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From Collective Activity to Autonomous Learning: Fostering Learner Autonomy in Light of Activity Theory

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Abstract

Autonomous learning and social activity have excessively been the focus of interest in second language acquisition over the past decades. The present study aimed to explore how activity theory--as a branch of sociocultural theory focusing on social context--can promote Iranian EFL learners' autonomy. To this end, fifty-six EFL students studying English translation at Islamic Azad University, Tehran Central Branch, participated in the study. The participants were assigned to two groups, one experimental group and one control group. At the beginning of the semester, both groups took a language proficiency test to ensure their homogeneity. They also completed an autonomy questionnaire as the pretest and posttest. The instruction in both groups was based on a five-step process of developing the academic writing skill, including prewriting, organizing, writing the first draft, revising and editing, and writing a new draft. However, only the experimental group received the instruction through an e-learning platform designed based on the six elements of activity theory--subjects, objects, mediating artifacts, rules, community, and division of labor--suitable for EFL writing classrooms. The results revealed that integrating activity theory to e-learning had a decisive role in enhancing the students' learner autonomy. It is hoped that the findings raise both teachers and students' awareness of implementing activity theory as a social learning framework to foster autonomous learning in EFL contexts.

Keywords: activity theory, autonomy, e-learning, sociocultural theory

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1. Introduction

With the growing interest on learner-centered education, learner autonomy has also sparked researchers' interests to help learners become independent from their teachers in their language learning. According to Farrell and Jacobs (2010), the ultimate aim of learners is to become proficient in the second language, so they should become fully autonomous. However, not all students learn autonomously. Learner autonomy has frequently been described as the ability to take charge (Holec, 1981) or the capacity to take control of learning (Benson, 2001). To Littlewood (1996), autonomy contains learners' ability and their willingness to make choices independently.

Autonomous learning and social activity have excessively been the focus of interest in second language acquisition over the past decades. However, that language learning is a solitary activity or a social process has been a matter of debate, leading different theories to be developed. Teachers who view language learning as an individualized process encourage students to learn independently, while others expose learners to interrelated group activities in order to learn through cooperation and collaboration with others. Needless to say, not all individualized actions help students foster their autonomy. Those who privilege sociocultural orientation to second language acquisition proclaim that learning in groups can establish a valuable framework through which individual learning processes can be developed.

Fostering learner autonomy through social activities does imply that autonomy is no longer primarily a matter of individualizing learning through out-of-class activities. Rather, classroom and curriculum-based approaches should be emphasized as well (Benson, 2011). As Little (2008) asserts, the capacity for autonomous behavior does not develop in isolation, but in interaction with others. Thus, in language classrooms the exercise and growth of learner autonomy can be stimulated by interactions between teacher and learners, or among learners themselves.

In Second Language Acquisition (SLA), one of the most prominent social approaches to learning is undoubtedly Vygotsky's sociocultural theory, which accentuates that learning does occur as a result of the interaction between cognition and society. In other words, human cognition is socially mediated through cultural artifacts, which is the central premise of sociocultural SLA. In an English as a Foreign Language (EFL) classroom, artifacts may encompass instructional tasks, technology, and portfolios (Lantolf, 2000), yet learners can also be mediated by others through social interaction or by the self through private-speech (Lantolf, 2000). No matter what the type of mediation is, it must be sensitive to the individual's Zone of the Proximal Development (ZPD) (Lantolf, 2000). Teaching in line with individuals' ZPD--the gap between the learners' existing developmental level and their potential level of development--may lead them to be autonomous learners since they have gradually become independent from teachers and other experts.

While sociocultural theory usually provides learners with a triadic mediation, activity theory, as a new generation of sociocultural theory, suggests an expanded mediation, including subject, artifact, object, division of labor, community, and rules within a social context called activity system. Within an activity system, it is not the individual elements that help account for the human functioning or the development, but rather it is the relationships between these elements that form the analysis. In fact, an activity system is based on human interaction. It is concerned with how people work together, using tools, toward outcomes. As a result, it is an effective framework for exploring human activity in its sociocultural settings (Lantolf & Thorne, 2006).

As Lantolf (2000) remarks, computer tools and technology can be characterized as one type of artifacts in this activity system. The efficacy of computers in language learning has been widely acknowledged in the field of SLA. Moreover, it is stated that using computers in language learning is linked--explicitly or implicitly-- to the development of learner autonomy (Benson, 2001). Consequently, this study tried to investigate the effect of activity theory, which is an extension of sociocultural theory focusing on social context, on promoting Iranian EFL learners' autonomy using e-learning, as a major mediating artifact.

1.1 Statement of the Problem

In its early days, the theory and practice of autonomy in language learning deals with the notion of individualization (Benson, 2007). Factors such as concerning learner autonomy as a capacity of an individual learner, emphasizing on meeting individual needs, creating situations in which learners can study on their own, can give a sense of pure individualism to autonomy (Benson, 2007). However, according to Kohonen (1992 as cited in Benson, 2007), it is high time to shift the focus of related studies from the individual dimension toward the social dimension of autonomy. To Kohonen, social autonomy involves "being responsible for one's own conduct in the social context, being able to cooperate with others and solve conflicts in constructive ways." (p. 19)

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However, although concepts and principles associated with learner autonomy have been the basic structure of a wide range of research in SLA, the literature review shows that scarce research has been carried out on the development of social autonomy in language learning. Most research has focused on individualized learning environments that aimed to promote individual autonomy (Collentine, 2011). Furthermore, research on e-learning in relation to autonomy has been somewhat limited to the development of individual aspect of autonomy (Blin, 2004; Figura & Jarvis, 2007; Schwienhorst, 2008). In other words, socio-cultural factors shaping learner autonomy have rarely been taken into account in e-learning studies (Felix, 2005). Blin (2004) argued that the most important problem of those researchers and practitioners was lack of adequate tools and theoretical framework to probe the development of learner autonomy considering both individual and social dimensions. Hence, a framework is needed to fostering learner autonomy through social context. This paper, addresses the above gap in the literature with regard to the integration of activity theory with e-learning to develop learner autonomy.

1.2 Research Question and Hypothesis

To fulfil the research purpose, the following research question and hypothesis were formulated:

RQ: Does integration of activity theory with e-learning have any statistically significant effect on Iranian EFL learners' autonomy?

H_0: Integration of activity theory with e-learning does not have any statistically significant effect on Iranian EFL learners' autonomy.

2. Review of the Literature

2.1 Learner Autonomy

Although it seems an eye-catching word in the realm of language learning, as Little (2008) believes, learner autonomy is a slippery concept because it is difficult to define precisely. Whether it is a capacity or a behavior, or whether it should be characterized by learner responsibility or learner control is not clear. Moreover, learner autonomy is widely confused with other concepts such as self-instruction (Little, 2002 as cited in Dafei, 2007), self-regulation, self-directedness, and independent learning.

For Benson (2007), one difficulty in defining autonomy lies in the number of abilities and capacities that can be listed under the heading of autonomy. There is also a concern that any competency associated with good learning could be listed as a competency involved in autonomy (Benson, 2007). Another difficulty with learner autonomy is a lack of sufficient research-based evidence to support that fostering learner autonomy can lead to better results in terms of effective language learning. Even in cases that positive impacts are reported, it is unclear whether it is as a result of an instructional activity or learners' autonomy. Finally, as Benson (2001) mentions, the measurement of autonomy is also problematic. Similar to other constructs, it is a multidimensional and unobservable, and it is a developmental process not a product, so it is dynamic. As Thanasoulas (2000) emphasizes, individuals may be at different stages of becoming independent or autonomous learners, which makes the measurement task more difficult.

Despite these controversies, there is a consensus in the literature that autonomous learners are those who understand the purposes of their learning program, accept responsibility for their learning, share in the setting of their learning objectives, plan practice opportunities, implement appropriate learning strategies, and regularly review and evaluate their progress (Benson, 2007; Cotterall, 2000; Little 2008). Ii is worthy to mention that dependence and autonomy are not categorically distinct, but exist on a continuum (Nunan, 2003). This article, therefore, had borrowed learner autonomy continuum proposed by Hu and Zhang (2017), which consists of four levels: dependence, relative dependence, relative autonomy, and autonomy.

2.2 Activity Theory

Activity theory is based on the work of Vygotsky and emphasizes the societal and collaborative nature of mediated actions and offers a framework to clarify how human cognition is mediated and distributed in communities (Engeström, 1987). The central premise of activity theory, as stated by Kaptelinin, Nardi, and Macaulay (1999), is that human mind can only be understood within the context of social and cultural interaction with the world.

Activity theory is based on the theoretical perspective that learning occurs through historically and contextually framed activity in which mediating artifacts have central roles (Mosvold & Bjuland, 2011). The minimal unit of analysis in activity theory is the activity system (Cole & Engeström, 1993). Engeström's activity system consists of six elements:

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subject, tools, objects and outcome, division of labor, community, and rules. These elements create a social context called activity system (Figure 1). Rules are explicit and implicit regulations which restrain actions and interactions within the activity system, and community is multiple individuals and/or subgroups who share the same general object. Division of labor also refers to "both the horizontal division of tasks between the members of the community and to the vertical division of power and status" (Engeström, 1993, p. 67). Put it another way, the simple interaction between subject, artifact, and object is expanded to include three more mediators--rules, division of labor, and community member.

According to Engeström (1999) and Lei (2008), in the activity system, all the mediators--rules, community, and division of labor--and their mediations are interrelated and should be perceived holistically. It means that they are intimately interconnected and are explicable only by reference to the whole. The multidirectional arrows in Figure 1 show how each component in the activity system influences the other elements either directly or indirectly. To Lantolf and Thorne (2006), the most important thing about this system is that it provides a "framework that brings together local human activity and larger social-cultural-historical structures" (p. 222), and, as a result, it is an effective framework for exploring human activity in its sociocultural settings.

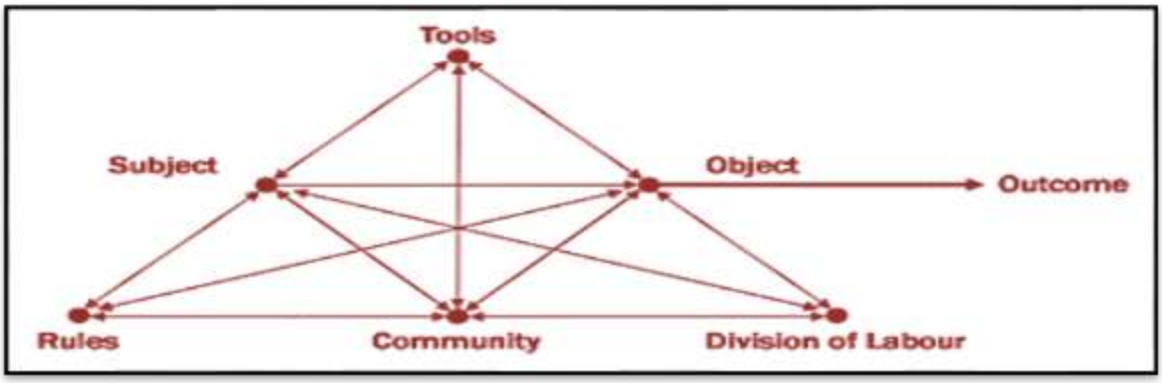


Figure 1. AT system (Adopted from Engeström, 1987, p. 78)

Although sociocultural AT is not new in SLA studies (Barabadi & Razmjoo, 2015; Blin, 2004; Nazari, Farnia, Ghonsooly, & Jafarigohar, 2019; Parks, 2000), the relation between activity theory and learner autonomy has hardly been the focus of research. One of the rare studies on activity theory and learner autonomy was conducted by Ohara (2013) who attempted to reconceptualize learner autonomy in language learning using sociocultural theory. Qualitative data, collected from a Japanese language classroom, showed that learners' autonomy was associated with how they created interpersonal relationships with their classmates. The interpersonal relationships were specified as mediating artifacts to help them foster their autonomy. In other words, individuals' autonomy was affected by the engagement with artifacts. Feryok (2013) also investigated the teacher role in developing learners' autonomy through the lens of sociocultural theory. The results of the case study indicated that social mediation via classroom activities could contribute to the development of learner autonomy.

Learner autonomy, however, is well documented in e-learning. Several studies have demonstrated the usefulness of e-learning in developing learners' autonomy. As an example, Farivar and Rahimi (2015) conducted a study to examine the impact of e-learning on Iranian EFL learner's autonomy. The findings showed the e-learning had a significant effect on the improvement of students' autonomy. In another study, Jarvis (2012) examined the effectiveness of using e-learning materials beyond the classroom on the autonomy of Thai and Emerati university students. The results showed that e-learning materials had a considerable impact on the participants' autonomous learning in self-study centers.

In addition, Arikan and Bakla (2011) investigated the impact of blogging on Turkish EFL learners' autonomy and they found out that blogging helped learners to develop their autonomy. Further study was carried out by Rahman (2013) on the relationship between using technology as an effective tool and EFL learners' autonomy. The results indicated that technology had a statistically positive effect on the learners' autonomy if the learners perceive the tool

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to be a useful one. In a similar study, Meri (2012) explored the relationship between learner autonomy and e-learning among Turkish EFL learners. The results showed that students' autonomous language learning was promoted through e-learning.

Based on the theoretical background and research review, the researchers attempted to explore how activity theory contributes to the development of learner autonomy, a phenomenon that has rarely been examined in previous research in EFL education. It is hoped that this study will extend the research on activity theory and learner autonomy.

3. Methodology

3.1 Design of the Study

The design of the study was a quasi-experimental, nonrandomized control group, pre-test/post-test design. While learners' autonomy was dependent variable, activity theory-based intervention was independent variable.

3.2 Participants

The present study was conducted with 56 sophomores studying English translation taking the Advanced Writing Course that is a part of the requirements of the program to obtain a B.A. degree at the Islamic Azad University, Tehran Central Branch. The participants ranged in age mostly from 20 to 26 years old. For the sake of this study, the impact of gender was excluded from the analysis. Due to the lack of true randomization, two intact groups were selected. Yet, a random procedure was used to determine the experimental and control groups. The instructor in both classes was the same, the first researcher.

3.3 Instruments

At the beginning of the semester, the Oxford Placement Test (OPT) was administrated to all students in the experimental and control groups to check the homogeneity of the participants in terms of their language proficiency. Moreover, The Learner Autonomy Questionnaire (Zhang & Lee, 2004) was administered to the students at the beginning (as the pre-test) and end of the semester (as the post-test). This questionnaire was administered in order to investigate the role of e-learning--in light of activity theory-- in promoting learners' autonomy. This measuring tool comes in two subsequent parts, and it includes 21 items. The first part involves 11 items, each with five options in Likert scale ranging from never to always. The second part involves 10 items, each accompanied by five options requiring the participant to select the closest to the theme in accordance with their own thoughts and beliefs.

According to Dafei (2007), this questionnaire was designed in accordance with language learning strategies in line with Oxford (1990) and O'Malley and Chamot's (1990) proposal. As regards psychometric characteristics, Dafei considered it "to have high content validity and reliability" (p. 10). In this study, the reliability of the questionnaire was calculated by Cronbach's Alpha formula, which was .82. Furthermore, an e-learning platform called Eliademy was used in this study. This free platform allows educators and students to create, share, and manage online courses. For the purpose of this study, an online course was created by the researchers on Eliademy, based on the six elements of activity theory (Engeström, 1987) appropriate for the EFL writing classrooms.

3.4 Data Collection

At the beginning of the study, the OPT was administered to check the homogeneity of the groups. Based on the results, the extreme high and low scores were excluded to ensure the homogeneity of the groups as much as possible. Later, the autonomy questionnaire was administrated to the students in both experimental and control groups prior to the treatment. Having examined the participants' autonomy at the beginning of the study, the teacher researcher followed various procedures in the experimental and control groups, which are described below in detail.

The instruction in both groups was based on the complete writing process approach from prewriting to revision using *Longman Academic Writing Series 3: Paragraphs to Essays* by Oshima and Hogue (2014) as the course book. The instructor selected various genres of academic paragraphs from the book and taught them following a step-by-step approach of the book to guide the students through developing their academic writing skills. The students were first provided with some realistic writing models presenting different genres of academic writing. They had to read the models and analyze them with regard to their organization and different parts of a paragraph. Then some useful vocabulary points from the models were discussed. After that, the organization of the models were explained and practiced. Some time was also spent on practicing some challenging sentence structures to prepare the students for the editing step of writing. Next, the students were required to choose a topic from the topics provided by either the

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instructor or the book, go through all the steps of process writing, which are prewriting, organizing, writing the first draft, revising and editing, and writing a new draft, and apply what they have learnt to write an academic paragraph as their weekly assignment. They had to email their assignment to the instructor. Then the instructor assessed the students' writings, provided written comments and unfocused feedback on them, and sent them back via email. Finally, the participants had to check their writings, edit them based on the comments provided, and email the final drafts of the assigned writings to the instructor at the end of the semester.

However, in the experimental group, although the same instruction and processes were used, the difference was that the writing process instruction was given through an e-learning platform designed based on the six elements of activity theory (subjects, objects, mediating artifacts, rules, community, and division of labor) suitable for EFL writing classrooms. According to those elements, different materials were provided on the platform as mediating artifacts. Furthermore, rules and norms of the course were specified, and various roles were assigned for the students. Students had to work collaboratively in groups of four to accomplish their weekly assigned tasks (labors) and share them on the platform. The labors included providing ideas for pre-writing, finding related transition signals and examples using those signals, finding topic-related vocabulary items and phrases, and finding model paragraphs. In addition, the students were encouraged to share any other materials or tools they found interesting and useful than those assigned by the instructor. In doing so, the participants could get help from the instructor, the classmates' shared materials, other members of the community, and the elements of the designed platform. Next, the participants had to compose their first drafts of writing, check the drafts against the rules and conventions available on the platform, such as format, punctuation, self-check, and so forth, and send them as tasks on the platform.

Afterwards, the instructor assessed the students' assignments, provided written comments and unfocused feedback, and then posted some assessed samples on the platform to be visible for all. In fact, this formative assessment was carried out in order to monitor and measure the participants' progress during the writing, rewriting, and the cooperative learning process and to diagnose the students' strengths and weaknesses in writing. Finally, the participants, like those in the control group, were required to check the samples, edit their writings based on the comments provided, and email the final drafts of to the instructor at the end of the semester. After the treatment, the students in both groups were given the autonomy questionnaire as the post-test. The purpose of the post-test was to compare the mean scores of the participants in the experimental and control groups to determine whether integrating AT with e-learning had any significant effect on the students' autonomy.

3.4 Data Analysis

The collected data were analyzed using *Statistical Package for the Social Sciences (*SPSS) version 24. Descriptive statistics were calculated for the OPT scores, as well as the pre-test and post-test results. The Kolmogorov-Smirnov and Shapiro-Wilk tests were also employed to ensure the normal distribution of the data. Two Independent Samples T-Test were calculated to compare the mean scores of the two groups regarding general English proficiency and learner autonomy, prior to the study. The research null hypothesis, finally, was tested computing an Independent Samples T-Test.

4. Results

4.1 OPT Analysis

In order to make sure that both the control and experimental groups were equal in terms of English language proficiency, the OPT was administered to all participants. The results of descriptive statistics of OPT are summarized in Table 1.

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Table 1. Descriptive Statistics of the OPT

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
control	30	134.00	148.00	140.8000	3.85424	.086	.427	-1.002	.833
experimental	26	132.00	146.00	140.5385	3.87020	-.454	.456	-.691	.887
Valid N (listwise)	26								

Table 2 shows the results of normality tests, indicating that the distribution of scores was normal. Therefore, an Independent-sample t-test was carried out to compare the mean scores of both groups. The p value 0.80> 0.05 shows no significant difference in terms of language proficiency between the experimental and control groups (Table 3).

Table 2. Tests of Normality for the OPT

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
control	.116	30	.200*	.960	30	.304
experimental	.161	26	.082	.947	26	.197

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

Table 3. Independent Samples T-Test for the OPT

		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
proficiency	Equal variances assumed	.002	.967	.253	54	.801	.26154	1.03471	-1.81293	2.33601
	Equal variances not assumed			.253	52.811	.801	.26154	1.03502	-1.81462	2.33770

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4.2 Testing the Null Hypothesis

Before testing the research null hypothesis, the normality of the distribution of the scores in both groups was also assessed. Table 4 and 5 show the results of Kolmogorov-Smirnov and Shapiro-Wilk tests for both set of scores. A non-significant result indicates normality. Based on the results, it was revealed that both the pre-test and post-test scores of control and experimental groups were normally distributed, $p < .05$. Consequently, the parametric independent t-test was used to compare the means of the pre-test and post-test on the participants' learner autonomy.

Table 4. Tests of Normality for the Pre-test

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
control	.113	30	.200*	.906	30	.112
experimental	.098	26	.200*	.945	26	.175

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

Table 5. Tests of Normality for the Post-test

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
VAR00004	.145	30	.108	.917	30	.063
VAR00005	.155	26	.109	.923	26	.053

a. Lilliefors Significance Correction

The numerical data for answering the research question came from the post-test scores on autonomy questionnaire, completed by both the control and experimental groups. The formulated research hypothesis is: Integration of activity theory with e-learning does not have any statistically significant effect on Iranian EFL learners' autonomy. Tables 6 and 7 show the results of descriptive statistics for both the pre-test and post-test. The students' scores on autonomy questionnaire were classified into four different sections. Since the questionnaire had 21 items, with five Likert-scale options, the range of scores was 21-105. Table 8 shows the levels of learner autonomy obtained from the Learner Autonomy Questionnaire (Zhang & Lee, 2004).

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Table 6. Descriptive Statistics of the Pre-test

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
control	30	48.00	70.00	60.1000	7.76531	-.247	.427	-1.366	.833
experimental	26	47.00	72.00	60.5385	7.92581	-.065	.456	-1.220	.887
Valid N (listwise)	26								

Table 7. Descriptive Statistics of the Post-test

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
control	30	51.00	74.00	63.0000	7.71027	-.158	.427	-1.372	.833
experimental	26	66.00	86.00	77.8462	5.84939	-.686	.456	-.586	.887
Valid N (listwise)	26								

Table 8. Four Levels of Leaner Autonomy Determined Through the Autonomy Questionnaire

Levels of learner autonomy	dependence	Relative dependence	Relative autonomy	autonomy
Range of scores obtained from the questionnaire	21-41	42-62	63-83	84-105

As mean values indicates in Tables 6 and 7, both groups on pre-test were assumed to be relative dependent (M= 60). However, the students on experimental group could significantly foster their learner autonomy from relative dependence to relative autonomy (M=77.84), but the control group was hardly characterized as relative autonomous (M=63.00).

Two independent-sample t-tests were then carried out to compare the mean scores of the participants on the autonomy questionnaire as the pre-test and the post-test. As it is illustrated in Table 9, the p value of 0.835 > 0.05 is not significant in the pre-test, which means that there was no significant difference between the experimental and control groups as far as autonomy was concerned at the beginning of the study.

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Table 9. Independent Samples T-Test for the Pre-test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
pretest	Equal variances assumed	.001	.974	-.209	54	.835	-.43846	2.10070	-4.65011	3.77319
	Equal variances not assumed			-.208	52.547	.836	-.43846	2.10383	-4.65906	3.78213

Regarding the post-test, however, the difference was significant in the post-test with the p value of .000 (Table 10). This indicates that the experimental group felt more autonomous than the control group at the end of the study. Therefore, the null hypothesis was rejected, indicating that activity theory integrated with e-learning has statistically significant effect on Iranian EFL learners' autonomy. In other words, learners' autonomy in the experimental group could be significantly enhanced from relative independence to relative autonomy. That is to say, there was still a degree of independence among the participants.

Table 10. Independent Samples T-Test for the Post-test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
autonomy	Equal variances assumed	4.519	.038	-8.017	54	.000	-14.84615	1.85186	-18.55891	-11.13340
	Equal variances not assumed			-8.176	53.128	.000	-14.84615	1.81593	-18.48823	-11.20407

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5. Discussion

The present study investigated the extent to which EFL learners' autonomy was developed through integrating activity theory into e-learning. The findings of the study revealed that integrating activity theory into e-learning had a significant role in fostering the students' autonomy. Based on the findings of this study, the students in the experimental group became more autonomous at the end of the course compared to control group as a result of the intervention. This means that the very implementation of activity theory and e-learning helped the experimental group foster learner autonomy better than the control group. A number of factors might have contributed to the results obtained in this study.

One possible reason for the development of the learners' autonomy could be related to the collaborative nature of the activity system within the learning environment. It seems that the collaborative nature of the activity system associated with the e-learning platform provided a wide range of opportunities for collaborative and individual actions, which resulted in the exercise of a social and individual autonomy (Blin, 2004). The social dimension of autonomy can grow through interactions with peers and teachers. This is a reflection of the social dimension of autonomy in the way that language learners, as social beings, need a sense of relatedness (Deci, Vallerand, Pelletier, & Ryan, 1991) and social support (Burston, 1996). Benson (2001) noted that autonomy has both social and individual dimensions and these aspects will influence each other in the process of students growing as autonomous learners.

Still another justification for the development of learner autonomy can be attributed to the significant role of the mediating components of the language learning activity system (i.e. rules and conventions, division of labor, community, and tools and artifacts). Blin (2004) claimed that the activity mediators can potentially support or hinder the development of learner autonomy. Blin further states that the organization of the division of labor has a significant impact on the development of learner autonomy. It provides a bridge between collective activity and individual actions. Moreover, tools and artifacts potentially enable and hinder the transformation of the object of the language learning activity into desired and unexpected outcomes. In fact, technological tools, and in particular the e-learning platform can provide students with opportunities to initiate new practices, thus enabling and supporting a social autonomy as well as an individual one.

The main strength of the framework used in this study resides in its flexibility, which itself has its origins in the flexibility of activity theory concept. This flexibility allows for the capture of both the social and individual dimensions of learner autonomy. It brings to light the dialectic relationship between collective activity and individual actions and the impact of this relationship on the development of learner autonomy.

Another important reason could be attributed to the nature of e-learning which facilitates self-access and self-direct learning. Benson (2001) emphasizes that technology has the potential to foster autonomous behavior in learners because it facilitates self-access in learning, and gives learners many valuable opportunities to self-direct their learning and take control over it. Moreover, e-learning allowed the students to learn at their own pace and individualize their own learning which aligned with the encouragement of more student-centered approaches (Stracke, 2007), resulting in learners' independence and autonomy (Neumeier, 2005).

On the other hand, one justification for not-significant autonomy development in the control group could be the nature of the classroom instruction. In Iran, most traditional methods of teaching are teacher-centered, and students may not play a significant role in the classroom. Therefore, the students in the control group could be still considered as relative dependent learners since autonomy development was too limited for them.

The results of the present study can be justified and are in accordance with what the literature review shows regarding the nature and influence of e-learning and activity theory on enhancing learner autonomy. The results of this study are in line with what Blin (2004) found in his activity theoretical study investigating the development of learner autonomy through computer technology. Blin found activity theory as a conceptual and analytical framework can develop learners' autonomy in technology-rich language learning environments.

The same findings were captured in Farivar and Rahimi's (2015) study investigating the impact of computer technology on Iranian EFL learner's autonomy. Similar results were found in Shetzer's and Warschauer's (2000) study. They found that students were autonomous in so far that they took charge of their own learning by working collaboratively. The same results were found in other studies investigating either the effect of activity theory or e-learning on autonomy development of second or foreign language learners (Arikan & Bakla, 2011; Hafner & Miller,

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2011; Jarvis, 2012; Meri, 2012; Milton, 1997; Rahimi & Askari Bigdeli, 2013; Rahimi, Ebrahimi, & Eskandari, 2013; Rahman, 2013).

6. Conclusion

Drawing on activity theory and e-learning, this study explored the effect of integration of AT with e-learning on Iranian EFL learners' autonomy. The results revealed that integrating activity theory into e-learning had a significant role in enhancing the students' learner autonomy. The findings of this study highlight the main contributions of this paper as well as its limitations and suggest directions for further research in the fields of activity theory, e-learning, and learner autonomy. In this study both the individual and social dimensions of learner autonomy were considered. More traditional approaches to learner autonomy and to second language acquisition primarily focus on the individual learner's capacity for independence and/or on the potential of a specific language task or computer program for language learning. By contrast, the above discussion suggests that each single component of a language learning activity system potentially contributes or prevents the development of learner autonomy.

The point that must be mentioned here is that fostering learner autonomy in the classrooms does not mean that teachers relinquish their crucial role in the class. Rather, to provide opportunities for students to learn autonomously, teachers need to change their role from the traditional authority to facilitator or counselor. Teachers' belief seems very important in this regard. Only when teachers believe in students' ability to take charge of their own learning, they can help them. Moreover, if teachers believe that autonomy leads to successful language learning, then their teaching practices should not be distinguished from those which are used to promote autonomy. It can be concluded that learner autonomy is an achievable goal under suitable circumstances. The findings in the present study are specifically valuable in the Iranian context, with its long tradition of teacher-centered classes, as a step toward a more learner-centered educational system with more autonomous learners. Although for Iranian students it is difficult to be totally independent, working with their peers helps them move gradually toward independence. The integration of activity theory into e-learning helps students to become more autonomous, responsible, and involved. In fact, the mediating components of the learning system help the students become more autonomous.

The results of this study can maintain pedagogical implications for EFL teachers and researchers in raising their awareness of the worthwhile effects of implementing activity theory as a social learning framework to foster autonomous learning amongst EFL students, especially when it is integrated with e-learning. The results suggest that an autonomy-supportive environment for learners can be created both inside and outside the classroom using activity theory. While students can cooperate and negotiate in the classroom context, they are provided with several affordances via technology, fostering their individual accountability. In other words, teachers as well as students, can share any useful materials with the class on social e-platforms. Although learners are firstly mediated through artifacts, teachers, and classmates, they gradually move from dependence to autonomy. The results, accordingly, signify the importance of self-access language learning to promote learner autonomy. Further research can be conducted in this area investigating the affordances and the potential contradictions of e-learning environments based on the principles and elements of the activity system that may lead to the development or prevention of learner autonomy at the collective and individual levels. Future studies will then try to find some new tools or strategies to resolve those contradictions and facilitate autonomous learning.

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