Learning Self-Regulation in a Stress-Free World: Technology-Assisted Reading Comprehension

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Abstract. Self-regulation, personally-oriented process toward the attainment of learning goals, is a constructive way which can control detrimental thoughts in language learning process. The present study aims at finding out whether the Internet, which is known as a stress-free learning environment, can enhance Iranian male and female EFL students' reading comprehension through self-regulation or not. To achieve this, 43 junior EFL students at Islamic Azad University, Shiraz Branch were selected randomly. After taking a pre-test of reading comprehension, they were instructed on reading strategies and required to use the Internet sources for their reading comprehension in a self-regulative manner and with no teacher supervision. After a period of about three months, they took another reading comprehension test and participated in an interview. The comparison of the students' performances in the pre- and post-tests of reading comprehension revealed that students had improvements in their comprehension. It was also discovered that female students outperformed their male peers in their reading abilities. The results of the analysis of the interview also showed that self-regulation in a virtual environment helped the Iranian EFL students manage their reading activities in a stress-free mode and thereby foster their reading comprehension to a considerable degree.

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1. Introduction

Self-regulation refers to the ability to concentrate, become involved in group activities, restrain disruptive and impulsive behavior and work autonomously, which leads to learning and attainment (Duckworth, Akerman, MacGregor, Salter, & Vorjous, 2009). Self-regulation has long been at the center of most teachers' attention from the early days of working with students of any age. It is supposed that self-regulation can help language learners reach their highest potential and be active learners independent of a teacher.

Yen, Konold, and McDermott (2004) stated that three essential factors involved in learning, attitude, attention and persistence, are under the focus in self-regulation. It helps learners concentrate on what they are learning, be motivated towards learning materials and try to do their best in order to succeed. According to Duncan et al. (2007), there is a positive relationship between what students achieve and their degree of self-regulation. This is mainly because when an individual is self-regulated, he does not need any force to attend the classroom, do the activities and study. He will set a time to his learning as he is raised enough and knows what he is after.

Diamond, Barnett, Thomas, and Munroe (2007) pointed out that confidence is one of the blessings of a self-regulated learner due to the fact that through a flexible self-organized program and high motivation, he is able to plan for his own learning .Every individual is well aware of his own learning abilities, potentials, skills and can save the learning materials in his long-term memory; therefore, if he is self-regulated, his metacognition would be at his disposal to enhance his learning.

Duckworth et al. (2009) agreed that stress is a negative factor which can hamper the development of self-regulation. Coleman and DeLeire (2000) stated that self-regulation causes learners to have a positive sense towards their competence and locus of control, i. e., they are certain that they have control over what and how they are going to learn. Learners may not able to fully use this on their way to achieve their academic goals

if they are doubtful about their ability to self-regulate. This implies that being stress free is a strong condition for self-regulation.

On the other hand, one of the goals of today's technology, the Internet, is to provide a stress-free setting for learners to foster their skills and abilities in an environment which is so diverse and flexible that every single learner can find his own way through it to achieve what he is after. The web is equipped with different tools such as blogs, wikis, podcasts, e-portfolios, emails, vodcasts. Social networks, as a product of the web is considered as an appropriate scene for all learners to share, enjoy and work on the skills they intend to improve independent of their individual differences.

Carman (2002) enumerated major features of any Internet-based activity that language learners are involved in. They include being self-paced and performance-based, and having live events, assessment, and collaboration. He added that the most outstanding characteristic of the Internet is that it provides a flexible, anxiety-free environment for students' learning. According to Carman, there is an overlap between the major feature of Internet-based activities, being self-paced, and self-regulation. By self-paced, he means learners embark on learning at their own pace without being anxious.

Following Duckworth et al. (2009) who supported the positive role of self-regulation in language learning process, and Carman (2002) who considered the Internet as a stress-free setting for language learning, this study was an attempt to discover whether the Internet as a stress-free learning environment can enhance Iranian male and female EFL students' reading comprehension through self-regulation or not. This study also aimed at finding if there is any significant difference between reading performances of self-regulated male and female students who use the Internet or not. This study also seeks to explore students' overall reactions towards a self-regulating Internet-based learning program.

2. Literature Review

Literature has defined self-regulation as self-generated thoughts, feelings and actions that are planned and is adapted to the attainment of personal goals (Zimmerman, 2000). Later, Zimmerman (2008) also clarified

the fact that to understand the concept of self-regulation, one might ask the question, "How do students become masters of their own learning processes?"

What is emphasized in the definition of self-regulation is autonomy. It is an important dimension of self-regulation. Thus, the concept of self-regulation refers to the active participation of individuals in their own learning. There are many theories of self-regulation which have been applied in different contexts like psychology and management, but it can be mostly found in education and language learning settings. Despite differences in the use of the term in different fields, there is a common core idea within the self-regulation research which indicates that it consists of a set of self-beliefs that enhance learning. The concept of self-regulated learning is also referred to as personalized learning, and research has indicated that it supports the value of teaching that is appropriate to the ability level and perspectives of the individual learners (Siraj-Blatchford & Sylva, 2004).

Self-regulation has many components. One of its bases is motivation (Wolters, 2003) or what Pintrich (2000) referred to as goal orientation. If an individual is driven internally to fulfill a task, or he is oriented toward achieving a goal, there is no need for a supervisor to see how well he does the job. Students who own their goals, whether they enjoy the activity or because it fits with their values, are expected to devote more time to their activities, show greater concentration, and they can process information more deeply, and show greater levels of persistence (Ryan & Deci, 2002). The other components of self-regulation are attention, persistence, flexibility, and confidence (Diamond, Barnett, Thomas, & Munroe, 2007). The necessary motive for self-regulation is appropriate guidance, modeling of effective strategies and creating supportive and challenging contexts (Perry & Vandekamp, 2000; Boekaerts & Corno, 2005). Self-regulation will be achieved if all its elements can be developed effectively.

There is a model of self-regulation developed by Pintrich (2000). Pintrich's theory consists of four phases of self-regulation, with four possible areas for self-regulation in each phase. According to his model, the elements of self-regulation are planning, forethought, self-monitoring, re-

action and control. Correspondingly, there are different areas under the focus in self-regulation. They are motivation, cognition, behavior, and context. Pintrich's model highlights the interactions between cognition, motivation, environment and behavior over different phases of a learning cycle. This model emphasizes the interdependence of the different aspects of self-regulation. For example, learners who do not enjoy confidence in their own learning capacity are unlikely to use effective task strategies.

Eccles, Jacobs, Harold, Yoon, Arbreton, & Freedman-Doan (1993) and Eccles, Wigfield, and Schiefele (1997) found the associations between gender and motivation, self-concept, and expectancy values in a self-regulating learning program. Their findings consistently revealed that females thought they were working harder in mathematics than in English, and compared to their male peers, they reported to work harder than males in mathematics. In contrast, the research indicated that based on the time diaries and teachers' data, these beliefs were not accurate; in fact, there were no gender differences in the amount of time the girls themselves said they put into mathematics and reading. Eccles et al. argued that gender differences arise primarily from the females' being more self-regulated and males being more teacher-regulated.

Yen et al. (2004) explored the longitudinal relationships between individual learning-related behavior such as attitudes towards learning, attention and task persistence and flexibility, and they measured the students' subsequent academic achievement. The researchers showed an independent contribution from these self-regulatory capabilities, which could foster the learners' academic achievement. They, then, concluded that self-regulated behavior can be a good reason for achievement (Woolfolk Hoy, Demerath, & Pape, 2001).

There are many empirical studies in the literature which have shown positive correlations between self-regulation for learning and use of effective learning strategies (Schunk & Ertmer, 2000). In their study, Schunk and Ertmer argued that language programs should seek to enhance both self-regulatory competence in the performance and self-efficacy. In another study, Palinscar and Brown (1984) developed a cognitive apprenticeship procedure called 'reciprocal teaching' to improve the reading

comprehension. This involves students' first observing the teacher and then doing the same themselves in a self-regulated manner. The teacher's modeling comprehension, monitoring and memory support strategies, such as summarizing and rereading helps students know how to work later independently. Similar methods have been adopted by Collins, Brown, and Newman (1989) who contended that when students learn from teachers how to think about academic work, they begin to think more like experts when they are alone.

Focusing on today's age of technology, as the Internet can be counted on as a widespread resource for language learning, there are many tools available for the user to use on the web and achieve their language learning purposes. Glancing at the literature, on web-based instruction and activities, one might find numerous empirical studies and surveys. Based on such studies, students have found the net interesting and effective to be used for their language learning (Brandl, 2002; Warshauer, 2000).

There are many reasons the Internet can be used as a resource to enhance language learning. Chun and Plass (2000) pointed out the general capabilities of features of the net which have the potential to improve language learning. They stated that the most remarkable feature is the universal availability of authentic materials. To improve listening comprehension, for example, one can download a great number of podcasts of native speakers' voices on the net, choose the appropriate speech rate and subject and listen to them unlimitedly. Another characteristic of the web-based activities is that it provides communication capabilities through networking. The structure of information on the net is, moreover, nonlinear and it includes hypertexts and links. Yet, they added the best reason for the web to be the best choice for language learners is definitely the convenience in accessing, obtaining, and working on an endless supply of materials in target languages in a stress-free fashion.

Luz?n Marco (2012) proposed that WebQuests as a web-based resource well fits in a learner-centred curriculum specially one which seeks to help students develop autonomous learning in a stress-free environment. She commented that the use of technology for language learning purposes results in a learning environment in which students take more control of their learning without experiencing common anxieties that

they usually have in a language classroom. In such a superb setting, one can see a great shift in the role of the teacher. He is not the knowledge transmitter, but to provide guidance and help students to find useful resources and offer support throughout the process whenever learners feel they need it.

Considering self-regulation as a learning strategy which helps language learners develop autonomy in their learning process, and emphasizing the Internet as an environment in which learners' experiencing anxiety and stress reaches its minimum, the present study was done to see if the web can be counted on for Iranian EFL students' reading comprehension improvement, and whether male and female students would perform differently in a self-regulating learning program. It also sought to find learners' reactions and feedback at the end of the program.

3. Research Questions and Hypotheses

The present study was an attempt to answer the following questions:

Q1. Does the Internet enhance Iranian EFL students' reading comprehension through self-regulation?

Q2. Is there any significant difference in reading performances of male and female students who use the Internet as a self-regulating tool?

Q3. Does the Internet provide a stress-free environment for the Iranian EFL students to improve their reading comprehension?

Q4. Can the Internet be considered as a self-regulating tool to foster Iranian EFL students' reading comprehension independent of a teacher's supervision and help?

On the basis of these research questions, four null hypotheses were formed as follows:

H1. The Internet is not a suitable way to improve Iranian EFL students' reading comprehension through self-regulation.

H2. There is not any significant difference in reading performances of male and female students who use the Internet as a self-regulating tool.

H3. The Internet cannot provide a stress-free environment for the Iranian EFL students to improve their reading comprehension.

H4. On the basis of the students' reactions towards the program, the Internet cannot be considered as a self-regulating tool to foster Iranian EFL students' reading comprehension so much as they would use it independent of a teacher's supervision.

4. Method

4.1 Participants

The participants of the present study were 43 junior students majoring in English at Islamic Azad University. There were 13 male and 30 female students who had passed their reading comprehension (I) and (II) courses at the university and were shown to be at the same level after taking part in a reading comprehension test. The age range of the participants was 20-25 years old, and they were all interested in taking part in the research program for their comprehension.

4.2 Instrumentation

There were two instruments used to answer the research questions in the present study. The first one was Oxford QPT (Quick Placement Test) of Reading Comprehension (2004, versions 1 and 2). All the items had been tested over a five-year period on multilevel samples of students involving over forty different nationalities. Each set of results had been subjected to detailed item analysis to determine facility values and discrimination indices. Further tests had been carried out in 2003 and 2004 for item and inter-test reliability, to establish concurrent validity between the OPTs and a range of ESOL examinations. Item reliability across test populations was very high, and the facility values and discrimination indices of particular items showed a high level of consistency from one sample to another (User Manual for Quick Placement Test, 2004).

Each test includes 60 multiple choice reading comprehension items, and the administration takes thirty minutes. Scores from the tests are reported on a scale out of 60. In all parts of the tests, the lexis has been carefully controlled. Meaning is tested within the test, but the main

objective is to find out what the testees know. The tasks included in the tests are of two types: reading tasks and core competence. Reading tasks are of multiple-choice type and include simple texts with graphic supports. The testees are required to read the question, examine the graphic support, and choose the best alternative. Core competence items include multiple-choice cloze and discrete multiple choice questions.

The other instrument to collect data for the present study was an unstructured interview. No predetermined questions were set to be asked. The teacher first started with general questions on the number of hours they work on the Internet to more specific questions related to the topic of the present research. For example they were asked, "How much, do you think, the Internet helped you achieve self-regulation?" or, "Why is the Internet considered as a stress-free environment for learning?"

4.3 Procedures

In order to answer the research questions, the following steps were taken: first, all the junior students studying English at Islamic Azad University, Shiraz Branch were informed of the aim of the research and asked to take part voluntarily in the study. Out of about 90 students available, 43 (13 male and 30 female students) were volunteer to participate. Therefore, the students were selected quite randomly. As the selected sample had passed the two reading courses offered at the university before, they were assumed to enjoy the same ability in the comprehension of English texts. The first version of Oxford OPT, reading comprehension section, was administered right at the beginning of the semester. Then, the students' raw scores were considered as the pre-test scores for further comparisons.

The next phase was the treatment. In one session, the students took a class session in which they were explained about the facilities they can use the Internet for improving their comprehension. The researcher also explained some of the reading techniques like skimming, scanning, summarizing etc. to be used as they were expected to work on their reading comprehension. To control time, they were required to spend no more than three hours working on their reading comprehension in a week. Also, they were taught how to obtain the difficulty level of the

texts so that all students could find and work on reading materials with the same degree of difficulty.

After a period of about three months, which is almost a complete academic semester, the students took the reading comprehension section of the second version of Oxford QPT as the post-test. The students' scores were then used to be compared with those in the pre-test. When they took the reading post-test, all the students were asked to take part in an unstructured interview, that is, the questions of the interview were not decided upon before hand, and different students were not asked exactly the same questions though the areas on which the questions were asked was the same. The researcher started with general questions like the number of hours they usually work on the Internet and the websites they usually use to more specific ones, which were more directly related to the research topic. For example, they were asked if they were anxious not to be supervised by an instructor while they were using the Internet and working on their reading comprehension. The students were interviewed one by one, and their voices were recorded. Then, what was recorded was partially transcribed. By partial transcription, it means the researcher listened to the students' voices recorded on her cell phone and only wrote down the part of answers which could be considered in the interpretation of the overall reactions of the students towards the program.

4.4 Design

The design of this study was a mixed-method one. A mixed-method design is the synthesis of qualitative and quantitative modes. It follows the data collection procedures and analysis of both qualitative and quantitative methods. Thus, it enjoys the merits of both methods. The typological organization or the design of this mixed method study which represents both the sequence and dominance of the method constituents would be QUAN+QUAL, which indicates that a part of the data is gathered quantitatively, and a qualitative method is followed to collect additional data (Johnson & Christensen, 2004). For the quantitative part, the students' pre-and post-test scores of reading comprehension were used and for the qualitative part, the transcription of students'

comments in the interview was applied. Next, both kinds of data are to be analyzed in their own ways.

5. Results

In order to compare the participants' performances in reading comprehension before and after the instruction, the reading section of the first version of Oxford QPT (2004) was administered. Then, after the treatment, the students took the second version of the same test as the post-test. The results are indicated in the following tables:

Table 1. Descriptive statistics for the participants' reading scores in the pre-and post-tests

	N	Mean	Std. Deviation	Std. Error Mean
Pre-test	43	13.1163	1.73493	.26457
Post-test	43	16.6279	1.77312	.27040

As Table 1 indicates, while the participants' mean score in the pre-test of reading comprehension was 13.1163, that of the post-test was 16.6279. This implies that the participants had improvement in their reading comprehension. To see if this difference in the performances of participants was significant or not, a paired sample t-test was run on the students' raw scores. Table 2 shows the results as follows:

Table 2. T-test for the comparison of the participants' reading scores in the pre-and post-tests

	Paired Differences							
				95% confidence level interval				
	Mean	SD	Std error mean	lower	upper	t	df	Sig.
Pre- and post-test	-3.51163	-3.51163	.16088	-3.83630	-3.18696	-21.827	42	.000

As Table 2 reveals, the value of t is 21.827, which is much higher than the significance level (sig. = .000). It can be concluded that the difference between the pre- and post-tests of reading was significant. Therefore, the research first null hypothesis stating that the Internet is not a suitable

way to improve Iranian EFL students' reading comprehension through self-regulation is rejected here.

In order to reject or retain the second research null hypothesis, the performances of male and female students in the pre-and post-tests of reading were taken into account. Table 3 shows the related descriptive statistics.

Table 3. Descriptive statistics for the male and female participants' reading scores in the pre-and post-tests

	gender	N	Mean	SD	Std. Error Mean
Pre-test	male	13	12.7692	1.78670	.49554
	female	30	13.2667	1.72073	.31416
Post-test	male	13	15.3077	1.54837	.42944
	female	30	17.2000	1.56249	.28527

According to Table 3, the mean score for the male students' pre-test of reading was 12.7692 while for females, the mean score was 13.2667. In the same way, the mean score for the male students' post-test of reading was 15.3077 while for females, the mean score was 17.2000. In order to see if the difference between the male and female students in the pre-and post-tests of reading was significant, an independent sample t-test was run. Table 4 summarizes the results.

Table 4. T-test for the comparison of the male and female participants' reading scores in the pre-and post-tests

	t	df	Sig.(2 tailed)	Mean difference	Std. error of mean
Pre-test	-.261	41	.394	-.49744	.57786
Post-test	-3.657	41	.001	-1.89231	.51745

Based on summary of the results in Table 4, since the value of t for pre-test (t= .261) does not exceed the significance level (sig. = .394), it

can be concluded that before the instruction, there was not a significant difference between the male and female students' reading comprehension. However, regarding the post-test, the value of t was 3.657, and it exceeded the significance level (sig. = .001). Based on the mean scores, females performed better than males. Therefore, it can be implied that the difference between the mean score of male and female students in the post-test was significantly different.

Back to the second research question stating that there is not any significant difference in reading performances of male and female students who use the Internet as a self-regulating tool is rejected. Thus, the first two research questions which were the quantitative part of the study were answered here.

In order to answer the third and fourth research questions, which belonged to the qualitative part of the study, an interview was held after the instruction. Concerning the last two research questions, all the students were asked questions on the use of the Internet, their ideas about the self-regulation and how it helped them with their reading comprehension and work independent of a teacher, and their opinions about the net as a stress-free environment for language learning.

As mentioned before, the interview was an unstructured one and no predetermined questions were asked, but after the partial transcription of the students' voices recorded on the researcher's cell phone, the answers were codified and divided into three types: agree, for those who gave positive answers to the questions in favor of self-regulation and the Internet as a stress-free environment; disagree, for those who were against self-regulation and using the web for language learning; and undecided, for those whose answers were uncertain.

Then, the number of positive, negative, and uncertain answers was counted, and using EXCEL 2010, the percentages were calculated. Figure 1 below indicates the percentage of different answers to the question whether the Internet can provide a stress-free environment for the Iranian EFL students to improve their reading comprehension or not.
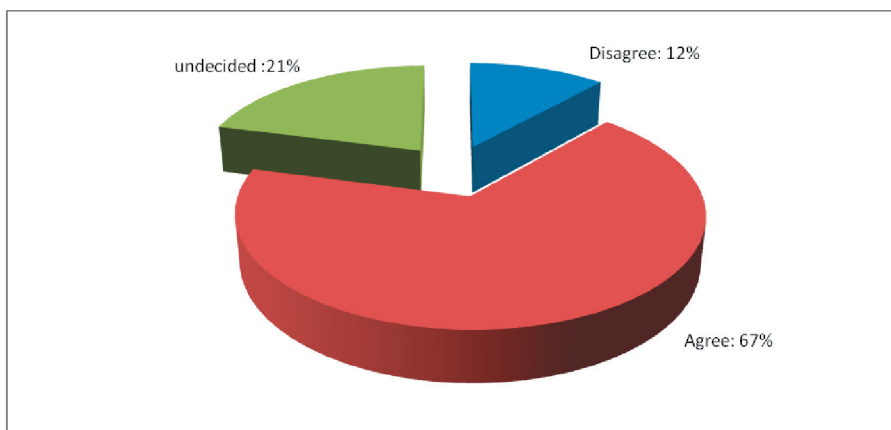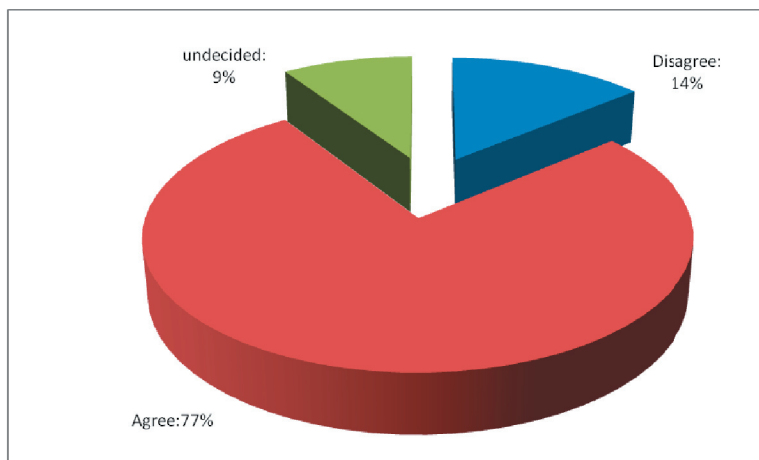
Figure 1. The percentage of answers to questions related to the
internet as a stress-free environment

According to Figure 1, out of 100, 67 students agreed on the idea
that the Internet is a stress-free environment and can best serve as a
setting in which learners can freely and comfortably work on their lan-
guage learning. 12 percent of the students did not believe that the web
is so much stress-free, and 21 percent of the students did not give a
firm answer whether they liked or disliked the web as an anxiety-free
environment compared to that of a classroom for language learning.

Regarding the percentages obtained, one can conclude that the third
research null hypothesis is rejected due to the fact that most of the
students gave a positive reaction towards using the net for language
learning purposes.

The fourth research question was, on the basis of the students' reac-
tions towards the program, whether the Internet could be considered as
a self-regulating tool to foster Iranian EFL students' reading comprehen-
sion so much as they would use it independent of a teacher's supervision
or not. Again, the students' answers were gathered and codified in the
same way as it was done for the first question and the following results
were obtained:

Figure 2. The percentage of answers to questions related to self-regulation

As Figure 2 reveals, most of the students (77%) agreed on the idea that the Internet can function as a self-regulating tool to enhance language skills particularly reading comprehension for Iranian EFL students. On the other hand, 14 percent of the students did not accept the web as a resource for students' self-regulation, and 9 percent of the students could not certainly say whether they confirm or disconfirm the use of the net as a self-regulation tool. Based on the percentages obtained from the students' answers, the last research null hypothesis stating that the Internet cannot be considered as a self-regulating tool for Iranian students to improve their reading comprehension is rejected here.

6. Discussion and Conclusion

The main objective of the present study was to find out if the Internet could be used as a self-regulating stress-free environment to enhance Iranian male and female students' reading comprehension or not. According to the quantitative and qualitative results obtained from the data analysis, it can be concluded that the Internet is a helpful resource

which can be used autonomously by language learners to improve their language skills in a self-regulating fashion. The results of the study also revealed that using the net as a stress-free setting, female students can outperform their male peers. Thus, this study supports all the previous research done in the literature in favor of the Internet as a resource for self-regulation in a context which is convenient and free of so-called stress-raising class environment students usually experience in their language learning process. The results of the present study can help language teachers to take a firm research-based stand in using the Internet as a supplement to their classroom teaching.

The findings support Zhang (2008) who indicated that the self-regulated are better language learners as they are more extrovert than introvert. They are able to use interpersonal skills for having a successful communication and thus a more satisfactory learning process. The present research results are also in line with Salmani (2011) who stated that if language learning means a change in the cognitive state of the mind in an individual, self-regulation can well be justified. He added that self-regulated learners are more talkative, sociable, carefree and easy going than others, and thus learn at a higher rate.

Regarding the applicability of the Internet in the improvement of EFL students' foreign language skills, this study is in line with what Luz?n Marco (2012) came to in her study on the effectiveness of the web in language learning. She highlighted that the net helps students develop learning autonomously and thus in a self-regulated way in a stress-free environment. She concluded that learning a language in an environment in which students take more control of their learning without experiencing common anxieties causes an individual to be motivated enough to move forward in the learning process.

As for the pedagogical implications, the results of the present research are useful for teachers who seek to find more fruitful ways through which their students do not need to be pushed on in language classes. If teachers supplement their classroom materials with some Internet-based activities, being handled by the students independently from the instructor, they may find better outcomes in their language teaching. Additionally, the results help learners become wise enough not to be too much

dependent on their teacher nor do they stick too much to the materials being worked on in the classroom. Rather, they may use the Internet as an extensive venue to be at their disposal in language learning.

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