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Exploring the Dynamic Interplay between Note-taking Strategies and Reading Comprehension Performance of Moroccan EFL Students: A Quasi-Experimental Study

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ABSTRACT

Recently, at Moroccan tertiary level and in the area of student practices, little attention has been brought particularly to the skill of note-taking and active reading comprehension, and an insightful and in-depth understanding of how students learn from lectures could presumably be valuable in understanding and unravelling the intricacies of possible positive results of their note-taking behavior. The current study focuses mainly on the instruction of students into the systems of note-taking and how that affects their level of reading comprehension. Therefore, the effort reported here attempts to assess the students' current systems of notetaking and how they contribute to reach a full understanding of reading comprehension texts. The participants were 94 Semester-One students at the department of the English Studies at Ibn Tofail University, School of Arts and Humanities in Kénitra, Morocco. The data of the present study were collected by means of a TOEFL iBT Reading Practice comprehension test (i.e., post-test), and strategy training equating note-taking schemas and reading comprehension texts. The findings have showcased that after having been instructed through many sessions of note-taking, students felt that their process of reading comprehension is enhanced as they were able to organize their ideas and information from the text, stay focused and engaged while reading, and keep a record of reading material to use it later. This is solid proof that they critically used and retained what they read.

KEYWORDS

Note-taking; strategies; active reading comprehension

INTRODUCTION

If we conventionally assume the unambiguous simplicity of read-and-answer approach, we will consequently take for granted the ease with which the reading skill is carried out. However, as apparent as it looks, text processing and analysis is a complex cognitive operation that demands "high-level" thinking processes (Ravid & Shyldkrot, 2010) and pertinent strategy use on the part of EFL learners for comprehension achievement purposes. Reading comprehension is a constant cognitive and process that is "both conceptually driven (top-down) and data-driven processes (bottom-up)" as well as interactively driven (mixture of top-down and bottom-up strategies) "that contribute to the construction of a situation (mental) model of text ideas" (Woolley, 2011, p. 15). Reading comprehension is therefore a sort of negotiation of two models that enable the reader to make use of inferential processing where schemata knowledge sustains the text-based

knowledge or vice versa. This negotiation of processing models certainly reflects the negotiation between the reader and the text (Carrell, Devine, & Eskey, 1988; Grabe, 1991; Rumelhart, 1977; Stanovich, 1980 as cited in Block, 2014).

Much of the research in reading sees it as a self-discovery process which is an experiential exploration and integration of various chosen processing models or bits of them for the sake of making most of the reading text. The inference of meaning is the ultimate purpose of the reader who deconstructs the text, to borrow Derrida's (1988) word, to actively understand the gist as well as the details. The interactive nature of reading is reflected by Block (2014) who asserts that the metacognition plays a huge role in paving readers' way towards potential full understanding of what a text communicates especially in L1 and L2 cases. Baier (2005) after having pre-tested and post-tested fourteen sixth-grade students found out that twelve of the fourteen sixth grade students demonstrated improvement in the reading comprehension scores. Two of the fourteen students resulted in no change in the reading comprehension scores. There were no students that exhibited a decline in scores. Overall, it was concluded that the sixth-grade literature students performed better on the posttests where they used the Self-Questioning Reading Strategy.

It was hypothesized that comprehension and retaining of more information from a reading text relates to the use of good reading comprehension strategies and skills (Carrier, 1983). But what has been overlooked is the fact that other literacies, such as note-taking behavior is proven to be determinant in the success of a student for academic as well other versatile exploits (Woolley, 2011).

The thrust of this study is driven by the study conducted by Creative Associates International (2018) which states that:

> In Morocco, international reading tests have shown consistently low reading performance among middle school students. Morocco's national assessment revealed that only 25 percent of eighth grade students were able to distinguish the main idea of a basic text, and only 4 percent could summarize its content.

A challenge for this study to surmount is to expand the above-mentioned research findings to the tertiary level and put this claim into test.

Statement of the Problem

Given such a truth about the rate and quality of reading in Morocco at the high school level, the present study investigates the tertiary level and seeks answers to how higher education students manage to get good reading performance especially that they are instructed in how to read in different modules along with enhancing critical soft skills such as taking notes.

However, worth noting here is that there is little information available to suggest how confident Moroccan EFL students perceive of the type of systems they use while taking notes and how much effective they are in comprehending a text. Because it is taken for granted that taking notes is helpful in understanding course content effectively, little empirical evidence is advanced exclusively in a context like the Moroccan. It follows therefore that a study, such as this one, investigating the relationship between note-taking strategies and their effect on how effective they are in enabling students to understand and reconstruct original material for later use, recall, and review in a lecture teaching model that is characteristic of the Moroccan higher education, is worth exploring.

Research Question and Hypothesis

As a matter of fact, investigating the relationship between note-taking strategies and reading comprehension should be considered an important issue in addressing the

problems pertaining to the skill of active reading. Thus, the present study sets out to answer one research question and confirm or disconfirm one research hypothesis:

RQ: Do the two groups significantly differ in their reading performance after having instructed one of them into the note-taking systems?

RH: There is a significant link between instructing students on the systems of note-taking and the comprehension of the written materials.

LITERATURE REVIEW

Note-taking Concept and Strategies

Undoubtedly, note-taking is one of the most used strategies of encoding meaning through recording chunks of text for diverse learning reasons even though students are not formally introduced to it (Boyle, 2012). It is in effect a rudimentary "*skill of life*" [italics in original] that is essential in education" (Tabor, 2018, p. 7). With education having the meaning of mastering knowledge of facts relationships with understanding, note-taking proves its relevance to the learning enterprise. Every student takes notes and the relevance and utility of what is taken is debatable in the sense that it might or might not help in reconstructing original material.

McPherson (2018) defines note-taking as "a strategy for making information meaningful" (p. 6). Making sense of the material listened to or read depends so much on how it is processed by the brain. That is, note-taking here is the result of a complex effective skill of reconstructing, tailoring and storing in an operative way the material for later diverse reasons and purposes. Verbatim notes are of little value unless they are reorganized and made sense of (Greenlaw, 2012).

Stoud and Reynolds (2010) on their part define note-taking strategies as text marking strategies that "are specific learning strategies associated with good listening skills and the ability to discern important versus non-important information" (Saklofske, Schwean, Reynolds, &, Nathan, 2013, p. 595). Note-taking strategies are higher order skills that enable the student to manipulate and reconstruct material listened to or read in the most effective encoding way that leads to efficient learning and academic achievement.

Note-taking is also seen by Page (2007) as a system used to "summarize and to record the information that is extracted during the research stage" (p. 35). This highlights the utility of using note-taking in listening for procedures analysts so that detraction from listening should be minimized and information that is kept in a parsimonious manner would be major in encoding meaning later. Note-taking is not to be seen as an end in itself as to appear in the form of another book but a minimalist helper to enhance memory remembrance and later use. Moreover, stressing the research role of note-taking, Clark (2007) believes that it provides a structure for students to organize their information while reading and reviewing different research sources for overarching ideas, otherwise the material noted would be only "a laundry list of random information" (p. 98).

Being a good listener or reader does not necessarily mean that one is a good note-taker. Taking-notes in class "is actually a very complicated process; there is much more to it than jotting down a grocery list so you won't forget something" (Staley, 2015, p. 234). Doing well on tests is not haphazard but it depends on taking effective and useful notes that help make sense of what has been collected as bits of knowledge.

Many are the reasons behind people using note-taking as a strategy of learning. Students take notes to "plan future events and activities, to study for examinations, to prepare a technical talk and to record the minutes of work meeting" (Karimi, 2011, p. 806). Nevertheless, the theoretical and practical motives behind the adoption of such a study skill diverge from one individual student to another. The purposes encompass the reconstruction

of original material for later use as an external memory, for subsequent mechanism for reviewing, and for consequent recall as a preparation for exams in which note-taking skill becomes note-making strategy (Race, 2014).

Though "research indicates that students are generally incomplete notetakers recording a relatively small percentage of critical lecture ideas" (Kiewra, 1987, p. 233), note-taking is recognized in the literature as a strong critical activity that stimulates later recall and effective reflection. In this vein, Castello and Monereo (2005 as cited in Karimi, 2011) consider note-taking as having a hegemonic power that facilitates the teacher-learner interaction at the university. The notes taken are used as defense mechanisms for students to defend themselves in interaction that is lacking under the influence of lecture method at the university and a as a proof that they retained some of the material exposed and are able to reconstruct and even deconstruct knowledge amassed effectively during the lecture.

A bulk of literature attests to the truth of the claim that note-taking has positive effect on students' scholastic achievement (Haghverdi, Biria, & Karimi, 2010). Students engaged with unfamiliar texts for a deep encoding of the meaning are furnished with means to extract it easily. Note-taking implies the encoding of either a written or an oral text by jotting down what is supposed to be relevant information for later purposes. Piolat, Olive and Kellogg (2005) consider note-taking as "a complex activity that requires comprehension and selection of information and written production processes" (p. 292).

Reading Comprehension

Reading is usually seen as a complex cognitive process of encoding meaning that is developed over time. The act or "reading" presupposes that the student has the ability to decode the text by getting at the sounds and sentences structure and later attack word meaning. This implies therefore the ability to interpret the linguistic elements and pave the way towards comprehension. The reading comprehension formula of Gough and Tunmer (1986) is suggestive in this regard stipulating that reading equals the product of decoding and comprehension: "Decoding (D) x Language Comprehension (LC) = Reading Comprehension (RC)" (p. 7).

Despite the seemingly easy definition of reading as a skill, it seems that the process as mentioned earlier is a multifaceted one. The process starts with the decoding stage where the reader is to decipher the phonological as well as the syntactic properties of the word and later gets to the mental representations of word semanticity. After that, the reader proceeds with the cognitive analysis of decrypting the meaning associations between units of meaning. Later, the reader subsequently shakes his or her schemata/priming to ultimately generate inferences about the relevant material needed for comprehension.

Reading is an extraordinary achievement when the reader is able to move smoothly through the above-mentioned phases. Graesser (2007 in McNamara, 2010) testifies that: "The coding, interpretation, and construction of all of these levels are effortlessly achieved at a rate of 250 to 400 words per minute by a proficient adult reader" (p. 4). Comprehension follows to be needing more effort and the pace might be halted sometimes. Novice readers suffer the hard time given by luck of reading strategies which slow down the process of comprehension. Thus, cognitive strategies are urgently needed when the reader gets stuck at any level of comprehension as a "successful reader implements deliberate, conscious, effortful, time-consuming strategies to repair or circumvent a reading component that is not intact" (Graesser, 2007, p. 4). These strategies coupled with more knowledge of language, text structure and the priming the reader makes use of in a top-down model comprehension is primordial in processing a text (Duke, Pearson, Strachan, & Billman, 2011). Reading comprehension therefore "is modeled as the product

of word reading and language comprehension" (Adlof, Perfetti, & Catts, 2011 cited in Samuels & Farstrup, 2011, p. 186).

Note-taking and Active Reading Comprehension

With this developed competency and readiness to attack a text, the reader may choose to take notes of ideas and information relevant to him/her while reading or after reading. Therefore, reading for comprehension or meaning is one primary purpose for reading and it is to be more effective if notes are taken for later recall. McNamara, Ozuru, Best, and O'Reilly (2007) (in McNamara, 2010) state that various advantages of taking notes in reading as they see that "taking note can be key to monitoring comprehension" and it "is also important for increasing comprehension of and memory for information cited in the text"(p. 478). Another proof comes from Nwokoreze (1990) who believes that "it is during the note-taking stage that students reach the highest level of comprehension" (p. 42) as note-taking is viewed as a complex cognitive activity which combines reading and listening (Fajardo, 1996).

Indeed, for deeper level comprehension, notes are to be produced clearly to be helpful for later check and review (Blerkom, 2008). Therefore, the synthesizing of these notes is crucial in getting a deeper de/encoding of complex ideas that lie in the text.

A steady growing volume of research has demonstrated the effect relationship of note taking with active reading comprehension. Slotte and Lonka (1999) conducted a study in this sense on spontaneous note taking and its effect on text comprehension and found that both the process and review effects impacted test performance measured through writing tasks. Additionally, in the same study, the two scholars found that the quality of students' notes was related to whether verbatim copying or transformative meaningful note taking are effective in facilitating comprehension. The results therefore showed that verbatim copying is ineffective in attaining comprehension level as opposed to summarizing notes which involves meaningful textual content. Likewise, as cited in Hagen, Braasch and Bråten (2012), Kobayashi (2009b) proved that comprehension of intertextual relations is attainable if students make use of external strategies, such as highlighting, underlining, note-taking. Inspired by such findings, we set out to investigate whether the five system of note taking, Cornell, Outlining, Sentence, Charting, Mapping, are effective as a treatment on the experimental condition reading comprehension.

To the researcher's knowledge, no studies have tackled such a relationship in a Moroccan context. The purpose of the present study thus is to investigate the effect of the type of note taking systems used by EFL Moroccan students on their reading comprehension in a Moroccan context. The major objective is to deeply examine the effectiveness of the type of note taking system chosen by EFL Moroccan learners in comparison to traditional ways of taking notes on reading comprehension retention. The experimental group is exposed to the treatment (note taking systems). This sampled group is instructed in the use of five note taking systems for reading comprehension tasks; whereas, the control group is not introduced to any of the previously mentioned note taking strategies.

RESEARCH METHODS

Sample

The sample chosen comprises 94 undergraduate students majoring in English and who pertain to the same department of English studies at Ibn Tofail University, Kénitra, Morocco. The homogeneity of the two groups at the level of reading ability is justified by their belonginess to the same classes (all of them were Semester One students). The

participants in both groups matched one another also in terms of age (most of them were the same age). They all belonged to the same generation, were racially equal; they were homogeneous (Creswell, 2012). Assigning students randomly to the two groups was not practically possible, so the researcher resorted to keeping the two groups belonging to two different classes intact. The experimental group therefore contained 47 students, and the control group contained 47 participants as well. A semi-random procedure was used to determine which group will be the Control and which will be the Experimental as no randomization is involved.

Instrument

One reading test is used in the current study with the objective to posttest students on their level of reading comprehension proficiency. The reading TOEFL test was taken from TOEFL iBT Reading Practice Sets, reading practice set one. As for the note taking formats, the students were introduced to five consecutive sessions to the five different systems of taking notes namely Cornell, outlining, mapping, charting, and sentence as well as to the ways to make use of them either while listening to a lecture or reading a text.

Research Design

The present study is a quasi-experimental study that involves independent variable manipulation without assigning randomly participants to respective conditions and takes two groups to assess for the effect of a treatment (note taking strategies) on the independent variable (reading comprehension performance). The participants are not randomly assigned to the conditions (control and experimental groups); therefore, the resulting groups are dissimilar in some ways and non-equivalent. This justifies the adoption of nonequivalent groups design that is anchored on between-subjects experiment. To be more specific, the design is ***posttest-only nonequivalent Control group design.*** **In this occasionally called** *static group comparison* ***design*** **(Marlow, 2010),** participants in the experimental group are exposed to a treatment, a control group or (non-equivalent group) is not exposed to the treatment, and then the two groups are compared. Basically, in this design, the two groups are observed only after the treatment has been administered (Bickman & Rog, 2008).

Obviously, because of the flaws inherited in this type of research design, the researcher took measures to ensure that the internal validity threat known as "selection" (Weiner, Freedheim, Schinka, Velicer, Nelson, Healy, & Neizumori, 2013) is increased and that the two groups are similar as much as possible in different ways. It is worth noting here that the two Semester One classes chosen belong to the same school where students were assigned alphabetically by the administration to their respective conditions. Furthermore, the teachers of the two classes are of the same sex, are close in age, and adopt similar teaching methodologies, eclecticism.

The design of the study is summarized in figure 1 below:

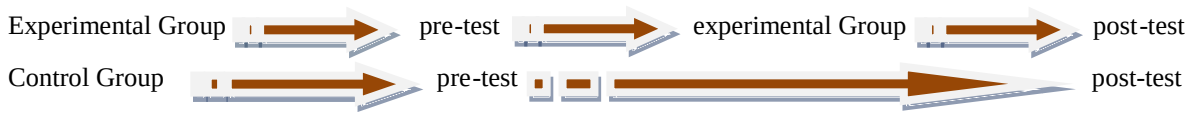

Figure 1. Posttest-only nonequivalent Control group design

(Source: Schneider, Whitehead, LoBiondo-Wood, & Haber, 2016, p. 173).

Data Collection Procedure

Data was collected during December, 2019 after having subjected the two groups, the experimental and the control, to the procedures of the between-subjects experimentation. The first Class, the experimental group, was instructed for five sessions during the month of October through the month of November. While the second Class, the treatment group, did not receive any treatment whatsoever. Moreover, the first Class, the experimental group, received five reading comprehension sessions, along with five note-taking training sessions on the five typically used note-taking schemas: The Cornell Method, Mind Mapping Method, Sentence Method, Charting Method and outlining Method, with a major focus on the first one.

During the first reading sessions, students were taught how to utilize the different note-taking methods with different types of texts representing disparate discourse modes, narrative, argumentative, expository and descriptive. Each one of the texts had a miscellanea of questions ranging from literal to inferential. Technically, after having been introduced to the wherewithal of taking notes, the students in the experimental group were taken into applying the SQ4Rs strategy of reading that contains the following elements: surveying, questioning, reading, reciting, recording, and reviewing making use of the note-taking system they were supposed to have obtained the minimal knowledge of using them. It is worth noting here that in later reading sessions these students learned also how to synthesize ideas, paraphrase them, summarize them, and insert them in areas reserved for them in the respective note-taking schema. Important here also is that the instruction into the use of these methods was not done all in one go, but the students were exposed to each one each session with a targeted choice of both text and note-taking schemas.

Technically, the researcher had recourse to two intact classes which he teaches so as to control for the lack of randomized assignment of individuals to the groups chosen. Both classes studied the same modules, reading comprehension and note taking as part of a course of the Study Skills module, but with different instructors, as for the modules contents and teaching methods were roughly the same for both groups.

With that said, the experiment was conducted over five sessions of two hours for both reading comprehension and note taking. It should be stressed here that the treatment is note taking. Scaffolding the instruction of the treatment was done gradually as the experiment group students were taken into instruction by exposing them theoretically to the five systems of note taking and later practice the techniques where they were left to their means to continue with the task and get evaluated on how much they recall through writing.

After the treatment phase is done with, both groups are assessed on the effect of the treatment (note taking strategies) on the reading comprehension as students are post-tested using a TOEFL iBT Reading Practice text the notes of which they could review and exploit depending on the type of note-taking strategy they opted for. At the end of the testing sessions, students are to hand in their notes for later wash back effect objective.

RESULTS AND DISCUSSION

The data collected were fed into the SPSS version 22 to help test the hypothesis and answer the research question of the study. The obtained data were therefore analyzed by calculating the independent samples t-test to determine if there is any significant difference between the means of two groups, the experimental and the control, on the effect of practicing the type of note-taking strategy on reading comprehension ability of the two groups. The researcher coded the data in the first stage, and later proceeded with the analysis of the data with the appropriate statistical tools to ascertain whether the two

groups significantly differ in their reading performance after having instructed the experimental group into the note-taking systems.

Descriptive Statistics Analysis of the Data

The purpose of this section is to present the analysis of the data. This study takes two groups to assess for the effect of a treatment (note taking strategies) on the independent variable (reading comprehension performance). The study included 94 freshmen, who were enrolled and placed in Semester One classes during the fall semester and who were present on the dates the data collection instruments were administered.

Table 1. Descriptive Statistics of the Two Groups on Reading Performance

	Experimental/Control Group	N	Mean	Std. Deviation	Std. Error Mean
Reading Performance	Experimental group	47	11,0638	3,42246	,49922
	Control group	47	4,3404	3,52184	,51371

Table 1 above gives the descriptive statistics for each of the two groups, the control and the experimental. In this example, there are (N=47) students in the Experimental group with a mean score of (M=11.06) which is visibly higher than that of the (N=47) students in the Control group with a mean score of (M=4.340).Additionally, we can see from the standard deviations that the variation in the data (i.e. spread of scores) is (SD=3.422) and (SD=3.52) for the experimental ad control groups respectively, and it shows that they are very close.

The last column gives the standard error of the mean for each of the two groups. The question is whether the difference between the two means is statistically significant so that we can be confident that it's not due to random error. This is where the table of inferential statistics or the results of the independent samples t-test are helpful.

Inferential Statistics Analysis of the Data

The second part of the output provides the inferential statistics as shown in Table 2 below:

Table 2. Results of the Independent samples t-test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Reading Performance	Equal variances assumed	,204	,653	9,386	92	,000	6,72340	,71632	5,30073	8,14608
	Equal variances not assumed			9,386	91,925	,000	6,72340	,71632	5,30071	8,14610

A first look at the equality of variance test or Levene's test shows that the assumption of equal group variances is met. If the significance were smaller than 0.05, which is not the case here as it is .653, we would have to conclude that the variances are equal. However, we have a significance level of .653 that indicates that the variances are statistically equal.

The "Sig. (two tailed)" column indicates a significance level of .000. Therefore, this finding shows that it is well into the 0.05 exclusion area of a two-tailed test and the T ratio would result in a rejection of the null hypothesis. This is a finding so extreme that it could not be considered a chance finding. The interpretation references the group means shown in the top panel demonstrate clearly that the groups are statistically different from one another with the control group demonstrating lower scores (M =4.34) compared to the experimental group (M =11.06) Abbott (2017).

The Levene's test checks the null hypothesis that the variances of the two groups are equal. The assumption of approximately equal variances is not violated as the p-value is 0.653; therefore, in the top row of the output table, values are the relevant ones for our subsequent analysis. The value of the t statistic is 9.386, and the p-value displayed is 0.000 (less than the threshold 0.005). This means that there is a very small probability of this result occurring by chance under the null hypothesis of no difference between the two groups.

The p-value is 0.000 and, therefore, the difference between the two means (M=11.06, SD=3.42; M=4.340, SD=3.52) is statistically and significantly different from zero at the 5% level of significance. It could be concluded then that there is sufficient evidence (the *p*-value is lower than 0.05) to suggest that note-taking instruction does change the mean of reading performance.

The assumptions of the Independent Samples t-test seem to be met as for the Independent observations, in our case, there are two cases representing two groups of semester-one students. Concerning Normality, it follows that when talking about normality distribution, the dependent variable must follow a normal distribution in the population. Thus, since our sample is way beyond 25 units (94 units), then we won't bother about normality distribution of our sample. As for Homogeneity, the standard deviation of our dependent variable are almost identical in both groups (SD=3.52; SD=3.42) . We only need this assumption if our sample sizes are (sharply) unequal. Therefore, it seems that these assumptions are not badly violated, otherwise we would have been in need to run a Mann-Whitney test instead of a t-test.

Discussion

The findings of the study revealed that the Independent Samples t-test is significant [t(94)=9.386, *p*=.000] as the *p*-value is lower than the theoretical significance level (*p*=.05) this suggests that the null hypothesis is to be rejected and the alternative hypothesis that states that there is a significant link between instructing students on the systems of note-taking and the comprehension of the written materials is retained and confirmed.

The differences are statistically significant between the control group means and the experiment group means on reading performance. That is, there are significant differences between the two groups on their reading performance within the samples chosen as the experimental groups' performance is better than that of the control given the effect of the treatment the first group has been exposed to. The individuals within the experimental group have proven the utility and salience of note-taking skill possession if any reading performance is to be successful.

The only research question advanced in this study and that enquires about whether the two groups significantly differ in their reading performance after having been instructed one group, the experimental, into the note-taking systems is answered. A comparison of the means across groups shows that the Experimental Group (M=11.06, SD=3.42) performed generally better than the Control Group (M=4.340, SD=3.52) and the proof comes from the statistical evidence that attests to the significance ([t(94)=9.386, *p*=.000]).

The results demonstrated therefore that there is a significant link between instructing students on the systems of note-taking and the comprehension of the written materials as well as a huge difference between the treatment and the control groups. These conclusions obtained are consistent with some previous studies such as (Clark, 2007; Haghverdi, Biria, & Karimi, 2010; Karimi, 2011; Staley, 2015) which stress the fact that students versed in note-taking manipulation while reading material acquire consistent and organized means of information storage and usage, and avoid hence the "laundry list of random information" that some would collect without such knowledge (Clark, 2007, p. 98).

The results of this study on the other hand run counter to what Kiewra (1987) preached. For him, students are generally incompetent note takers who are unable to critically record ideas. This adds to the idea that note-taking as a skill is seen, by this scholar and others, as a complicated critical study skill that is far from being teachable.

CONCLUSION

The purpose of the present study was to investigate the effect of note-taking as a treatment on the students' reading performance. The results of the data analysis revealed that the students (experimental group) performed significantly well on the reading text after having used some of the note taking notes systems they were instructed into. That is, both the product and process effects of note-taking instruction were confirmed. The findings provide evidence of the importance of note taking systems in good reading comprehension performance. They also corroborate previous findings that training in taking notes improves reading comprehension performance (Kobayashi, 2009b; McNamara, Ozuru, Best, & O'Reilly, 2007; Nwokoreze, 1990; Slotte & Lonka, 1999). What's more, other studies go hand in hand with the findings of the resent study, such as (Robinson & Kiewra, 1995; Robinson & Molina, 2002 as cited in Rahmani & Sadeghi, 2011); however, conventional notes lead to a poor test performance (Song, 2018; Zuckerman, 2016).

It was found that there is a significant link between instructing students on the systems of note-taking and the comprehension of the written materials confirming therefore the advanced hypothesis. Following the same line of reasoning, having the Experimental Group (M=11.06, SD=3.42) performing expressively better than the Control Group (M=4.340, SD=3.52) shows evidently the significant difference in their reading performance. It can be concluded therefore that note-taking training, particularly with the effective use of particular systems, is conducive to successful learning (Pilcher & Miller, 2000 cited in Lee, 2005).

In details, the results of data analysis revealed that students who completed and studied the five note taking strategies performed substantially better on comprehension, recall and retention of information, despite the probable brevity of the training period, than did the control group students who conventionally heavily made use of their reading comprehension test notes. Backing up therefore the quantitative results obtained via the statistical tool utilized, the independent samples t-test, the qualitative data gathered from students about the way they used their notes suggested the substantial dependence on a sole note-taking strategy, Cornell. This reliance is probably due to the simple concept of the system as it focuses on two main sections, the cue and summary sections. The cue section enables students to record notes for later review and recall and they can use it for vocabulary words and study questions. For the summary section that constitutes the lower segment of the sheet, the students exploit it for summary writing and highlighting major information. This raises another venue of research as the researcher could have controlled for the note taking systems and have chosen only one note taking strategy or even run a

test to see which note taking system was effective and efficient in making note-takers more successful in distinguishing the different types of the text/discourse and the interrelationship between ideas. It should also be noted here that other confounding variables could have affected the results of the current study. Some of these variables could be motivation, attitudes and aptitudes of the learners to read texts, degree of study skills mastery which might have an impact on note-taking. Thus, other studies might study the combination of these affecting factors and might get to something significant. In conclusion, it would have been more helpful if the study had been purely experimental and both random sampling as well as random assignment of individuals to different groups were performed.

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