Writing Fluency Achievement through Computer Concept-Mapping Strategy Conjoining Partial Persian Word Translation

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Abstract

From educational spectrum, challenges in finding conducive ways for English writing have remained weighty. Thus, this report focuses on using computer concept mapping with partial word Persian equivalent in the graphs on facilitating writing fluency as a contributing factor. It was thought teaching writing suchlike leads to remembering more data and writing more fluently. To the researchers, EFL learners generally lack sufficient motivation in writing as they perceive as a complicated or boring subject and come across difficulties during learning it. This strategy was adopted compared to traditional teaching method. A prior and after treatment evaluation and normal group design was used. The study participants were 50 intermediate EFL students equally halved into experiential and control members. The experimental treatment group practiced writing using computer concept-maps but their counterparts were taught ordinarily. Statistical analyses by using SPSS statistical software were run. One-way ANOVA test and independent-samples t-test were adopted in data analysis. The overall findings arisen manifested that teaching writing with the use of computer concept maps was significantly much influential than conventional teaching approach.

Keywords: Concept mapping; Conventional; Equivalent; Fluency; Writing

INTRODUCTION

In Javadi-Safa (2018)words, in the broadest perspective, the provenance of writing and its weighty locus in showing trainees' obtainment rate is undeniable in L2 teaching and inquiry. Virtually, writing is thought to be a rigid task, even for indigenous inhabitants although it is much more terrific for overseas, especially English learners. Based on Merkel (2018) and Muller, Gregoric, and Rowland (2017) the expansion of this skill in language learning settings does not anymore raise challenges and debate for investigators. Better, the agreed idea is that this skill echoes a central part in language obtainment and performance (Steinlen, 2018). Rubiyah, Ping, and Syamdianita (2018) have emphasized that writing has been attended as a complex proficiency to instruct and gain both for the instructors and learners in the English learning settings. As Rao Rao (2019) claims, in the process of instructing and picking up, writing plays a pivotal and dominant role through which learners can be assessed. According to Shamsuddin et al. (2017), the success and progress of most nations are due to education, machinery and pedagogy expansion.

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Writing has remained an entangled, purposeful mental case that an array of societal as well as mental elements plays parts (Byrnes & Manchón, 2014; MacArthur & Graham, 2016). It is in reality remarkably crucial in today's common world. They add that writing skill is a component of an inventive deal without which the flow of expressions and statements would stop just before even starting. As Wang et al. (2018) note, concept mapping is the most generally employed strategy in concepts instruction and acknowledging and removing the misconceptions in the realm of education. Anyhow, the current project was a pursuit setting out in delving into the Computer Based Concept Mapping (CBCM) impact on Iranian Intermediate EFL learners' writing fluency achievements in an intermediate writing course.

Amidst the numerous writing patterns that center on the aims of writing, fluency is receiving a lot of attention. The current inquiry aimed to seek whether writing fluency of EFL learners could be improved by computer-based concept mapping learning approach application. The researcher prospective was that this inquiry will bring about not only useful feedbacks to EFL specialists but achievements for EFL learners. University instructors can integrate concept mapping in CALL enterprises to their writing practices and teaching, so they contribute students learn instead of being provided by information. This study can principally assist EFL students promote their writing skill independently, confidence, and motivation through getting benefits of computer-concept mapping conjoining translated browse words that causes establishing relations, spreading ideas and delivering more detailed information. It was thought that writing the translation of browse words in the graphs will make great help in remembering more details and full explanation of the topic along with writing fluency.

Overall, the stated objectives of the research are operationalized in the following research questions:

1. Does computer-based concept mapping bear any significant influence on Iranian EFL Learners' writing and recalling more details by translation of key concepts?
2. Can computer-based mapping act as a contributing tool for Iranian Intermediate EFL Learners?

Computer Concept-Map and Partial Translation

A concept map is orderly structured, figurative illustration of worthwhile relationships with other constructs (Hsieh et al., 2016). Joseph Novak introduced concept mapping in 1972, on the basis of the David Ausubel learning psychology. The chief focus of Ausubel's cognitive psychology is that grasping occurs through understanding. Trang (2017), announced that concept mapping can act as a contributor strategy which enables learners in combining background knowledge into a complete visual map. According to Aşıksoy (2019), technology improved learning so expansively that involved all applications of digital technology to aid learning and teaching.

Farrag (2017) has the idea that computer concept maps provide students with a chance and benefit to: *primarily;* ponder on the links between the words being mastered; *then;* regularly, put into order their reflection and attention and foresee the interrelationships in basic concepts; and finally: reevaluate their understanding. Based on Novak (1992) "Concept-Mapping refers to a system for evaluating learners recognizing of interrelationships among concepts". Based on Kao, Lin, and Sun (2008) and (Mammen, 2016) statements, "Concept maps can also be used as a perceptual and mental tool to assist learners".

Each language skill has its own problems and writing is not exceptional. According to Westwood (2008), some factors are attributed to poor writing performances. These factors are classified as limited vocabulary domain, limited knowledge of grammatical structures, lack of fluency, lack of familiarity with the subject matter, imperfect use of effective writ-

ing strategies, and problems in writing down the information. In teaching writing, most of the instructors merely relied upon the textbooks as the main source of the teaching of writing. Therefore, it leads to having learners unenthusiastic to writing activities in the classroom because of the boring sense these writing activities induce. By providing translation of words in this study, learners were more enthusiastic in writing fluently. Key Persian equivalents provided for learners helped them write more freely and recall more in depth writing. Consider the following writing titles and their translation.

A:**English:** *Modern living hazards in big cities.*

Persian:خطرات زندگی مدرن در شهرهای بزرگ

B:**English:** *The effects of pollution on the environment.*

Persian: تاثیر آلودگی بر محیط زیست

C:**English:** *Three cups of coffee a day * keeps the doctor away*

Persian: بنوشی قهوه گر روزی سه فنجان/نگردی هیچ محتاج طبیبان

It was believed that writing the translation of the key and browse words will make a great help in remembering more details and full explanation of the topic along with writing fluency. It was noticed that writing about such topics and keeping the Persian key word(s) kept learners more engaged and enthusiastic to write better by knowing their equivalent or translation. Here, '' آلودگی '' and '' خطرات زندگی '' translated concepts were considered as the key words reminding us more details about the topic they were to write about. EFL learners generally lack sufficient motivation for learning writing. Therefore, the target of this inquiry was oriented towards examining the new approach, that is, writing fluency achievement through Persian words' equivalents and Computer Concept-Mapping Strategy in instructing writing skill of intermediate EFL learners.

LITERATURE REVIEW
Theoretical and Experimental Framework

Javadi-Safa, (2018) claims that writing is the most basic skill in language. Writing is vital to enable trainees to be successful in an academy and is regarded as a productive skill learner learn to write in a foreign language when encountering problematic issues. Like other skills, it can be enhanced by computer concept mapping. As stated by Harini, Nilakusmawati, and Astawa (2017), the concept maps are influential methods in starting the thinking process in problem solving, helping the correct definition of problem solving, and orienting learners to a changeable problem solving methods. Çakmak (2018) believes that concept maps are often implemented as evaluative tools in activities and studies and not only as a teaching method. When literature was analyzed related to the parts of using concept maps, they were publicly seen to be used as effective teaching (Ören & Ateş, 2018). It is of note to recognize how the advances in information and communication technologies like computer concept-maps are actively employed in education field (Lytras, 2018). Ning (2018) asserts that concept mapping is in reality a strong and useful pictorial method to help learners organize knowledge and imagine link among related concepts. Based on Asiksoy (2019) technology improved learning and consisted a vast realm that encompasses all uses of digital technology to help learning and teaching practices in various educational settings and the power in promoting practical learning in education.

In a work carried out by Aydin (2015) to seek the influence of using technology-supported and concept mapping, experiment outcomes indicated that, with regards to recognition of concepts, learners in the concept map group outperformed their counterparts in other groups, whereas learners in both mind map and concept map groups revealed that promoting computer concept maps were pleasure and informative (Aydin, 2015). In doing researches Chiou, Tien, and Tang (2020) and Tien, Chiou, and Liao (2018) demonstrated that multidimensional concept maps can cul-

minate in the reduction of accounting students cognitive load and promote accounting student learning success, retention, and pleasure which can aid students to generate network of connections in memory. Simultaneously, various studies have explicitly shown the effect of computer-oriented concept mapping methods in helping the learning achievements (Bridges, Corbet, & Chan, 2015). Isfaningrum, Masykuri, and Saputro (2013) found that concept maps are employed to express practical and weighty relationships among concepts in the form of recommendations. Based on Pardosi (2017) investigations, it was identified that science learning using learning models concept mapping could increase student learning outcomes firmly. Johnson (1994) presented concept mapping to some one hundred sixty trainees of seventh graders who were seventh graders. All of them confirmed that concept mapping assisted them to arrange information meaningfully so that it could lead to a far better recognizing and enabled them to respond questions with ease. Also, it helped them remember the concepts and retain the learned concepts for the exam preparedness. Ritella and Hakkarainen (2012) explored the impacts of concept maps constructions utilized on 75 Korean students' writing, and the learners' inclination toward concept mapping employment. The results manifested that the participants' attitude did not change statistically. In one investigation conducted by Jafari and Zarei (2015) the efficacy of concept mapping strategy instruction on fostering learners' success in writing skill was reported Jafari and Zarei (2015) investigated the impact of computer-concept mapping on a group of Persian English learners' argumentative essay writing. The obtained results demonstrated that concept mapping strategy had a crucial role on the students' essay writing. Shakoori, Kadivar, and Sarami (2017) examined the impacts of concept mapping for a representational knowledge organization instrument on writing success of English language learners. The research showed the efficacy of concept mapping as an all-purpose method to enhance the performance of learners in writing courses.

Concept Map Structure

Concept maps are perfect instruments to weight the growth of students` knowledge interconnections, since map constructing is required to show the opinions utilizing one's own words. Any misperception or improper connections that take place, show a lack of recognition (Akinsanya, 2004). Accordingly, Well-founded concepts which are offered by learners have the power to increase the retention of practical learning (Novak & Canas, 2006). Anyhow, constructing a knowledge structure relies upon the following perceptual factors:

- Subsumption-in which, special constructs give account of more prevalent one dominated by the students beforehand;
- Elaborated knowledge explicitly illustrated under differentiation term;
- incorporation-so that the idea behind a recent theory shifts suits with recent existed constructs;·▪Super-ordination-in that, more ordinary of large scope knowledge-based heories are integrated to available concepts (Mintzes, 2006).

The Present Study

Empirical evidence confirms that computers and learning by translation traits have definitive roles in learners' educational success. Thus, this report aimed at delving into probable mediating role of computer concept mapping conjoining partial Persian translation in learners' writing fluency achievement. The researchers of this study were curious to make sure how and to what degree this trend contributes to their fluency achievement scores.

METHODS
Participants
In order to answer the research questions of the study, a total of 50 homogenous female

EFL learners were selected among the language learners of Gama language institute in Ilam, Iran as the participants of the study based on their results on a proficiency test. They enjoyed medium level of general English competency skill and were Persian speakers. They were assigned to two equal experimental and control groups according to the scores they got from pretest. The primary inquiry members comprised 200 learners during the academic year 2019-2020.

Design and Analysis

In attempt to investigate the impact of the computer concept mapping strategy with partial word Persian translation in the graphs on the writing fluency of Iranian EFL learners, this quasi-experimental study, with pretest-treatment-posttest design, was carried out with intermediate EFL learners. Simply, it followed adopting a quantitative approach to investigate the goal of the study. The present study was a quantitative method research study wherein there was collecting, analyzing quantitative research data. There were two groups, experimental, and control. Statistical analyses by using SPSS statistical software were run. A one-way analysis of variance (ANOVA) was run to determine the effectiveness of the mentioned strategy on the fluency level of the learners' writings. This study was done in an English language institute in Ilam, Iran.

Materials

For collecting the data, the researchers made use of the following instruments in this quasi-experimental:

1) general English placement test, used to confirm the homogeneity of the participants in terms of the general language proficiency. **2**) pretest as a writing proficiency test and **3**) posttest of writing that was administered to compare the writing skill of the whole study subjects after the treatment.

Quick Placement Test

Quick Placement Test (QPT) was applied that one may ensure the uniformity and the analogy of the study subjects according to their general English competency. It involved fifty multiple choice questions for checking the analogy of the group learners. This exam included three basic parts; terminology (words), grammar and reading understanding. The test was in fact found online.

Writing Ability Placement Test

An additional placement writing task was administered to confirm the equality of all the subjects before the study was performed. The participants were required to write a text including an introduction, two body paragraphs and a conclusion paragraph about the given topic, within 120 to 180 words. The time allocated was 30 minutes. Two examiners scored the papers. Raters of the Writing Ability Placement Test evaluated student writing samples. Each test was scored independently by two raters.

Posttest

After the treatment, the participants took a writing final summative test. This test was taken to determine the final state of writing skill of the participants, which was compared with the pretest results to determine the level of improvement in writing skill. Both group participants took the posttest.

Procedure

Firstly, to confirm the reliability of the tools in this experimental approach, they were run to a pilot sample of thirty EFL participants from the similar level as the main sample. Thereupon, Cronbach Alpha formula was calculated via SPSS. Both pre-test and final-tests were known to be reliable because Cronbach Alpha was (0.84) for the mentioned tests. The present study explored the performance of 50 participants that were chosen from Gama language institute. Translation of browse words in the graphs, as a contributor factor in remembering more details and abstract words, was taken

into consideration too**.** The participants had an analogous level of English skill. For more consistency, the instructor for both groups was the same. To fulfil the study objectives, several steps were taken. The sample selection was from students with intermediate level who went through a number of steps to be as homogenized as possible. The test selected for determining the intermediate level was the Quick Placement Test (QPT). The number of participants was 50 students totally (each group 25 learners). A general English language skill test was conducted to make sure of students' homogeneity level and all learners were at the same English skill level. Also, a general writing was finally conducted to make sure of students' homogeneity level and all learners were at the similar level of English skills in writing.

The study was conducted at two phases. The pretest was conducted in phase one and the second phase consisted of a preliminary test/posttest procedure. In the start of the first phase, writing essay was practices in two classes in the condition that the experimental group used concept mapping strategy and the counterpart group worked with no use of concept mapping or translation. The essays were scored and analyzed considering their fluency.

In the second phase of the research, both the control and experimental groups took a pretest in writing; but this time, both without concept mapping. The treatment for both groups was run for 8 weeks (16 sessions, two sessions per week). The experimental group got benefit of education for writing using computer concept mapping method which consisted of explanations and practices on writing with different topics and writing the translation of the browse and key words alongside them whereas the control group used standard traditional method of learning. Students practiced to write about simple topics and tried tasks like writing 6 to 8 separate sentences about a topic and then attach them and turn it into a united text. Although this practice would not make an essay, this was an introductory step in order to prepare the partici-

pants for essay writing. After completion of the strategy, a final posttest the same for both groups was administrated to measure the students' writing fluency.

There are many useful concepts mapping software such as Inspiration, IHMC Cmap Tools, SemNet, etc. The software selected for this study was IHMC Cmap tools. There were several steps for concept maps. The first step was to determine the topic or main question. In cases where the topic consisted of two or more smaller sub-sections, the task was more difficult in contrast to one question. After determining the topic or question, the most crucial or "general" concepts that were connected to the topic had to be identified. Next, the concepts had to be arranged from general to specific. This action had to be in a hierarchical fashion that demonstrates subsumption relationships of concepts. After determining the key concepts and the orders of generality or specificity, the links had to be added to form our rudimentary concept map. Then the relationships between concepts linking phrases were added. In this step preliminary shape of concept map was provided.

Then, cross-links were added. Cross-links are some links between ideas in different domains of the concept map that make it possible to find out how some different territories of represented knowledge on the map are related to each other. Finally, the map was reviewed and the structure or content was altered if it was necessary. Students received as similar materials as those of control group but through computerized concept mapping. Having trained learners how to connect pieces of information and finding the relationship between the concepts, the students had to draw the concept-map according to the given subject.

Fluency was known as the dependent variable of the investigation. The elements to assess the writing were production rate and the number of dysfluencies. The first one was weighted by reckoning the summed up number of syllables made and partitioning the total by the total number of minutes used for the task, whereas in the later counting, the words' num-

ber increased, crossed, or repeated and dividing it by the total number of words used was viewed. To evaluate fluency, T-units written by learners were considered. We counted the number of repeated words to measure the fluency, inaccurate and wrong starts, reformulations and substituted words. This coding system follows that used in a number of already studies (Elder & Iwashita, 2005; Foster & Skehan, 1996). By taking repair fluency into account, the lower the core, the lower the number of false starts, repetitions, reformulations, or replacements, and thus the higher the fluency. With regard to speech rate, following several previous studies (Guará-Tavares, 2008; Kawauchi, 2005; Mochizuki & Ortega, 2008; Tavakoli & Skehan, 2005), the number of words for each minute was enumerated. Pausing here was more probably needed to be regarded as a need to look at the map than the fluency one.

RESULTS

This part deals with the data analysis of the present study. The statistical operations are presented in the tables (see Tables 1, 2, 3 and 4). Based on the obtained scores in pretest, subjects were known homogeneous (see table 1). T-test results were also analyzed based on pre and posttest scores (see tables 2 and 4). The mean scores of both group participants demonstrates that the subjects in the experimental group outperformed their counterparts in the final essay writing and fluency. To analyze the important shifts in the performances of participants, an ANOVA on after writing fluency attainment scores by both groups using writing success scores as a covariate, was administered. The obtained outcomes of the ANCOVA manifested that the differences between the two groups was convincing. Strictly speaking, it was revealed that there is an important variation in the final summative t-test scores of writing between the two groups (Table 2), hence, concept mapping can be an influential method to enhance the writing fluency among EFL learners.

Simply, an independent-samples t-test was administered to correlate the concept mapping and control groups' means on the pretest of writing fluency to show that they enjoyed a similar level of fluency in writing before the original study. According to the results in Table 1 it can be claimed the concept mapping (M = 84.20, SD = 4.80) and control (M = 81.78, SD = 4.32) groups gained fairly close means on the pretest of the students.

Table 1.
Detailed Illustrative Statistics; Pretest of Writing Fluency

	Group	N	Mean	Std. Deviation	Std. Error Mean
Pre-Fluency	Concept Mapping	25	84.20	4.800	.960
	Control	25	81.78	4.328	.866

The outcomes of the independent t-test (t (48) = 1.82, p > .05, 95 % CI [-.179, 5.01], r = .261 shows a weak effect size) demonstrated that there was no important variation between the two groups' mean scores on the pretest of writing fluency. Hence, it can be said that they enjoyed a similar level of writing fluency prior to the study.

The negative 95 % lower bound confidence interval of -.179 showed that the variety between the two groups' means on the pretest of writing fluency could have been zero. Thus the above mentioned result as no important variation between the two groups' means was truly predicted. And the uniformity of variances was gained (Levene's F = .002, p > .05).

Table 2.
Independent Instances T-test; Pretest of Writing Fluency

	Levene's Test for Equality of Variances		t-test for Equality of Means						
							Std. Error Differ-ence	95% Confidence Interval of the Difference	
	F	Sig.	T	Df	Sig. (2-tailed)	Mean Difference		Lower	Upper
Equal variances assumed	.002	.963	1.872	48	.067	2.420	1.293	-.179	5.019
Equal variances not as-sumed			1.872	47.494	.067	2.420	1.293	-.180	5.020

Table 3.
Detailed Illustrative Statistics; Posttest of Writing Fluency

	Group	N	Mean	Std. Deviation	Std. Error Mean
Post-Fluency	Concept Mapping	25	91.96	1.936	.387
	Control	25	83.44	3.948	.790

The outcomes of the independent t-test (t (34) = 9.68, p < .05, 95 % CI [6.73, 10.30], r = .854 showing a large effect size) (Table 4) indicated the concept mapping group preceded meaningfully the control group on the posttest of writing fluency. It can be mentioned that the prediction of uniformity of variances was not gained too (Levene's F = 13.41, p < .05). That is why the first row of Table 4., i.e. "Equal variances not assumed" was reported.

Table 4.
Independent Instance T-test; Final Test of Writing Fluency

	Levene's Test for Equality of Variances		t-test for Equality of Means						
	F	Sig.	T	Df	Sig. (2-tailed)	Mean Differ-ence	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
Equal riances sumed	va-as- 13.414	.001	9.687	48	.000	8.520	.880	6.752	10.288
Equal riances assumed	va-not		9.687	34.910	.000	8.520	.880	6.734	10.306

An independent-instance t-test was administered to contrast the concept mapping and control groups' means on the posttest of writing fluency. According to the outcomes shown in Table 4. it can be claimed that the concept mapping group (M = 92.24, SD = 2.78) had a higher mean than the control group (M = 84.92, SD = 2.31) on the posttest of writing fluency.

DISCUSSION

In this investigation, some key words' translation firstly helped reminding learners more details to write about. Translation of browse words in the graphs made great assistance in remembering details and full explanation of the topic along with writing fluency. The number of T-units noted down by the learners were counted in order to obtain the fluency. In reality, the data were coded as follows:

Fluency: full number of T-units

Selecting T-unit, as a unit to measure the learner language, is empirically motivated as assessment tool. It is computable easily, and so provide a high inter-rater reliability. Since sentence boundaries are important, it does not pose punctuation complexity. Finally, it denotes linguistic maturity by apparent raise in length and intricacy.

Learners' written texts were delivered to two coders, the author as coder 1, and an experienced teacher with ten years of instructing experience as coder 2 who was made aware of required prior to doing the coding. Both authors coded the texts. Anyhow, at the beginning, both code determiners coded 10 the same texts to control inter-rater reliability which gained 0.93. Later, coders dealt with variations, and gained 100% agreement. Then, the quantitative data in Microsoft Excel tables were planned and moved into line graphs to provide a visualization for the complex and dynamic in the members' L2 writing development of fluency.

After implementing the Concept Mapping Strategy, the students' illustrative writing scores promoted gradually. In every session, the researcher and the teacher all the times checked up the students' improvements and weaknesses by viewing and receiving feedback in relation to how to make concepts and ideas first, how to put them in a concept map from the minute ones to more common and larger ones, like how to make a connection between one idea to another one using verbs or conjunction or the keys given in maps provided.

Having this in mind, based on Chang et al. (2018), we should know that the students benefiting from any of the concept mapping types, either paper-based or computer-based, will certainly have better performance in EFL learning process and will certainly get better results from the other parts of teaching/learning process such as vocabulary, grammar, and other parts of speech.

On the basis of Charsky and Ressler (2011) ideas, teenage students with their special interest and enthusiasm and also knowledge about the new techs, will enjoy the new-method and tech-based classes. Based on Trochim and McLinden (2017), alertness and sensitivity features of the young students should come into use within the educational environments. This idea is enriched and proved even more, when we remember the more a student with technological intelligence, the more learning skills he/she will have.

The discoveries of this paper are in accordance with those of the results of previous studies of (Arend, 2009; Bai, 2009; Mirzaii, 2012; Singer & Scollay, 2006) indicating the positive impacts of CBCM. Also, the findings of this study are in line with Shakoori, Kadivar, and Sarami (2017) that investigated the impacts of concept mapping like a representational knowledge organization instrument on writing success of English learners. Meanwhile, the findings were in line with Machida and Dalsky (2014) that carried out an inquiry on the beneficial impact of concept mapping on promoting writing enhancement of students with trait-level anxiety.

Resultantly, instructors are offered to incorporate these kinds of exercises as a basic component of instruction, to involves trainees in critical thinking exercises that is a welcome purpose of pedagogy. Also, instructors are recommended to know this reality that critical thinking achievements culminate in automatic thinking (Elder & Paul, 2013).

The current study findings are in line with the findings of a number of previous researches (Binglan & Jia, 2010; Bitchener &

Knoch, 2008; Van Beuningen, De Jong, & Kuiken, 2008). With emphasizing on this, Bitchener and Knoch (2008) maintaining that written corrective feedback ''aid learners to learn and show dominance over the utilization of targeted linguistic patterns and constructs'' (p. 409). By taking provided participants feedback into consideration, our results reflect the previous findings of Beuningen, Jong, and Kuiken (2008) who asserted that the availability of direct corrective feedback can be more effective in developing the fluency and accuracy of EFL/ESL writing. Besides, these obtained outcomes are in agreement with Hashemnezhad and Mohammadnejad (2012) who pretended that ''direct feedback is more influential than indirect one particularly for expert trainees'' (p. 230). Also, there can be seen some similar ideas in the findings of this research and other inquiries like Shakoori, Kadivar, and Sarami (2017), Zarina and Fatimah (2017), Meghyasi and Hashamdar (2015) revealing the impression of computer concept mapping strategy on contributing students' achievement in the writing.

In line with Nobahar, Nemat Tabrizi, and Shaghaghi (2013) findings, it was declared that computer concept mapping instruction had an important influence on the writing fluency improvement of Iranian medium level EFL students. Concept mapping strategies are known to provoke thinking, generate ideas and help learners think creatively, they can help learners frame materials in a logical fashion so that they produce a better text. This way, students may feel free to write whatever they have in mind. This could raise students' confidence can lead students towards independence in writing. The current study suffered from a number of limitations including: a) The inquiry involved female EFL learners only b) The number of participants was not large enough to generalize the finding to large populations easily. C) The study only dealt with the EFL learners who were native speakers of Persian and Kurdish and did not involve learners from other native language backgrounds; e) This study was conducted in a foreign language context. Consequently, its results may not be generalizable to language learners in second language contexts. However, some longitudinal studies with almost all the required qualities must be conducted to measure the long-term effects of our intervention.

Contribution to New Knowledge
Computer concept mapping could serve as an influential tool for both the learning and teaching of writing. It helped students see relationships between ideas and engaged them seriously. Through using the mentioned model learners learnt how to get the macro-structure of a given text form its micro structures and enhanced interpersonal learning. Besides, learners were encouraged to participate in the world around them. Through computer concept mapping learners can see the big picture: by starting with higher-level and chunking information based on meaningful connections.

CONCLUSION
According to this report outcomes, learners' writing ability significantly enhanced after Computer Concept Mapping Strategy utilization. It was predicted that providing the translation of words in browse in graphs will make great help in remembering more details and full explanation of the topic along with writing fluency and it was so. The current study was fundamentally conducted since writing plays a pivotal role among the other skills so the findings are worthy of note.

Hence, it is suggested that instructors make their best attempts to employ Computer Concept Mapping Strategy to help their trainees in not only various writing aspects but in other skills too. By providing translation of words in the brows, learners got more enthusiastic to write fluently. Truly, as a powerful graphical technique, computer concept mapping with a partial translation of words could hand learners put in order the knowledge and visualize links between related constructs as seen in the present report. This helped the students' education community develop better acknowledging the strengths of idea mapping. In point of

fact, in this study, the effect of computer-based concept mapping on Persian intermediate EFL learners' writing fluency was sought. From the analyses, it was revealed that this method has momentous effect on learners' writing fluency. Learners using concept-mapping strategy, outperformed their fellows in the other group who received ordinary methods of writing education. This indicates that the study hypothesis, i.e., computer concept mapping has a positive effect on learners' writing was approved. In simple terms, the use of CBCM is advantageous for the following reasons: **(1)** simplicity of application and making links: nodes can be added with speed, corrected, and removed in computer-based concept mapping, and, directed by not elaborated instructions **(2)** sim

plicity of interaction with friends: trainees have this capability to gather required and vivid information by presenting their concept maps on the screen and through discussion with other individuals; **(3)** supporting diversity of resources: CBCM can be followed by reactions, assessment, and map olden days functions, along with collaborative online devices for map composition (Chiou et al., 2017).

It is generally concluded that with respect to tech-based instruction methods (particularly CBCM in teaching and practicing writing), English teaching should be seriously brought into consideration in Iran. Given the benefits of CBCM, it can be concluded that it is better to be given priority in writing classes.

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