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REVIEW ARTICLE

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MANIPULATING MIND-MAPPING SOFTWARE TO DEVELOP ESSAY WRITING

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ABSTRACT

The study aimed to find out whether, or not, the use of mind-mapping software can be an indicator of outlining ability and writing proficiency level. A sample of 25 students registered for an advanced writing course at College of Science and Arts, Qassim University were administered a pre-test initially to determine their outlining ability and writing proficiency. Then, the participants were subjected to an unusual writing phase. The subjects were trained on the use of *inspiration* mind- mapping software to generate, develop and organize essay outlines. Using Paired-Samples T-Test and Pearson's Coefficient of Correlation, results revealed that using mind mapping software is an efficient indicator of intelligible outlining and writing proficiency level.

Key words: mind-mapping – outlining – writing proficiency

INTRODUCTION

The human race has always had an instinct to express their needs, feelings, and emotions in written forms as well as oral ones. Calkins (1989, p. 3) illustrates that human beings have a deep need to represent their experiences through writing. He mentions that ancient people were fond of writing stories, events, habits, or situations related to them on the walls of caves and temples. It could be said that it is a natural human desire and tendency toward drawing shapes and lines on some material's surfaces. One can observe that young children are driven to leave written marks with pens, pencils, markers, pieces of coal, or even lipsticks on walls, furniture, or bathrooms.

Academically speaking, writing is one of the four major language skills (listening, speaking, reading, and writing) that needs to be mastered by language learners. It is considered the most complicated skill of all of them. Despite of its difficulties, writing is still considered an essential, useful, integral, and enjoyable part of any language syllabus (Scott and Ytreberg, 1994, p. 69). Because of its complexity, most approaches to language teaching delay the teaching of writing to later stages till the learners acquire adequate amounts of vocabulary, grammatical rules, and the required linguistic background; which the students learn throughout spoken language activities besides reading exercises. Cohen (1990, p. 103) says that some language teaching methods do not allow language learners to write at early stages, while others do not give students a chance to write extended prose, but the learners are required to write isolated sentences instead.

Kroll (1990) explains that writing in a foreign/second language (L2) is more complex since native speakers' writing problems are combined with the difficulties of using new codes of the other language. However, EFL students cannot survive without a reasonable amount of mastering writing in the English language. University students studying in the departments of English, in particular, have to take final examinations in written forms. In addition, they are required to submit several written assignments to their professors. Less proficient students, logically, face problems when they write in English. Consequently, this shortage will affect their grade in the academic subjects that they study in English; such as drama, poetry, phonetics, methodology, and curriculum.

Thus, the present article is concerned mainly with developing university students' essay writing proficiency level. It investigates how far the use of mind-mapping software can develop outlining ability and writing proficiency level.

2. REVIEW OF LITERATURE

Developing writing is an important but complex part of language learning since it is greatly essential for consolidating learning in the other skills and areas. Chastain (1988, p. 244) contends that writing is a basic communication skill and unique asset in the process of learning a second language. Furthermore, Widdowson (1978, p. 62) describes writing as the *use of the visual medium to manifest the graphological and grammatical system of the language*. According to Clearly and Linn (1993) writing is regarded as one of the most disciplined ways of making meaning and one of the most effective methods people can use to monitor their own thinking.

It is a method of human inter-communication by means of arbitrary visual marks (Gelb and Whiting, 1993). The history of the teaching of second/foreign language writing reveals that there have been two major approaches of teaching writing: product-based and process-based approaches. The first one is called the product-focused approach which stresses the product that the students produce (Richards, 1992, p. 106). In this approach, the teachers provide the learners with the rules of writing and expect from them to produce correct texts. This is why writing in a foreign language has been usually associated with error correction (Scott and Ytreberg, 1994, p. 68). In the second approach, the emphasis has moved from the language that the students produce to the processes, strategies, and cognitive activities that they use when they write (Zamel, 1987). Whereas the product-based approach deals with writing correct kinds of paragraphs and texts, the process-based approach concentrates on the communicativeness of the written texts. Moreover, the process-based approach is a learner-centered, rather than a language-centered mode.

The process of second/foreign language writing, as well as writing in the native language, involves three distinct stages followed by foreign language writers: (a) pre-writing, rehearsing, or the write-based phase, in which the ideas are gathered and generated; (b) drafting, or product-based phase in which the writer composes structures, and reconstructs ideas and (c) revision, or the reader-phase of revision (Leeds, 1996; Richards,1992; Scholes and Comley, 1989). Efforts done for the sake of developing the writing skill/sub-skills serve these three phases.

Mind-mapping is located in the first pre-writing phase, where the students are given an opportunity to generate, gather, and arrange ideas related to a given essay (Scarcella & Oxford, 1992). A mind map is a graphic organizer in which major categories radiate from a central idea, and sub-

categories are represented as branches of larger branches. According to Buzan (2000) and Howitt (2009) a mind map is a visual tool that can be used to generate ideas, take notes, organize thinking and develop concepts. The British Council (2005) explains that it is teachers' duty to select how to manipulate mind mapping in language classes, as a pre-writing activity, for the sake of developing learners' writing ability and proficiency level.

The Online Open University (2014), borrowing Buzan, mentions that effective mind maps depend on attractive visual stimuli including bright colors, adequate letter size, and spatial features. Providing effective visualization of information, computer might be considered a vital source and tool for developing students' writing performances in language classes (Boswood, 1997; Windeatt & Hardisty, 2000).

Thus, mind-mapping software can be used during writing lessons to develop outlining process and writing proficiency as pre-writing activity; since previous research has recently recommended it as an effective and affective teaching technique (e.g. Inspiration Software Incorporation, 2014; Leyden, 2014; Pappas, 2013; Think Buzan, 2013).

3. METHOD

3.1. Subjects of the study

The selected subjects were 25 fourth level English major students, registered for an advanced writing course at College of Science and arts, Qassim University, Saudi Arabia. All the subjects had already studied and passed three writing courses (Interactions writing one, two and Mosaic writing one).

3.2. Testing Outlining ability and Writing Proficiency

An outlining/writing test was used by the researchers (Appendices A and B) in order to measure the subjects' Outlining ability and writing proficiency level. The writing test included two main parts: (a) Part one was essay outlining where the testees had to read an essay and come up with an outline of the writing task. (b) Part two was related to writing proficiency where the subjects were asked to write an essay on: *Has television destroyed communication among friends and family?* The researchers developed and made use of writing rubrics to assess the subjects' writing proficiency level; which was assessed according to five major aspects that were: (a) introduction/beginning, (b) main points/body paragraphs, (c) organization/structure, (d) styles/sentence flow, (e) diction and (f) mechanics. The previous writing skills were graded over a detailed four-point scale; (1) D-F= (69-50), (2) C= (79-70), (3) B= (89-80), and A= (99-90).

3.3 Test reliability & validity

Cronbach's alpha was computed for checking test reliability. Cronbach's alpha was 0.91 suggesting that the items had relatively high internal consistency. In order to investigate the dimensionality of the test, *factor analysis* was used; table 1 includes the resulting output.

Table 1 : Factor Analysis for Outlining/writing Skills Test

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	1.851	92.552	92.552	1.851	92.552	92.552
2	.149	7.448	100.000			

Looking at the previous table it is obvious that the eigenvalue for the first factor (outlining) was quite larger than the eigenvalue for the next factor (writing skills), 1.85 versus 0.149. Additionally, the first factor accounted for 92.55% of the total variance. This result meant that the test parts were One-dimensional and that the test had a construct validity.

3.4. Procedures

Pretest-posttest group design was used to find out the differences between the subjects' writing performances. First, the subjects sat for the

writing test to assess their ability in outlining and writing proficiency. Then all the subjects were taught the regular writing course (advanced writing 4) through "inspiration" mind-mapping software. The experiment took place during the first semester of the academic year 2013-2014. After three months of training the subjects sat for the writing post-test. Finally the results of pre-post tests were tackled statistically to assess the effect of using mind-mapping software for developing essay outlining ability and writing proficiency level.

The researchers made use of the language laboratory at Uqlat Asoqour College, Qassim University. *Inspiration* mind-mapping software was installed on the subjects' and the instructor's personal computers in the laboratory. Two introductory lectures on how to use *inspiration* software were given to the subjects at the beginning of the treatment. During the coursework the subjects were trained on the use the software and manipulating its facilities (icons, colors, shapes, etc.) in order to produce detailed, comprehensive essay outlines. After finishing the outlines the subjects were asked to transform them into essays. The duration of the coursework was a weekly three-hour lecture for three months.

3.5. Hypotheses

Paired-Samples T-Test and Pearson's Coefficient of Correlation were used to test the following hypotheses:

3.5.1. There is a statistically significant difference between the mean scores of the subjects' pre-post outlining test, in favor of the post-test.

3.5.2. There is a statistically significant difference between the mean scores of the subjects' pre-post writing skills test, in favor of the post-test.

3.5.3. There is a statistically significant positive correlation between the mean scores of subjects' outlining and writing skills within pre-post testing.

4. RESULTS

4.1. Hypothesis one: Paired-Samples T-Test was used to verify the validity of this hypothesis. Table (2) shows the significance of difference between the mean scores of the sample's pre-post outlining testing.

Table 2: Significance of difference between the mean scores of the subjects' pre-post outlining testing

Testing	Mean	Std. Deviation	df	t	Sig.
Pre-testing	13.88	4.126	24	9.197	0.001
Post-testing	17.28	3.259			

Close inspection of the data presented in table (2) reveals that "t" value is (9.197) and significant at 0.001, and "df" equals 24 which means that there is a statistically significance difference between the mean scores of outlining in pre-post testing in favor of post testing.

The aforementioned result highlights the effectiveness of the proposed *inspiration* mind-mapping software in developing the skill of essay outlining ability among EFL learners.

4.2. Hypothesis two: Paired-Samples T-Test was used to verify the validity of this hypothesis. Table (3) shows the significance of difference between the mean scores of the sample's pre-post writing skills testing.

Table 3 **:** *Significance of difference between the mean scores of the subjects' pre-post writing skills testing*

Testing	Mean	Std. Deviation	df	t	Sig.
Pre-testing	13.8	5.0	24	8.967	0.001
Post-testing	16.84	4.239			

Table (3) shows that "t" value is (8.967) and is significant at 0.001, and "df" equals 24 which means that there is a statistically significant difference between the mean scores of writing skills in pre-post testing in favor of post testing.

The previous result indicates that *inspiration* mind-mapping software is effective in developing writing skills specified in the present study among EFL learners.

4.3. Hypothesis three: The researchers calculated Pearson's coefficient of correlation between the mean scores of the pre-outlining and the pre-writing skills test. Also Pearson's coefficient of correlation between the mean scores of the post-outlining and the post writing skills test was calculated (table 4).

Table 4 : *Pearson's coefficients of correlation between outlining and writing skills within pre-post testing*

Testing	Test	Mean	Coefficient of Correlation	Sig.
Pre-testing	writing skills test	13.8	0.851	0.001
	outlining test	13.88		
Post-testing	writing skills test	16.84	0.796	0.001
	outlining test	17.28		

The previous table shows that:

1- There is a statistically significant positive correlation at 0.001 level between the mean scores of pre-outlining and pre-writing skills test.
2- There is a statistically significant positive correlation at 0.001 level between the mean scores of post-outlining and post-writing skills test.

Previous correlations indicate that easy outlining is correlated positively with writing proficiency. Thus, EFL learners need to be trained on how to construct mind maps and how to develop them, in order to produce well cohesive, meaningful English essays.

5. DISCUSSION AND CONCLUSIONS

The present study examined the effect of using mind-mapping software on outlining ability and writing proficiency level. Pre-testing of outlining ability and writing proficiency showed low means (13.88 and 13.8). Regarding the outlining ability the pre-test showed that 60% of the subjects were unable to diagram the outline of the presented essay. As for writing proficiency, the subjects' mean was low (13.8); they wrote poor introductions and sometimes no introduction at all; their essay development wasn't clear; paragraphs they wrote were not well developed; their writings lacked smoothness, coherence; and there were many errors related to the mechanics of writing they used.

Literature review highlights the previous results. Scott and Ytreberg (1990, p.69), Cohen (1990, p. 103) and Kroll (1990) assert the difficulty and complexity of writing. Olsen (1999) notes that some EFL writers cannot create an effective written work due to the inadequacy of syntactic and lexical competence. Weigle (2002, p.35) mentions that because of the constraints of limited second-language knowledge, writing in a second language may be hampered because of the need to focus on language rather than content. According to Wang and Wen (2002), L2 writers obviously get stuck when writing in target language (TL).

In order to help EFL learners not to get stuck during writing and to concentrate on meaning and content, the researchers trained the subjects of the study to manipulate mind-mapping software. To testify the effect of the treatment, the subjects sat for outlining and writing skills post-test. Results of post-test showed an increase in the subjects' means: 17.28 in outlining and 16.84 in writing skills test. Furthermore, the coefficient of correlation between outlining ability and writing skills was positive (0.851) and significant at 0.001.

Previous results proved that training EFL learners on mind-mapping software is effective in developing essay outlining ability and writing proficiency level. Consequently, the researchers recommend university instructors and students to manage and manipulate mind-mapping software during teaching and learning English writing.

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Appendices

Appendix A

Essay Outlining & Proficiency Test

Name:

Level: **50 pts.**

Part one an outline

I- Read the following essay, then try to make an outline to show the ideas mentioned in the essay and their relationships. **25 pts.**

YOUTH CRIME

Until two years ago, Clearing, Illinois was a tranquil suburb of Chicago. But residents grew alarmed when they noticed armed teenagers on the streets, giving gang signals and shouting at passing cars. Then came a series of burglaries and graffiti messages on storefronts. By the time local authorities realized they had a gang problem, it was too late. Last December, two 13-year-old girls were shot outside their school as they sat in a car with two members of a local gang, the Ridgeway Lords.

Nearly all 50 states have recently passed laws that allow youths aged 14-17 to be tried in court as adults. In about 25 states they have passed laws to punish parents for their children's behavior. And in 146 of the nation's largest cities, they have imposed curfews to reduce juvenile violence. When you look at the spectacular rise of violent crime among young people recently, it's easy to understand the concern. Over the past decade, there has been a decline in adult murders in the US, while murder rates have surged for youths between 14-17.

For young offenders who aren't sent to prison, the punishments vary: some are ordered to perform community service, others are placed in job training programs, still others sent to youth prisons. But the Republicans in Congress want to reverse a basic principle of juvenile justice: the separation of young criminals from hardened adult criminals in prison. The reasons are partly financial – to reduce the cost of having separate prisons for young people – and partly psychological – to end what Republicans consider as society's overly protective attitude towards young criminals.

Source: Retrieved from http://www.anglaisfacile.com/free/news/printburglariesf.shtml

Part two essay writing

II- Write an essay on the following topic: **25 pts.**

"Has television destroyed communication among friends and family?"

Appendix B

Student: _____

Grade: _____

Essay Rubric

Essay points	**D-F (69-50) (N/A)** 0	**C (79-70) (N/A)**	**B (89-80) (N/A)**	**A = (99-90) (N/A)**
Introduction/beginning	D-F (69-50) Background details are a random collection of information: They are unclear	C (79-70) Introduction is adequate and includes some background information, yet it may lack detail	B (89-80) Introduction creates reader interest and is fairly well-developed. It contains some	A = (99-90) A well-developed introduction catches the audience's attention and creates interest.

	or unrelated to the topic. The introduction doesn't appear to consider the reader.	and creativity. It may need to do more to catch the reader's attention, or it may not quite fit the focus of the essay.	background information and/or details, and it fits the focus of the essay.	The beginning of the essay contains background information so that readers can understand the story's context. A guiding sentence close to the beginning conveys the focus of the essay.
Main points/body paragraphs	D-F (69-50) Details are either insignificant (unrelated to the focus of the essay) or missing. The writer only skims the surface of the topic, telling rather than showing.	C (79-70) There are clear points, but they may not be supported by details. Points/action could be better developed through description.	B (89-80) Well-developed main points are directly related to the action or main point of the essay. Details are descriptive and support the essay's focus.	A = (99-90) Action/points in essay are cleverly developed. Colorful and lively sensory description creates a dominant impression of the topic and supports the focus of the essay.
Organization/structure	D-F (69-50) No discernable organization. Transitions are not present.	C (79-70) Paragraphs are generally unified, yet some might be more well-developed. Organization is generally logical, yet some reorganization might help the flow. Some transitions are present, yet more or better transitions might be needed.	B (89-80) Paragraphs are well-developed and unified. Ideas progress logically. Transitions are present throughout the essay.	A = (99-90) Paragraphs are well-developed, with engaging topic sentences. Ideas progress in a clear structure--simple sequence or climactic--that enhances the story. Transitions are mature and graceful.

Style: sentence flow, diction	D-F (69-50) Writing is confusing, hard to follow. Contains fragments and/or run-on sentences. Inappropriate word choice.	C (79-70) Writing is clear, but sentences may lack variety. Word choice is appropriate, although more specific choices would empower the writing.	B (89-80) Writing is clear, and sentences have varied structure. Some figures of speech, active verbs and precise and powerful modifiers have been used. Word choice is superior.	A = (99-90) Writing is smooth, skillful, and coherent. Figures of speech, active verbs and precise and powerful modifiers are used to create strong and expressive sentences of varied structures. Word choice is specific and excellent.
Mechanics	D-F (69-50) Distracting errors in grammar, punctuation, spelling, and capitalization. The writer has followed directions for formatting.	C (79-70) A few errors in punctuation, grammar, spelling, and capitalization. The writer has followed directions for formatting	B (89-80) Punctuation, spelling, grammar, and capitalization are generally correct with few errors. The writer has followed directions for formatting	A = (99-90) No errors in punctuation, spelling, grammar, or capitalization. The writer has followed directions for formatting

Source: Prepared and validated by the researchers.