guide the reader to different parts within or out of a piece of text. The former group of references is widely referred to as endophoric and the latter is commonly known as exophoric references. This way, according to Halliday and Hasan (1976), continuity is established in the lexical meaning of the text. References are widely grouped into three categories. These include pronominals (e.g., different pronoun types), demonstratives and definite articles,

and comparatives (e.g., same, similar, and many) (Georgakpoulou & Goutsos, 2004).

In addition to references, a cohesive piece of text needs substitution to avoid repetitive writing. Substitution “creates a strong link between one part of a text and an earlier part, and helps to make the text cohesive” (Salkie, 1995, pp. 35-36). Indeed, references must be distinguished from substitution in that they signal “a relation between the meaning of a word and its environment, where the environment can be the text or the real world” (p. 65), while substitution establishes a connection between words. The third cohesive marker, ellipsis, bears a close resemblance to substitution (Thompson, 2004), except in that the word or phrase is left out rather than being repeated (Georgakpoulou & Goutsos, 2004). In other words, the cohesive tie is established via omission (Johnstone, 2008). Conjunctions are the fourth group of cohesive devices that demonstrate a link between different sentences within a text and are of four types: additive, adversative, causal, and temporal. The last component of cohesion is lexical cohesion, which is a cover term applied with references to five main textual devices, namely same-word, synonym, super-ordinate, general item, and collocation (see Halliday & Hasan, 1976).

Writing a cohesive piece of text which features the abovementioned qualities, according to Samadian and Mohseny (2019), “is a major challenge for many English as a foreign language learners” (p. 214; also Ahmed, 2010; Rostami Abusaedi, 2010) including those who study English at different language learning settings in Iran. A similar observation was made by Lui and Braine (2005). Focusing on the argumentative compositions of 96 non-English major Chinese learners, the researchers observed that their participants did not have the required proficiency to produce cohesive texts.

Writing in English has been mainly practiced in a decontextualized manner, hardly moving beyond single sentence structure. The educational programs and courses are more concerned with the application of writing as a tool for taking English tests rather than proficiency with unique rhetorical conventions to be taught and practiced. This necessitates the design and development of writing instruction plans and pedagogical approaches that can effectively enhance learners’ knowledge of and ability to produce cohesive and coherent pieces of text in a second or foreign language.

3.2. The flipped classroom model and language skill development

The term flipped classroom (FC) model can be applied to “any kind of exploitation of internet technology to leverage the learning in a classroom, so that a teacher can devote more time interacting and communicating with students rather than teaching” (Ahmed, 2016, p. 418). Defined this way, the FC model moves beyond the mere physical reversion of instruction and practice order by redefining not only learners’ and teacher’s responsibilities (Bergmann & Sams, 2012) but also the instructional design of the course (i.e., the structure and presentation of the instructional materials and learning activities) to create a dynamic and interactive learning environment for quality learning (Haghighi et al., 2019).

In other words, the success and/or failure of learning attempts in inverted classroom designs largely depend on the human factor as well as the quality of the instructional and learning materials. When effectively designed, the FC model has the potential to promote active and deep learning and, effective quality learner performance (Tsai, 2021). Learner engagement in productive learning activities and performance increases the likelihood of them developing positive attitudes towards the process of learning (Lai & Hwang, 2016).

These qualities turn the inverted classroom design particularly fruitful for writing instruction and practice—specifically in SL/FL contexts—that is usually pushed to the periphery of language classrooms due to time limitations. The pre-classroom availability of the instructional materials injects some dose of flexibility to the structure of a flipped course, as teachers and learners can better manage in-class time for practicing different language skills, namely writing, under the teacher’s direct supervision. In such a context, learners can not only spot the gaps in their knowledge base (Blau & Shamir-Inbal, 2017) but are also encouraged to get engaged in subject matters that they might have found intimidating and intricate (e.g., writing) (see Fathi & Rahimi, 2020).

For this to be effectively accomplished, as discussed above, the instructional and learning materials which are shared with the students prior to the classroom meetings need to be carefully designed (Al-Zahrani, 2015). It is recommended to design the instructional content in a way that it promotes critical thinking, higher-order thinking, problem-solving, project work, and self-assessment. The inquiry-oriented design of WebQuests turns them into apt platforms for satisfying these needs.

A careful review of the studies on flipped classroom model, however, reveals that the inverted classroom design has just captured attentions in SL/FL research over the past decade. During this period, research has been mainly focused on language learners' attitudes toward FCs (e.g., Andujar & Nadif, 2020; Tecedo & Perez, 2021; Tsai, 2021; Wang, 2019; Webb & Doman 2020). Studies that systematically explore the contribution of the FC model to learners' language knowledge development remain largely scant (Kvashnina & Martynko, 2016).

These studies have, by and large, been concerned about the effectiveness of flipping instruction for learning specific language skills, sub-skills or knowledge areas, namely English vocabulary (e.g., Hsieh et al., 2017), pragmatic competence (e.g., Haghighi et al., 2019), reading (e.g., Zarrinfard, Rahimi, & Mohseny, 2020), and writing (e.g., Fathi & Rahimi, 2020; Zou & Xie, 2019). Reviewing writing-related FC studies, it becomes apparent that almost all of these studies offer positive accounts about the efficacy of the FC approach for improving learners' writing proficiency without specifying which aspect or quality of writing has been focused on. Writing proficiency, in other words, has been defined on the surface as the ability to produce language in text-based mode. The cohesion, coherence, persuasiveness, or complexity of writings has barely received attention in these studies. The only exception is perhaps Fathi and Rahimi's (2020) work that explored the possible impact of an FC on 51 TEFL major students' writing complexity, accuracy and fluency (CAF) as well as their global writing performance. Drawing on pre- and post-tests, the researchers reported a statistically significant difference between the control and experimental groups' fluency in writing. With respect to the complexity and accuracy of writings, however, no significant difference was observed.

A similar scarcity is observed in research on the design and development of instructional materials for flipped language classrooms. The applicability of different types of materials (e.g., WebQuests) for language skill development in the FC model has not received due attention. Bond (2020) similarly notes that the majority of FC-related studies do not offer accounts of the materials which are developed or applied.

3.3. WebQuests in language classrooms

WebQuest is an inquiry-oriented platform or "model in which learners are actively involved in an activity or situation" (Halat, 2008, p. 109) and draws on multiple resources to interact with the content and construct knowledge (Dodge,

1995). The Quest part of the term largely highlights the dominating pedagogical approach in WebQuests which promotes learner research, problem-solving, and inquiry (see Kelly, 2000; Liang & Fung, 2020). Rather than the direct transmission of knowledge in a teacher-centered learning environment, learners are presented with a learning scenario, question, or task that can be accomplished individually or collectively through reading and studying the suggested content in the WebQuest.

WebQuests usually feature five (and sometimes six) sections, including Introduction, Task, Process, Evaluation, Conclusion, and Resources. While these sections may be termed differently, each entails particular functions. When effectively designed, WebQuests can promote interaction, active learning, critical thinking, and self-regulated learning (see Aydin, 2016; Chou, 2003). These qualities increase the applicability of WebQuests for SL/FL teaching and learning, namely writing instruction and practice (see Hung, 2015). Critical thinking paves the way for higher-order thinking skills which are essential for writing. Hence, “adopting critical thinking skills suitably help students apply writing skills appropriately” (Ebadi & Rahimi, 2018, p. 5).

While research on WebQuests in ESL/EFL settings has mainly documented their potential for content, vocabulary and reading knowledge development (e.g., Awada & Diab, 2018; Aydin, 2016), empirical and experimental studies that focus on foreign language writing practice through WebQuests remain largely scant (e.g., Chuo, 2007; Ebadi & Rahimi, 2018). Exploring the possible impacts of WebQuest-based and conventional writing instructions on learners’ writing performance, for instance, Chuo (2007) observed that language learners who used WebQuest outperformed their peers in the conventional classroom. Ebadi and Rahimi (2018), in another study, concentrated on the effectiveness of WebQuest-based writing practice for learners’ academic writing skill development. Similar to Chuo (2007), Ebadi and Rahimi (2018) reported a statistically significant difference between the writing performance of the experimental and control groups.

In almost all of the studies that are conducted on the application of WebQuests for language learners’ writing skill development, the nature of the difference between the control and experimental groups is not attended to. It is not clear which textual components or conventions of writing are better developed or how using WebQuest has affected learners’ choice of cohesive ties in their writings. The present study aims at filling these gaps by offering a more detailed look into the writing performance of language learners.

4. Research Methodology

4. 1. Research questions and design

An experimental pre-test, post-test research was conducted to explore whether learners' performance in post-treatment writing essay differed based on the type of the treatment provided (i.e., conventional vs. WebQuest-based writing instruction).

4.2. Participants and research context

The participants included forty intermediate-level Iranian learners studying English at a private language institute in Tehran. The participants were selected from a pool of 47 volunteers who pre-registered for a free writing course. To select roughly homogeneous participants in terms of writing proficiency, a sample TOEFL writing exam was administered to the volunteers and those who scored 0 to 2 out of a total of 5, based on the *ETS Writing Rubric*, were selected for the study. The rationale for including these band scores was that the cohesion and coherence of the essays in these band scores (i.e., 0, 1, and 2) appear to be seriously poor, indicating a large gap between language learners' oral language proficiency (as intermediate level learners) and their writing proficiency. The selected participants were randomly assigned to two groups (a control and an experimental group; N = 20 each). All participants were female and the researcher took part in the two classes as the course instructor and essay rater.

4.3. Materials and procedures

Bailey and Powell's (2007) *The Practical Writer with Readings* was used for the participants in the control group as the main coursebook for in-class instruction. The rationale for selecting this book was fourfold. First, different qualities and requirements for writing different types of English essays are discussed in the book in a fluid and comprehensible language. Second, the section on sample essay features sample student essays that present the points highlighted in the main part of the book about different types of essays. Third, highly practical topics about cohesive writing are covered in different sections of the book. Fourth, the book contains different parts about uni- and multi-paragraph essays to guide the readers, in a step-by-step manner, throughout the process of essay writing from single-paragraph essays to five-paragraph ones.

The participants in the experimental group had access to an online WebQuest on tripod.lycos.com which was designed by the researcher and course instructor. The WebQuest featured: Introduction, Lessons, Tasks, Our Library, and Teacher's Page. The Introduction Section offered an overview of the focus of the WebQuest for the learners. The Lessons Section featured the links to 14 writing lessons. Each web-based lesson contained instructional content, writing tips, thought-provoking questions and hyperlinks to external webpages that contained complementary information about the topic of that lesson. The topics covered in the web-based lessons roughly matched those covered in the coursebook which was used by the control group students. The focus of the lessons was mainly on (a) the structure of uni- and multi-paragraph essays and (b) cohesive writing and different cohesive ties.

The main WebQuest projects were introduced and discussed in the Tasks Section. There were fourteen different tasks each corresponding with one web-based lesson. To control for possible source of measurement error and given the fact the students in the control group wrote their essays individually, WebQuest tasks were to be completed individually by each learner. Students could find suggested resources for further research in Our Library Section. Students had one week time to complete each writing task. This section featured the required resources for the successful accomplishment of the writing tasks. The Section entitled Teacher's Page provided information about the overall objective of the WebQuest for teachers who might be interested in integrating it into their writing instruction and practice. It also contained evaluation guidelines for assessing learners' performance working on the WebQuest tasks.

Each participant in the experimental and control groups accomplished fourteen writing tasks. The tasks were inherently the same for both groups. While the students in the control group received information about the tasks from the instructor and the coursebook during the classroom meetings, experimental group participants had the WebQuest as the main data source about the tasks. Additionally, control group students worked on their writing tasks after receiving direct instruction and getting engaged in classroom discussions during each session. Experimental group participants, on the contrary, worked on the web-based lessons prior to the classroom meetings and the in-class time was spent on finalizing their writing tasks under the guidance and supervision of the instructor and with occasional help from peers.

In addition to the writing tasks, the participants in both groups were engaged in sample essay review activities during the classroom meetings. Sample student

essays were selected from the Sample Essays Section of the coursebook for control group participants to be reviewed every two sessions in-between, from the third session onwards. Students in the experimental group had access to sample student essays (at the same levels) in the web-based lessons of the WebQuest. The sample essays were similarly discussed for the experimental group during the classroom meetings.

Both courses comprised seventeen, two-hour physical sessions which were held in the language institute under study. The first session in both of the classes was dedicated to the introduction of the course and its specifications. From session two to session six, the basics of writing one-paragraph essays (e.g., topic sentence, support types, unity, relevance, and coherence) were introduced and covered in both classes. During session seven, the main points discussed in the previous sessions were reviewed.

The elements of multi-paragraph essays (e.g., introductory, supporting, and concluding paragraphs) and new cohesive markers (i.e., additive and temporal conjunctions and lexical cohesion) were introduced and worked on during sessions eight to twelve. By the eleventh session, the students in experimental and comparison groups had covered the discussion of multi-paragraph essays. Therefore, the focus of writing tasks shifted from single-paragraph to multi-paragraph writing from session nine onwards. During sessions 13 to 15, punctuation patterns were focused on. Session 16 was dedicated to a review of the topics covered in the course and students took the post-treatment writing exam during session 17.

5. Data Presentation and Analysis

To compare learners' progress in writing well-structured English essays by completing the course, two sample TOEFL writing exams were selected and administered as the pre- and post-treatment writing exams to the students in both groups. The pre-treatment writing exam served also another purpose. It was administered to select homogeneous groups of students from those who volunteered to participate in the study. The topic of the writing was taken from Sharpe (2005). Participants had 30 minutes to plan, write, and revise a three-, four-, or five-paragraph essay about the topics highlighted in the pre- and post-treatment writing exams. They were informed that their essays needed to contain at least 300 words.

To analyze students' pre- and post-treatment essays, a four-phase data analysis procedure was followed. In the first phase, the indicators of cohesion (i.e., references, substitution, ellipsis, conjunctives, and lexical cohesion) were identified in the essays. Since the essays varied in the number of words, these indicators were searched amongst the first 300 words of the essays in case the essays exceeded the word limit. The frequency of the indicators of cohesion which fell within each category was calculated twice by the researcher with a one-month period in between to increase the consistency in the calculation. In the second phase of the analysis, intra-rater reliability was analyzed by calculating the correlation coefficient between the two sets of frequencies. The ratings for each component were calculated separately. An average coefficient of 0.889 (for the pre-treatment) and 0.876 (for the post-treatment writings) indicate the consistency of the ratings.

In the third phase of the analysis, a Chi-Square was calculated for the frequency of each cohesive device in the pre- and post-treatment writing exams using SPSS software. These included: ellipsis, substitution, conjunctions (additive, adversative, causal, and temporal), references (pronominal, demonstrative, and comparative), and lexical cohesion (same-word, synonym, super-ordinate, general item, and collocation) (see Table 1).

The frequency of each device was presented in the form of the obtained and expected frequencies together with the percent of the essays with a particular number of that device (% within groups). In addition, the Chi-Square test results were also provided to ascertain if there existed a significant difference between the percentages. It must be noted that in order to avoid cells with expected counts of less than 5, some of them were combined to increase the individual cell size (Hinton et al., 2004).

In the fourth phase of the analysis, the diversity of the identified cohesion indicators was explored in cases where statistically significant difference was found between the two groups. The main rationale behind these follow-up analyses was understanding whether the difference was confined simply in the number of words applied or more beyond it. Considering the fact that a higher number of cohesive devices may not necessarily indicate a higher quality in writing (see Vahid Dastjerdi & Hayati Samian, 2011), the researcher focused on the proper use of cohesive markers as well as the variety in the use of each indicator of cohesion rather than merely counting the frequency of the words.

Table 1

Chi-Squares for Cohesive Markers in Each Group's Pre- and Post-Treatment Writing

Cohesive Markers	Comparison Group			Experimental Group		
	Value of Pearson Chi-Square	df	Asymp. Sig. (2-sided)	Value of Pearson Chi-Square	df	Asymp. Sig. (2-sided)
Ellipsis	16.942	1	0.000	29.441	2	0.000
Substitution	26.667	1	0.000	24.000	1	0.000
Additive conjunction	21.333	2	0.000	26.340	2	0.000
Adversative conjunction	21.333	2	0.000	25.556	2	0.000
Causal conjunction	7.380	2	0.025	22.842	2	0.000
Temporal conjunction	10.656	2	0.005	10.793	2	0.005
Pronominal reference	40.000	1	0.000	40.000	1	0.000
Demonstrative reference	16.690	2	0.000	26.286	2	0.000
Comparative reference	16.942	1	0.000	16.538	1	0.000
Same-word	26.667	1	0.000	27.565	1	0.000
Synonym	13.789	1	0.000	28.972	1	0.000
General item	21.538	1	0.000	20.417	1	0.000
Super-ordinate	7.619	1	0.006	15.824	1	0.000
Collocation	30.400	2	0.000	36.267	2	0.000

6. Data Interpretation

6.1. Results

The analysis revealed no significant difference between the two groups in the pre-treatment writings with respect to the use of cohesive markers. Additionally, it was observed that the pre-treatment essays (in both groups) lacked certain indicators of coherences, namely collocations, ellipsis, special types of conjunctions, and super-ordinates.

The analysis of the post-treatment essays, however, revealed that in the majority of the essays written by comparison group students (60%), there were no instances of ellipsis; whereas 55% of the experimental group essays had at least one ellipsis. This indicated the existence of a significant difference at $p < 0.05$ ($\chi^2 = 13.867$, $df = 2$). Statistically significant differences were also observed between the two groups with respect to other indicators of cohesion. For instance, while 60% of comparison group essays contained one substitution, the average number of substitutions in the majority of experimental group essays (65%) ranged from 3 to 4 ($p < 0.05$; $\chi^2 = 13.867$, $df = 2$).

Given the fact that frequency alone may not necessarily indicate cohesiveness, in a follow-up analysis, the type of substitutions used in the essays was also

analyzed. It was observed that the only word which was used as a substitution in comparison group essays was *one* (e.g., *this one* and *the best one*). Experimental group participants used more diverse combinations (e.g., *one*, *some*, *each*, and *others*) as a substitution in their essays.

Furthermore, the analysis revealed that the essays written by the experimental group participants were generally longer than those of the control with fourteen essays having 15, two essays having 16, three having 17, and one essay having 23 sentences. In the comparison group, sixteen essays had 13, three contained 14 and one had 17 sentences. It would not be surprising to find more cohesive devices in longer essays. This observation confirmed that essays written by the experimental group participants not only contained a higher frequency of cohesive markers but also featured a more diverse use of different indicators of cohesion.

The analysis of the application of conjunctions in the post-treatment essays revealed no significant difference between the two groups with regard to the use of additive conjunctions ($p>0.05$; $\chi^2=2.351$, $df=2$). The case was different with respect to the use of adversative ($p<0.05$; $\chi^2=15.000$, $df=2$), causal $p<0.05$; $\chi^2=7.444$, $df=2$), and temporal conjunctions ($p<0.05$; $\chi^2=11.743$, $df=2$). For instance, experimental group students used a more diverse range of adversatives in their essays. The frequency of causal conjunctions was similarly higher in experimental group essays.

It was not just the difference in the frequency of conjunctions that distinguished control and experimental group essays. A follow-up analysis revealed that the students in the experimental group had used a more diverse range of conjunctions in their essays in comparison with the control group learners.

The appropriate application of different types of references (i.e., pronominals, demonstratives and definite articles, and comparative references) was also explored in the essays. The most frequent references in the essays across the two groups were demonstratives and definite articles. The majority of control group essays (45%) featured 7 to 9 instances of pronominals. This was 15 to 17 instances for 50% of the experimental group essays. Despite this difference, the value of Chi-Square was not significant ($p>0.05$; $\chi^2=2.900$, $df=2$). With respect to properly used demonstratives and definite articles, it was noted that while 85% of control group essays contained 3 to 5 instances, in 55% of the experimental group post-treatment writing, this number ranged from 12 to 14. The Chi-Square results indicated that this pattern was significant ($p<0.05$; $\chi^2=27.495$, $df=2$).

Similar to pronominals, the application of comparative references was not statistically different across the two groups. Hence, participants in the control and experimental groups demonstrated a more or less similar performance in terms of using reference words in their essays.

The final indicator of cohesion explored in the essays was lexical cohesion. Lexical cohesion is signaled in writing by using same-words, synonyms, super-ordinates (e.g., flower and rose), general items (e.g., stuff), and collocations (e.g., disease, flu, and cough). While there was no statistically significant difference between the two groups regarding the use of same-words and general items in the essays, experimental group participants appeared more attentive to the use of synonyms in their writings ($p < 0.05$; $\chi^2 = 8.000$, $df = 2$). The analysis revealed that 40% of the essays in the control group either lacked synonyms or contained only one proper use of these indicators of lexical cohesion. In addition to frequency, the synonyms which were applied in the experimental group essays appeared to be more diverse.

For further clarification, the types of support in the essays were also investigated. In the experimental group, three essays contained a short story as a part of their support; five essays had statements by authorities; and almost all of them contained examples. While the supports in the comparison group did not demonstrate such diversity of types and from time to time the word *for example* was repeated in the essays. This implies that the diversity and frequency of synonyms in experimental group essays might be attributed to the diversity found in the support types that enabled the pupils to write in more detail about the subject.

Super-ordinates were also used differently by the two groups. While 75% of the comparison group essays either lacked super-ordinates or contained only one instance, 65% of the experimental group essays featured at least 2 to 3 instances of super-ordinates. The Chi-Square results ascertained that the identified pattern was significant ($p < 0.05$; $\chi^2 = 6.456$, $df = 1$). A follow-up analysis of the super-ordinates used in the essays revealed that in addition to the higher frequency, the experimental group participants had applied more diverse super-ordinates in their writings. A similar observation was made with reference to collocations. The analysis revealed that collocations were not only more frequent but also more diverse in the essays of the experimental group. The value of Chi-Square ($p < 0.05$; $\chi^2 = 7.860$, $df = 2$) reflected the statistical significance of this observation.

6.2. Discussion

The results obtained from the analyses of pre- and post-treatment writings revealed that both treatments increased participants' consciousness about the need to attend to the indicators of cohesion in English writing. This was reflected in the application of different types of cohesive ties in the post-treatment essays of the control and experimental groups, many of which were simply absent in their largely disorganized pre-treatment essays. Hence, it can be argued that direct classroom-based and flipped WebQuest-oriented treatments were both successful in increasing learners' ability to write cohesive pieces of text in English.

When it comes to the post-treatment writings, however, the between-group analyses revealed that the experimental group participants had made a wiser use of cohesive ties in their writings in terms of both frequency and diversity. Considering the fact the instructional content and writing tasks were similar across the two groups, the observed difference may be attributed, on the one part, to the reversed nature of the writing course in the experimental group, and on the other, to the inquiry-oriented nature of writing instruction through the application of a WebQuest. Grounded on the constructivist theories of learning (Putri et al., 2020), it is suggested that extending classroom instruction to learners' personal learning time—as it was the case in the flipped classroom in the present study—promotes reflective practice and inquiry and paves the way for more effective knowledge construction (see Haghghi et al., 2019) and internalization (Wang 2019).

The reversed nature of the classroom design, in the flipped model, freed in-class time for more systematic product and/or process writing in teacher's and peers' real-time presence (Ekmekci, 2017; Santikarn & Wichadee, 2018; Webb & Doman, 2020; Wu et al., 2020). Learners had the chance to pose their questions and receive immediate feedback from the teacher or peers while working on their tasks. This quality might have better facilitated cognitive processing through offering more opportunities for learner-teacher and learner-learner interaction (Hsieh et al., 2017). On-the-spot discussions and interactive exchanges are suggested as more productive for enhancing learners' ability to produce the target language (in this case writing).

Contrary to previous studies (e.g., Fathi & Rahimi, 2020), it was observed that flipping instruction not only improves learners' writing fluency but also enhances the complexity of their written pieces. Fathi and Rahimi (2020), for example, did

not find a statistically significant difference between their flipped and non-flipped course and attributed it “to the fact that writing complexity and accuracy need a higher level of processing capacity which could be achieved in later stages of language learning when language learning processes are consolidated and automatized” (p. 27). While acknowledging Fathi and Rahimi’s (2020) justification, it can be argued that the relatively long duration of the writing course and greater number of writing tasks in the present study might have developed learners’ processing and analyzing capacities and resulted in more complex written pieces.

In addition to the reversed nature of the flipped course, as mentioned above, the application of a WebQuest for engaging learners in out-of-classroom learning can be considered another factor that might have contributed to the findings. Consistent with inquiry-based learning, it is suggested that giving learners the opportunity to reflect on the instructional content at their own pace and get engaged in detailed inquiry better promotes cognitive knowledge development and learning (Awada, Burston, & Ghannage, 2020). Similarly, searching for more information through the application of the suggested resources provided in the WebQuests, experimental group participants have had the opportunity to see more instances of proper use of different mechanisms in writing (see Ebadi & Rahimi, 2018). This, in effect, can be one possible reason behind the more diverse application of different word types, namely cohesiveness indices, in their essays in comparison with the control group learners who were confined to their coursebook.

The observed difference between the control and experimental group writings can also be attributed to learners’ affective engagement with the writing tasks. As it was discussed earlier in this article, inquiry-oriented learning and tasks have the potential to not only enhance learners’ cognitive knowledge development but also promote their positive perception of the learning experience (Bikowski & Vithanage, 2016). Such an enhanced affective engagement might have better increased experimental group learners’ engagement with the writing tasks in terms of attending to the details and resulted in more complex written pieces.

The observed lexical variety in the experimental group’s essays is quite contrary to the findings of previous research on cohesive writing in EFL contexts. Hence, the observed difference might be attributed to the extended opportunity for critical reflection on instructional content and access to diverse learning resources on the part of students who experienced writing in the inverted classroom design.

Another interesting finding was that learners across the two groups used definite articles, additive conjunctions, and pronouns more commonly in comparison with the other types of cohesive markers. This is consistent with Crowhurst's (1987) observation that causal and temporal conjunctions are less commonly used by language learners in comparison with additives given that additives, demonstratives, pronouns, definite articles, and repetitions are more commonly known and used in learners' texts.

Despite the areas in which the two groups performed differently, not statistically significant difference was observed between the two groups regarding the use of *additive conjunctions*, *reference words (pronominal and comparative)*, *same-words*, and *general items*. This may be attributed to the fact that, contrary to other cohesive devices, these indicators are more discussed in EFL coursebooks and commonly known by learners at higher levels of language proficiency. For example, additive conjunctions are amongst the most commonly discussed topics in English textbooks, such as *The New Headway Series* (the textbook used in the language institute under study). Quite the contrary, concepts such as ellipsis, substitution, and lexical cohesion are less commonly known.

7. Conclusion and instructional and research implications

The present paper reported a study on the possible impact of inverting the classroom instruction and practice order in a writing classroom on EFL learners' ability to produce cohesive well-structured essays. Comparing pre- and post-treatment writings of two groups of EFL learners who attended a writing course in a private language institute, it was observed that direct classroom- and inverted WebQuest-based writing instruction were both productive for enhancing learners' written language production. However, participants who attended the flipped writing course demonstrated a different performance in their post-treatment writing exam by making proper use of more frequent and diverse cohesive markers in their texts in comparison with those who received the conventional treatment. Although both groups commonly used articles and additives in their post-treatment essays, it was the experimental group who experienced working with a writing WebQuest in an inverted classroom design that produced longer and more cohesive pieces of texts.

These findings bear important implications that require attention. It should be noted that improving the efficacy of learners' foreign language writing attempts requires a redefinition of instructional design and pedagogical approaches that are

commonly used in EFL classrooms. More specifically, making relevant instructional content and learning activities accessible to language learners prior to classroom meetings can inject some dose of flexibility to language classroom design. This would enable teachers to better dedicate in-class time to learner practice and interaction; two qualities that are essentially important for writing skill enhancement. This approach cannot be successful without a change in teachers' pedagogical preferences toward more learner-centered inquiry-oriented learning. In other words, effective implementation of the FC model in language classrooms necessitates a careful curriculum and materials redesign.

Individual differences and learning styles or preferences can be a source of the problem when not attended to in inverted language classrooms and inquiry-based learning. Hence, future studies should explore which combinations of instructional materials and learning activities might work better for different learning styles and which ones are practical in different language learning contexts. The present study relied exclusively on quantitative data. Had more diverse data sources been applied, different results might have been obtained. The students participating in the flipped classroom did not have prior experience in inverted classroom designs. How learner enculturation and readiness for learning in a flipped course may affect their perception toward writing practice, and their writing proficiency, can be a potential topic for future investigation.

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آموزش مستقیم کلاس-محور در مقابل آموزش معکوس وب کوئست-محور: به سوی تمرین موثرتر نگارش (پژوهشی)

فاطمه نامی*

نویسندهٔ مسئول، استادیار گروه زبان‌های خارجی، دانشگاه صنعتی امیرکبیر

f.nami@aut.ac.ir

چکیده

نگارش، یکی از چالش‌برانگیزترین مهارت‌های زبانی برای معلّم‌ها و زبان‌آموزان است. به‌عنوان یکی از مهارت‌های تولیدی زبان، پیشرفت مناسب نگارش، نیازمند زمان و تمرین کافی است. ویژگی‌هایی که به‌طور معمول، در کلاس‌های سنتی ارائه‌محور زبان دوم یا خارجی تأمین نمی‌شوند. در نتیجه، توانایی فراگیرندگان در تولید نوشتاری، منسجم و پیوسته به‌طور معمول، کمتر از بسندگی کلی زبانی آن‌هاست. طرح کلاس‌های وارونه که فراگیرندگان را قادر می‌سازند در فعالیت‌های جستار محور؛ مانند وب کوئست‌ها، پیش از کلاس شرکت نمایند، می‌توانند راه حلی برای این مشکل باشند. معکوس نمودن ترتیب آموزش و تمرین به معلّم، امکان اختصاص زمان بیشتر برای تعامل ساختارمند و تمرین فراگیرندگان در محیط کلاس را می‌دهد. ویژگی‌هایی که به‌طور ویژه می‌توانند برای پیشرفت مهارت نگارش، موثر باشند. مقالهٔ حاضر، به گزارش پژوهشی تجربی، بر تأثیر آموزش و تمرین نگارش در کلاس معکوس وب کوئست-محور، بر توانایی فراگیرندگان، برای تولید مقاله‌های چندپاراگرافی منسجم می‌پردازد. تحلیل داده‌های به دست آمده از مقاله‌های نوشته شده از سوی فراگیرندگان در گروه‌های کنترل و تجربه، پیش و پس از تحقیق، حاکی از این امر بود که با وجود اثربخشی هر دو روش تحقیق، فراگیرندگان در کلاس وارونه، مقالات بلندتری حاوی نشانگرهای متعدّد و گوناگون انسجام متنی؛ مانند واژه‌های مرجع، جانشین، حذف به قرینه، کلمات ربط و انسجام واژگانی، به رشتهٔ تحریر درآوردند. نتایج، نشانگر این نکته است که اگر یادگیری جستارمحور، بیرون از کلاس، با تعامل و تمرین ساختارمند درون کلاسی همراه شود، می‌تواند بسندگی نوشتاری فراگیرندگان را بهتر بهبود بخشد.

کلیدواژه‌ها:

وب کوئست‌ها، کلاس وارونه، آموزش نگارش، فراگیرندگان زبان انگلیسی به‌عنوان زبان خارجی

*استناد: نامی. (۱۴۰۱)، آموزش مستقیم کلاس-محور در مقابل آموزش معکوس وب کوئست-محور: به سوی تمرین موثرتر نگارش. پژوهش‌نامهٔ آموزش زبان فارسی به غیرفارسی‌زبانان، سال یازدهم، شمارهٔ دوم (پیاپی ۲۴- ویژه نامهٔ CALL)، پاییز و زمستان

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