Journal of Modern Research in English Language Studies
Print ISSN: 2676-5357
Online ISSN: 2676-5985

Accuracy and Fluency Development of Spoken English through Online Informal Activities: A Microgenetic Analysis

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Article Info

Article Type:
Research Article

Received:
18/06/2022
Accepted:
19/09/2022

ABSTRACT

The upsurge of interest in the employment of instructional technologies in learning English has coincided with a growing interest in Online Informal Learning of English (OILE). Considering the under-explored area of speaking skill, the present study investigated the participants' microgenetic development of speaking ability in terms of accuracy and fluency through informal participation in online activities. Through a stratified purposive sample selection, three adult male and female intermediate-level participants were selected and agreed to engage in some informal online activities such as emailing, watching online videos like TED (Technology, Entertainment, and Design) Talks (i.e., videos from different expert speakers from different areas of inquiry), participating in webinars, reading online news, etc. The participants' microgenetic developments were tested throughout the study in two-week-time intervals. The results of the audio recorded data highlighted the positive impact of the OILE activities on the development of spoken accuracy and fluency. The results also suggested that each individual participant was on their unique developmental trajectory and that accuracy and fluency development was not a linear process, and there was a trade-off between accuracy and fluency.

Keywords: Accuracy, Fluency, Speaking Skill, Online Informal Learning, Microgenetic Approach

Cite this article: Mohammad Hosseinpur, R., & Parsaeian, Z. (2023). Accuracy and Fluency Development of Spoken English through Online Informal Activities: A Microgenetic Analysis. *Journal of Modern Research in English Language Studies, 10*(2), 1-25.

DOI: 10.30479/jmrels.2022.17417.2082

1. Introduction

The increasing need for online teaching and learning mainly evolves from the universal Internet and the accessible technology (Chaney et al., 2010). Online informal learning is a field of study that can provide learners a helping hand to perform openly far away from classroom limitations (Chaney et al., 2010). It can be introduced as a kind of learning that occurs through the Internet.

Online informal learning attracts various students with various academic needs that traditional education classes are incapable of meeting. Online informal learning can create educational opportunities for learners who may have experienced unsurpassable obstacles prior to the progress of online educational programs. The term Online Informal Learning of English (OILE) was first suggested by Toffoli and Socket (2010). They defined online informal learning of English as a domain, which investigates different ways in which EFL learners, participate in English contexts in online informal ways.

The initial study of OILE was carried out by Toffoli and Socket (2010), who have introduced OILE as a participation of non-native speakers of English (NNSs) in various free-time activities in which NNSs are exposed to English. In their study, Toffoli and Socket (2010) explored the most frequent OILE activities among 200 German university students. In accordance with their findings, the most frequent OILE activities are watching films and listening to music.

Later, in 2017, Kusyk conducted a similar study in France, the findings of which clearly demonstrated that learners are more regularly encountered with reception activities (series, films, music) than they are in production activities (chatting, speaking, emails). Toffoli and Socket (2010) conducted research to study learners' vocabulary knowledge in which they proved that a significant difference existed between those regular and irregular users of OILE activities. Sierocka et al. (2019) examined meaning comprehension, the results of which confirmed that the acquisition of meaning occurs through encountering OILE activities. Despite many research studies, conducted in this field, it seems that the position of OILE activities in the development of speaking has been dismissed. It is acknowledged that in the era of technology and communication, speaking is highly demanded by many EFL (English as a foreign language) learners and further investigation of spoken production seems essential. Hence, this study attempts to explore the influence of OILE activities on the development of fluency and accuracy.

2. Literature Review

In a technologically interconnected global world, most of the human activity is interwoven with technology. Consisting of many technologies, the Internet has become the main concern of many people. Reading forums, watching videos, listening to music, emailing, and using the social networks are the activities with which people's lives are occupied. As Jenkins et al. (2009) have asserted, the ways people are informally engaged with the Internet are more sophisticated and varied than they are in the formal contexts of classrooms. The probable outcome of attending the abovementioned activities is a positive trend in the EFL learners' language proficiency development of which the learners might be unaware (Toffoli & Socket, 2010). The online informal learning of English (OILE) is an area of research in which the effects of participations in online informal settings on the development of language learning are sought (Kusyk, 2017). It is believed that OILE activities could have an effect on EFL learners' language proficiency (Toffoli & Socket, 2010).

To date, the researchers in the field of OILE have attempted to prove OILE interactions are of EFL learners' favor. Toffoli and Socket (2010), for instance, have conducted a study determining frequent OILE activities. They have investigated the difference between non-frequent and frequent viewers of OILE activities in their knowledge of vocabulary. The outcomes of their study show that a significant difference appears in the vocabulary knowledge of frequent viewers of OILE compared with that of non-frequent ones. In another study, Tan (2013) studied learners' strategies for search and evaluation in informal contexts, particularly in YouTube. The semi-structured interviews in this study revealed that learners did not have the necessary skills to find the valid information and they were reliant on their teachers. The findings of the study, therefore, suggest the significance of supporting and scaffolding learners' digital literacy. Jarvis (2014) executed a mixed-methods study design to explore possible online habits among a group of language learners. The outcomes of this study revealed that some of the students had their lives dedicated to online activities and most of the others had at least some hours allocated to online activities. Trinder (2017) studied informal online learning in terms of the students' perceived usefulness and the frequency of their use. The findings of the study showed that these activities are used regularly and considered beneficial by the students. Later on, Kusyk (2017) conducted an investigation in service of supporting Toffoli and Socket's hypothesis about the positive effect of OILE on language development. She proved the efficacy of attendance in OILE activities on the improvement of written production. According to the findings of their study, the learners with a higher rate of participation in OILE activities like movie watching and listening to music were more competent in their writing

performance. Jurkovic (2018) explored online informal activities with smart phones mainly because of finding the frequently used informal activities accompanied with students' perceived communicative ability. The results of this study indicated that composing short texts, interaction with peers for study-related purposes and writing emails are the frequently used activities and most students felt competent in their speaking ability, as they had encountered the online informal activities. Although the research in the field of OILE is widespread, and the previous researches have helped demonstrating the efficacy of OILE activities for language proficiency (namely vocabulary knowledge, writing production, reading comprehension, etc.), it seems that speaking ability has been under-explored in preceding studies. Nonetheless, in a globalized world in which communication plays a significant role, the development of speaking skill has become one of EFL learners' main concerns. Hence, the current study aspires to investigate the effects of OILE activities on spoken production, in terms of fluency and accuracy (i.e., performance indicators of L2 spoken production).

2.1. Language Development through OILE

In contexts in which various factors influence the knowledge of language, using the term "language development" is preferred to the word "language learning" (Larsen-Freeman & Cameron, 2008). Therefore, in OILE contexts concerning the diversity of factors affecting L2 knowledge, it is possible to refer to L2 learning as L2 development.

The interactions existing in online informal settings, among a considerable number of factors changing over time, can be explained through Dynamic Systems Theory (DST) (Larsen-Freeman & Cameron 2008). Language learning is considered in this framework as a dynamic system with all the possible states of knowledge and different conditions that might either assist, prevent, or transform development. DST's main concern is the study of interactions and change across time rather than focusing on the effect of one single variable at a time for one language learner (Verspoor et al., 2008).

To locate OILE within DST, Sockett and Toffoli (2012) have stated DST features relevant to informal learning. According to Socket and Toffoli (2012), the primary state of every learner is different from that of another due to their various input and interactions. Furthermore, attractor and repeller conditions are considered key moving factors in a dynamic system. Finally, co-adaptation is central in DST. Therefore, in these events, different parameters in systems change evolve together and consequently unexpected outcomes appear due to these complex interactions.

OILE activities could be examined not only within the framework of Dynamic Systems Theory (as mentioned above) but also within the constructionist standpoint of Usage-based language learning. The concept usage-based (UB) was first introduced by Langacker (1987), considering

language systems as lifetime results of usage events. Two main descriptions of UB approach generated by Tomasello (2001) are "meaning is use" and "structure emerges from use" (p. 69). The first description is related to the fact that language is mostly learnt by meaningful experience. A person's language skill is the outcome of the experiences of usage events throughout the life. The second description refers to the idea that language structure is learnt through repeated use. This idea opposes to the generativist perspective that believes every human being is born with an innate universal grammar faculty by which the most of literature on usage-based language learning focuses on L1 acquisition. According to Kusyk (2017), most UB theorists agree that general cognitive mechanisms can also account for L2 learning processes. Among these general mechanisms are the processes of "entrenchment'' and "categorization''. Entrenchment is a process in which frequent instances of a particular linguistic form facilitates memorization and consequently the automatization of finding information. Categorization, on the other hand, is a process in which the input is classified into different representational groups based on their similarities and dissimilarities, which leads to generalization and the formation of schema (Behrens, 2009, p. 386).

2.2. Investigating Language Development: A Microgenetic Approach

Heinz Werner suggested the notion of microgenetic method in the mid-1920s, and later on, Vygotsky (1978) and Piagetian approved and adopted the idea. The main purpose of this method is to facilitate the natural processes of change whereby frequent instances of a stimulus. This approach is hypothesized to urge cognitive development by which the researcher is able to witness change as it occurs (Kuhn, 1995).

In a study on microgeneic approach, Ahmadian (2013) has explained the advantages of executing this approach. According to Ahmadian (2013), precious data considering the processes of change provoking language development, can be obtained through thick observations with short time intervals. As Ahmadian (2013, p. 63) put it, microgenetic approach, in spite of traditional longitudinal approaches which maintain a "state-oriented" view, adopts a "process-oriented" approach and therefore, yields to a more comprehensive and dynamic view of language development.

Microgenetic approach is a qualitative method for studying learning. As Parnafes and Disessa (2013) put it, microgenetic approach is considered to have the following features:

Theory-focused: One of the main goals in the microgenetic approach is to produce or enhance theories concerning learning. In this approach, what is considered as the knowledge of a concept or theory is supposed to be improved.

Fine-grained: "A microgenetic approach is a moment-by-moment explanatory account of learning in particular contexts" (p. 7). The process of

change and the nature of changing factors can be best measured through the most minor observable time intervals.

Free and open deliberation of applicable aspects of information: since the aim of microgenetic approach is to reveal properties of knowledge, of context, of individual particularities, and of learning processes, any character of a learning situation may be significant.

Although the microgenetic approach does not enjoy a rich literature at present, it is receiving increasing attention and more researchers are turning to take advantage of it. A study based on the microgenetic approach was conducted by Tavakoli et al. (2019) on the impact of background knowledge on the participants' developmental process. The data were collected from four Persian learners of France and English during and after instruction through transcendence tasks, observations, learning journals, grammar-translation items and think-aloud protocols. The data was then analyzed in terms of Vygotsky's microgenetic approach. The findings revealed that various linguistic profiles transformed the subjects thoroughly.

Brock and Taber (2020) focused upon the language learners' change patterns in their activation of force conceptions. These temporal patterns are driven from the adoption of a microgenetic approach, employing four case studies in England. There were interviews with the cases each week for twenty-two weeks. The findings showed that learners activated two force conceptions variably over time and differing contexts.

Scholars curious about making assertions about change should describe the changes according to data gathered at multiple points over a prolonged period employing the microgenetic approach. Microgenetic approach is gaining more interest within the researchers in applied linguistics, particularly language development researchers (e.g., Ahmadian, 2013; Brock & Taber, 2020; Mohammad Hosseinpur, 2015; Mohammad Hosseinpur & Bagheri Nevisi, 2017; Van Compernolle, 2011); however, the field still requires more research within the constraints of this approach as it is capable of expanding applied linguistics' knowledge about language development. Since applying a microgenetic approach in a study occurs over an extended time, a case study with its focus on longitudinal studies is the best choice.

The microgenetic approach is concerned with exploring the same participants through repeated measurements to observe change in the field of research. This approach, however, is in contrast with most other study designs, all of which investigate the occurrence of change and approximately no attention is paid to the process of change. Therefore, this study has been an attempt to examine the process of developmental change using a microgenetic approach to respond the following research questions:

RQ1: Does EFL learners' L2 spoken accuracy develop through their participation in online informal activities?

RQ2: Does EFL learners' L2 spoken fluency develop through their participation in online informal activities?

RQ3: How EFL learners' L2 spoken accuracy and fluency develop through their participation in online informal activities?

3. Method

3.1. Participants

The participants of this study were three Iranian non-specialist English learners. Non-specialist learners of English are signified in this study as the learners who neither participated in academic classes nor studied English as their field of study at university. The sample selection procedure in the current study was a stratified purposive sample selection in which three cases selected as typical and representative of the rest of their population. The mentioned cases were opted from adult intermediate level of CEFR (that is The Common European Framework of Reference), according to the results of a written placement test. The test, Oxford Placement Test (2007), was implemented to make sure of the homogeneity of the participants and to meet the needs of the study. The cases were chosen from three different branches of a well-known language institute in Tehran. Each case was selected from one of the branches of the language institute. For the purpose of the current study, learners' total score in the placement test was above 47, and they were at intermediate level, B2 according to CEFR. Two of the cases were female while the other one was a male and the age range of the cases was 25 to 30.

3.2. Materials and Instruments

This study began with the implementation of a placement test to ensure the cases' proficiency level according to CEFR. The placement test was followed by unstructured interviews held at the beginning of the study to explore the most frequent OILE activities with which the cases were mostly occupied. Then, the main part of the research starts with speaking tests as the pre- and post-tests all of which are discussed below.

3.2.1. Placement Test

The cases selected for the study were said to be at intermediate level of proficiency, but in order for the researcher to be ensured of having homogenized cases, a placement test was implemented. To do so, Oxford Placement Test (2007), as a valid, reliable and credible placement test generated by Oxford University Press was utilized. The test contains 50 multiple-choice questions evaluating vocabulary and grammatical knowledge, 10 comprehension questions assessing the reading skill, followed by a writing task which assesses the students' writing capability. The test was used to place the participants in different and appropriate levels, based

on CEFR, which is an internationally accepted scale to pinpoint the level of English learners. It is noteworthy that the test allocates scores for different levels of proficiency. The score range of 31+ out of 50 for vocabulary and grammar, 8+ of 10 for reading and 8+ out of 10 for writing, and the total of 47+ is considered for the B2, the intermediate level which was the concern of the research.

3.2.2. Unstructured Interview

In accordance with the main purpose of the study, the spoken development of the learners was to be assessed as they attended OILE activities. Since the OILE activities which the cases preferred to participate in were various due to their differing interests, unstructured interviews were held at the beginning of the study to explore the most frequent OILE activities with which the cases were occupied. One-to-one interviews were considered favorable for the study compared to group interview, since the cases' responses were more likely to be accurate and they would feel at ease answering the questions. An unstructured format was followed since the researcher had two primary purposes for conducting them: first, investigating the frequent OILE activities the cases would favor and secondly, building a friendly relationship with the cases so as to facilitate working with one another for three months. After these interviews, the researcher extracted three common OILE activities among the participants to be opted as the treatment of the study. These activities were participating in webinars, watching TED clips online and interacting with friends abroad on social networking websites.

3.2.3. OILE Activities

Online informal learning of English is referred to the activities not concerning learning as the main purpose but relating to such goals as job, education, or entertainment. These activities usually occur through the Internet. In the present research, the cases suggested some of the OILE activities in which they found more interest. These activities included participating in webinars, watching TED clips online, emailing colleagues abroad, reading online news, listening to music and interacting with friends abroad on social networking websites. The researcher then selected three common activities within the interest of the participants. Since the participants of the study were selected from highly similar profiles in terms of language proficiency and their occupations, all the participants were encouraged to attend three job-related webinars weekly by their managers. These webinars were held for the sake of their companies' cooperation and collaboration with other similar companies abroad and hence took place with English as the communication medium. In order for the participants to be active in the webinars, they decided to watch TED related clips to get ideas

to share in the webinars. The participants of our study had to contact friends and colleagues abroad via social networking sites before and after the webinars due to job purposes. Due to the reasons mentioned above, the participants chose participating in webinars, watching TED clips online and interacting with friends abroad on social networking websites as the online informal activities they wanted to attend within three months. The participants had not attended such webinars prior to the study, and they consented to do these activities for the sake of the research and their companies' encouragement.

In order to make sure that the participants were genuinely participating the webinars and watching the Ted clips, the researchers took an emic view and attended the webinars in which they could observe instances of using the ideas in the TED clips by the cases. The cases were also asked to keep a record of the time allocated on each activity and hand it over weekly. The cases were also asked to keep a record of the time allocated on each activity and hand it over weekly. They were also asked not to engage in any other online or language learning activities to increase control on other intervening variables. And finally, it was confirmed that the cases attended three webinars each of which lasted one hour (three hours per week), watch three to five TED clips (three hours per week), and contacted colleagues abroad via social networking sites half an hour before and after each webinar (three hours per week).

3.2.4. Speaking Tests

A number of speaking tests were applied to assess the cases' speaking ability in terms of fluency and accuracy. A speaking test was employed at the beginning of the study as the pre-test to evaluate the primary level of accuracy and fluency of the learners' spoken production. Another speaking test was held at the end of the study after three months, which was considered the post-test. Within the three-month period, there were four more speaking tests starting one month after the pre-test with two weeks of time intervals. These speaking tests were opted from IELTS Part 3 topics (2020). In each speaking test, the chosen topic was given to the cases, they had one minute to think around the topic and write notes, after that, they were supposed to talk about the given topic about five minutes. The researchers didn't involve in their speech and were silent throughout their speaking. Their speeches were audio recorded and then transcribed for assessment.

3.2.5. The Rating Procedure

The measures of accuracy and fluency are performance examiners and hence, can be utilized in written and oral production. In this study, they were drawn upon to analyze L2 spoken production performed by the participants.

Accuracy is an indicator of using the target language based on its rule system correctly (Skehan, 1996), while fluency is an indicator of speaking flawlessly without hesitation or pauses (Ellis & Barkhuizen, 2005). According to Kusyk (2017), there is no clear and measurement that can be used completely unchanged throughout the studies, therefore, L2 development is not an exception. Thus, it is recommended to consider the purposes of the study and opt for the best suited measures. The particular measures employed to analyze the present L2 spoken data were:

Accuracy: errors per T-unit

Fluency: words per speech

A T-unit, according to Hunt (1965), consists of an independent clause with all the attached subordinate clauses. A T-unit is often used for studying L2 development, which is the approach adopted here. As an example, here is thirty seconds of the speech produced by case 2 in test 4:

"My grandfather having a family big. But my father having small family. I think the population is small in the future. Because high price. Past is better, because the family is big and we talk together…". Based on what was said, the number of the words produced by this learner during this 30-second was 36 words (the complete speech was three minutes and the number of words produced was 210 words. "My grandfather having a family big" is considered a T- unit and contains two errors. The next T-unit is "but my father having small family" which includes one error. All the T-units were examined and the sum of errors were divided by the whole number of t-units. The mean number of errors was regarded as having an inverse relation with accuracy. The more the mean number of errors index the less accurate the speaker was considered. In this speech, the mean number of errors for the whole text was 1.8.

Hence, in his study, the researchers decided to measure fluency with counting words per speech and accuracy with errors per T-unit. The raters of the current study were two experienced English teachers of a well-known English institute in Tehran. The raters were MA graduates of teaching English. The researchers asked the two raters to assess the test independently to ensure the inter-rater reliability.

3.3. Procedure

As the first step, to homogenize the cases, a placement test (i.e., Oxford Placement Test, 2007) was administered. The placement test was followed by an unstructured interview by which the researcher was introduced to the frequent OILE activities the cases were in favor.

A speaking test was employed at the beginning of the study as a pre-test to evaluate the primary level of fluency and accuracy in cases' speeches. The students were asked to read the topic and think about it for five minutes, and then they were asked to speak about 3 minutes. The speaking tests were

selected from part 3 IELTS speaking topics (2020). Then, the fluency and accuracy level of the cases were measured. The cases were then asked to participate in OILE activities for one-month period.

After one-month, other tests similar to the pre-test were administered. These tests were conducted in two-week time intervals, all of which were analyzed in terms of fluency and accuracy, until they reached the end of the study (after 3 months).

Finally, the post-test was administered. For the sake of investigating the first two research questions, pre- and post-tests were compared and, to do so, quantitative research design was opted. In response to the third research question, however, a microgenetic approach was adopted by which the change in the performance of the cases was observed over the weeks of participating in OILE.

3.4. Data Analysis

The required data collected from these three cases included audio records of their speech in pre-test, audio records of their speech in the four subsequent tests within three-month period, and finally audio records of their speech in the post-test. The audio records were transcribed by the researcher and were assessed in terms of accuracy and fluency. Two raters were asked to do the evaluation.

The conceptualization and measurement of fluency has always been complex and controversial among the researchers; it is unanimously accepted that fluency indicators are speed, repair, and pause (Kahng, 2014). Reviewing the literature, one can find that fluency can be measured both in PURE or COMPOSITE ways. In the former approach, each of the three factors in fluency is examined in isolation to indicate how fluent the speakers are. In the latter approach, the researcher considers two or all of the three factors to measure fluency. In the present study, the researchers have considered the former approach and measured fluency with the consideration of one factor, which is speed, in the concept of fluency per speech. Therefore, in the assessment of fluency, the raters simply inserted the data in Word Office (2013) and recorded the words count number in each of their speeches. The more words utilized in each speech, the more fluent the speakers were considered. It is worthy to note that fluency assessment can be executed in various ways, but the researchers in this study have selected this approach to make the evaluation procedure as objective as possible.

In the assessment of accuracy, three steps were taken: 1. The raters fist founded T-units of each of the speeches, and 2. The raters tried to find the number of errors in each T-unit. Finally, 3. The mean number of errors in each T-unit was reported.

The data analysis took place in two phases: In the primary phase, the researchers sought to investigate a general overview of the learners' spoken

development considering accuracy and fluency to respond the first two research questions. The analysis in this particular phase can be considered quantitative in that the performances of the cases in pretest were compared to that of themselves in the last post-test. In this phase, the scores of the pretests were compared to those of the posttests to investigate any changes in the performances of the cases. To ensure the reliability of the raters, two raters independently analyzed the data and the inter-rater reliability index of 0.83 was obtained.

In the second phase, however, the analysis was an in-depth phase-by-phase qualitative exploration of the way the two variables changed and progressed both alone and in interaction with one another. Since language development is a dynamic and complex system, in which the development in one variable affects the rest of variables, a microgenetic approach was adopted for the second phase of the analysis. The findings of the later analysis had led to the answers of the third research question, which aimed to explore how the two variables (fluency and accuracy) developed as the cases participated in OILE activities. In this phase, the spoken performances of the cases were examined and compared in short time intervals (every two weeks) to explore all the changes to the accuracy and fluency levels of the cases to find a pattern for the variables' developmental process optimistically.

4. Results and Discussion

4.1. Results

4.1.1. Addressing the First Research Question

The purpose of the first research question was to investigate whether EFL learners' spoken accuracy developed through their participation in OILE activities. In order for the researchers to explore the first research question, the participants were asked to produce speeches, with regard to the given topic, as the pre-test and post-test (Table 1).

Table 1

The Means of Errors per T-Unit in Pre and Post test

The mean number of errors per T-UNIT / Cases	pre-test	post-test
Case 1	1.4	0.9
Case 2	1.6	0.8
Case 3	2	1.2

Considering the data in Table 1, it is noticeable that the means of errors per T-unit in post-test has decreased compared to that of pre-test. Concerning the declining trajectories of the graphs presented in Figure1, it can be inferred that since the mean number of errors has decreased, the learners

have become more accurate as they participated in those online informal activities.

It is worth noting that since the number of participants in the current study was too small (i.e., only three cases), the application of any of the existent statistical tests was improper due to the inability of the current data to meet their assumptions. Hence, the gathered data were presented and analyzed intact. The current study, therefore, calls for more research in this field duplicating the design of this study with other cases to ensure the generalizability of the findings of this study.

Figure 1

The Development of Accuracy Comparing Pre- and Post-Tests

4.1.2. Addressing the Second Research Question

The second research question was mainly seeking for any effect of participation in OILE activities on the development of fluency. The word count of each speech has been presented in Table 2. According to Table 2, the number of words produced per speech has increased in post-tests compared with the pre-tests, which is the indication of the rise in the fluency level of the cases as they have undergone the online informal activities. The rising trajectories demonstrated in Figure 2 also confirm this fact.

Table2

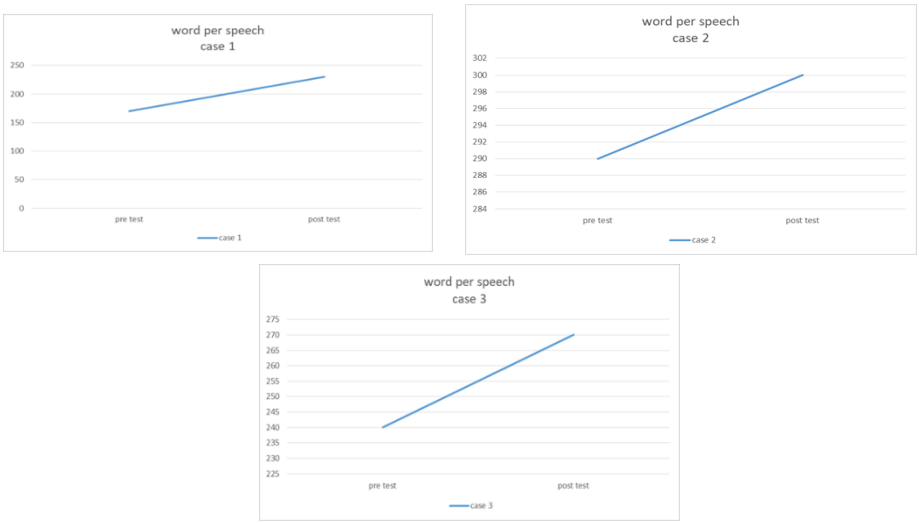
The Number of Words Produced in Speech in Pre and Post Test

The number words produced per speech / Cases	pre-test	post-test
Case 1	145	230
Case 2	210	300
Case 3	240	280

Considering the data in Table 2, it is clear that the number of words produced by each case index has risen from pre- to post-tests.

Figure 2

The Development of Fluency Comparing Pre- and Post-Test



4.1.3. Addressing the Third Research Question

The third research question was mainly posed to explore any possible trends and patterns in the developmental processes of accuracy and fluency. In doing so, the researcher conducted a microgenetic approach to study the change over an almost long period of time in which six speaking tests were provided to assess the developmental trend in the three cases. Table 3 presents the results of those tests for each of the cases.

Table 3

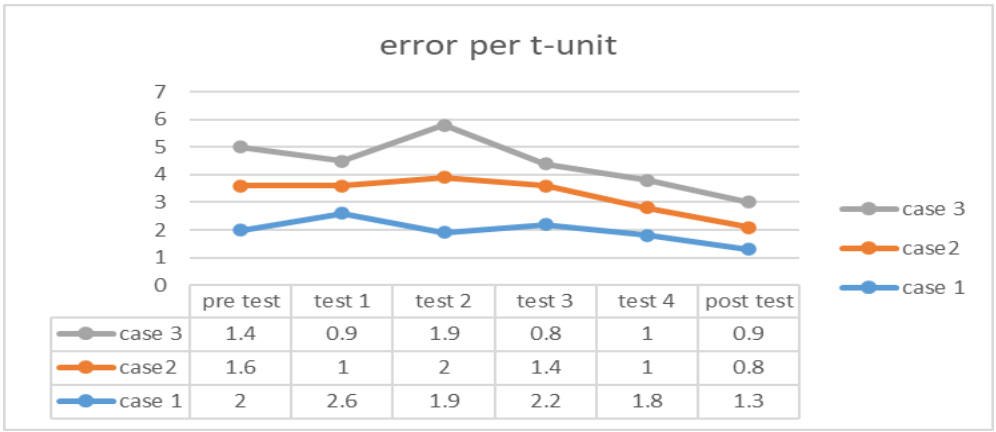
The Cases' Microgenetic Development

		Pretest	Test 1	Test 2	Test 3	Test 4	Post test
Case 1	Accuracy	2	2.6	1.9	2.2	1.8	1.3
	Fluency	145	250	200	240	210	230
Case 2	Accuracy	1.4	1	2	1.4	1	0.8
	Fluency	210	200	250	210	220	300
Case 3	Accuracy	1.4	0.9	1.9	0.8	1	0.9
	Fluency	240	180	240	200	230	280

Table 3 illustrates the performances of the cases throughout the study. As it was mentioned earlier, the study began with a pre-test, followed by four consecutive tests and ended with a post-test, the results of which were analyzed in terms of accuracy and fluency. In order to make it easier to interpret the data, they were demonstrated in graphs in the following figures.

Figure 3

The Cases' Microgenetic Development in terms of Accuracy



	pre test	test 1	test 2	test 3	test 4	post test
case 3	1.4	0.9	1.9	0.8	1	0.9
case2	1.6	1	2	1.4	1	0.8
case 1	2	2.6	1.9	2.2	1.8	1.3

Figure 4

The Cases' Microgenetic Development in terms of Fluency

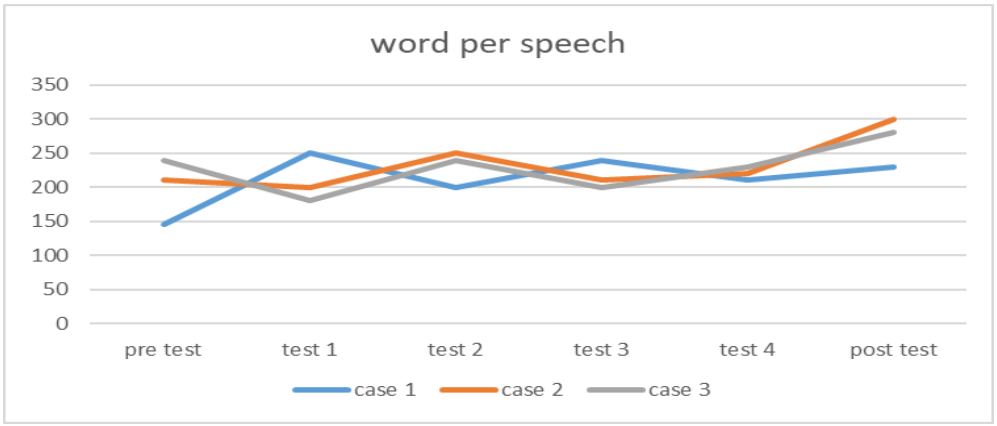


Figure 4 exhibits the developmental trajectories of the cases in terms of fluency and accuracy. A holistic view of the developmental trajectories (Figure 4), indicate overall developments both in fluency (overall rising trends) and in accuracy (overall declining trends). As it was discussed earlier, all the participants had improved from pre- to post-test.

At first glance, it is obvious from the graphs that there are many fluctuations in the developmental trends and hence, accuracy and fluency development is NOT a linear process. Take case1 developmental trajectory

of accuracy as an example, as it is shown in the graph, the index of the mean number of errors per T-Unit has increased from pre-test to test 1 (from 2 to 2.6), which has resulted in a rise in the first part of the graph implying less accuracy. The graph then moves downwards indicating fewer errors and consequently more accurate speech in test 2. But surprisingly, the next part of the graph moves upwards, which shows that the case was less accurate in test 3 with the error index of 2.2. The last part of the graph is a descending line starting at 2.2 and ending at 1.3, which signifies the improvement in accuracy at the end of the study. Looking at the whole graph, it is clear that the other two cases, along with case 1, showed overall improvements, although there were several drawbacks as well as improvements in the process, which is the indication of the nonlinearity of language development.

Comparing the trends in Figure 4, it is noticeable that in most phases of the study, both graphs have moved in line with one another. It means that in several occasions in the study, a rise in error index in one phase is followed by an increase in the number of words produced in that particular phase. Therefore, it is convincing to state that the more the learners have become accurate, the less fluent they have become; and whenever their fluency developed, the accuracy ability suffered. This observation of the development of accuracy and fluency can signify the interaction effect of fluency on accuracy and the fact that they have trade off relationship.

4.2. Discussion

In view of the significance of communication in the era of the Internet and technology within which people are globally inter-connected, and considering the subsequent growth of concerns for developing L2 skills to meet the needs for making effective communication, this study was an attempt to scrutinize whether language learners' engagement in online informal activities could possibly be manipulated to develop the speaking ability (that is, speaking accuracy and fluency) as an important element in communication.

This study primarily proposed three research questions. With regard to the first two research questions, seeking for any development in spoken fluency and accuracy comparing the participants' performances in pre- and post-tests, the results of the study suggested that the cases underwent improvements by the end of the research. This finding compatible with the findings of previous researches (e.g., Kusyk, 2017; Kusyk & Socket, 2012; Obari & Lambacher, 2015; Tan, 2013; Toffoli & Socket, 2010) propose the effectiveness of attendance in online informal learning activities in the development of learners' spoken fluency and accuracy.

The reason for the progress achieved can be described within the framework of usage-based language learning. Owing to the usage-based approach, language processing is understood by mechanisms such as

"categorization" and "entrenchment" (Brackin, 2014, p. 773). Entrenchment is referred to the process of reinforcing memory through frequent encounters with language use (Ellis, 2005). Categorization, on the other hand, is known as a differentiation between an already well-established unit as a norm and a new target structure (Langacker, 1987). As the cases encounter the use of English in online informal contexts, they are exposed to significant examples of language use, and since according to Brackin (2014), language learning is exemplar based, frequent exposures with exemplars gradually transform and develop learners' knowledge.

In accordance with spoken fluency development, Nation and Newton (2008) believe that improving fluency includes using and practicing the students' past knowledge across "the four skills of listening, speaking, reading and writing" (p. 2). Accuracy development, on the other hand, occurs with the entrenchment of the accurate exemplars (Ellis, 2005). Therefore, bearing the usage-based approach and its underlying mechanisms in mind, we can justify the reason for the observed improvements in fluency and accuracy.

This finding is in line with what Kusyk (2017) suggests about the efficacy of attending OILE activities for the enrichment of EFL learners L2 written production; and also, what Toffoli and Socket (2010) proved about the effectiveness of participating in OILE activities in enhancing learners' vocabulary knowledge.

With reference to the third research question, this study examined how fluency and accuracy change both separately and in interaction with one another. To this end, a microgenetic approach was adopted to study the cases' performances, phase by phase throughout the study. The exploration of the cases developmental trend within three months and in terms of six consecutive speaking tests signified the following outcomes:

With respect to the developmental trajectories demonstrated in Figures 3 and 4, the very first impression conveyed is that NO L2 development is a linear, steadily rising path. All learners undergo stages of decline in their developmental paths. The nonlinearity refers to the fact that language is a complex dynamic system and language development, according to many authors (e.g., de Bot et al., 2007; Herdina & Jessner, 2002; Larsen-Freeman, 1997) is a nonlinear, chaotic and an individual process. Within a DST (Dynamic Systems Theory) framework, language and therefore, language development is considered an integrated system with numerous embedded subsystems (Thelen & Smith, 1994), in which it is not possible to separate and analyze each of the affecting factors in isolation (Lowie, 2012). Nonlinearity is best described by contrast to linearity.

In a linear point of view, language development is the summation of all the factors impacting the learner, indicating the possibility of predicting the learner's future developmental state. Nonlinearity, however, proposes that

the subsystems of a language interact with each other, and a change in one, results in changing many other subsystems. Therefore, according to Lowie (2012), in a DST perspective, "language does not develop in predetermined structures or a representative design. Rather, language development emerges from the interaction of its components, each of which has its own timing properties and each of which dynamically interacts with its contexts" (p. 5).

A more detailed analysis of the L2 developmental trajectories imply that each EFL learner is on their own unique developmental path, and while an attempt was made to select the cases with the same profile, they ultimately showed variation in their developmental trend. The reason for this variation has possibly stemmed from the variability of the cases. According to Ellis (1994), even if all the factors causing variation are eliminated, some degrees of variation still exist. In line with the previous research findings, the theories within the DST L2 development literature (Verspoor et al., 2011) and the Usage-Based language learning framework (Tomosselo, 2009), the finding of this study also revealed individual trajectories and variations in L2 development.

Although each learner demonstrated his/her own special trajectory, the researchers realized a pattern by which the findings of the study were supported by what Skehan (1998) claims about learners' prioritization between form (accuracy) and meaning (fluency) while speaking. This study has illustrated the developmental pattern of accuracy and fluency in interaction. Considering the graphs in the previous chapter, although the learners have both become more accurate and fluent by the end of the study, the advancement of accuracy and fluency were at odds with each other. The more accurate they had become, the less fluent they had turned to be.

The findings of this study are in line with what Kusyk and Socket (2012) proposed about the increase in vocabulary knowledge as learners participated in OILE activities. Furthermore, Sierocka et al. (2019) in a study, in the field of OILE, realized meaning comprehension would increase as learners encounter OILE. In a similar study, Kusyk (2017) claimed the efficacy of OILE activities in the development of written production. Most of the literature in this field has given the L2 researchers the reason to believe that OILE activities are beneficial to L2 development, while little has been done to explore the process by which they arrive at these outcomes. Kusyk (2017) tried to conduct an exploratory study on how learners develop in written production as they employ OILE activities, the outcome of which is in line with this research, suggesting that inter- and intra-individual differences exist in written developmental process.

As with the last finding of the study, it can be assumed that although both fluency and accuracy are important indicators of spoken proficiency, we can NOT expect that they both develop together as the learners become proficient speakers. Due to the inability of most learners in multi-tasking and

focusing on both form (accuracy) and meaning (fluency) at the same time, the trends at which they progress are at odds and hence the increase in one, results in the decline of the other.

5. Conclusion and Implications

In the present study, the effectiveness of participation in online informal activities on developing spoken production skill was examined. More specifically, this research investigated the developmental trend undergone by learners as they were interacting with online contexts.

The findings of this research shed light on how EFL learners interact with English in an online informal environment. The so-called participation is not imposed by any institutional curriculum and is the consequence of intrinsic motivation such as a wish for entertainment, communication, and information discovery for personal or job purposes. Therefore, it is not suggested to assume that EFL learners' primary goal for attending OILE is to better their English skill.

The overall findings of the study suggested that learners' speaking ability, particularly fluency and accuracy, can be enriched by interacting with online informal contexts. All the cases in the study showed gains in their spoken fluency and accuracy by the end of the research.

This study also confirmed that each learner is on their own developmental trajectory. Learners' developmental trends are various due to differing categorizations and entrenchments in their lives considering Usage-Based (UB) approach (Brackin, 2014). These various and unique patterns obtained from the cases' developmental trajectories are also resulted from the differing factors affecting each case owing to the Dynamic Systems Theory (DST). In this study, it had been tried to select cases of similar profiles, but unlike the efforts, the cases were on their own unique trajectories.

Scrutinizing the interactions between two factors of speaking, namely fluency and accuracy, was the last but not the least concern of the study. Considering the graphs and unlike the fact that each learner was on his/her own special trajectory, a common pattern was revealed. According to this pattern, it was observed that fluency and accuracy compete against each other. In early weeks of the investigation, the learners apparently struggled focusing on both accuracy and fluency simultaneously, and fluency and accuracy developed at odds with each other. This struggle is, however, overcome by the end of the research.

As for the limitations of the present study, issues regarding time constraints have affected the findings of the study. Because of the underpinning principles of a microgenetic approach, a prolonged exploration of the cases is suggested; this, however, was not met in this study due to the job issues all cases had. They all insisted on a shortened research procedure.

Although the current study mainly focused on out-class informal activities, it can also be taken to the formal contexts of classrooms. With respect to the data generated here, it is proved that attending OILE activities is beneficial to L2 spoken production. L2 teachers can be influential in

introducing OILE activities to the learners and in building up the motivation by which the learners would engage in OILE. Some of the OILE activities could also be brought to the formal contexts as assistants to improve and practice spoken fluency and accuracy. As an example, teachers can bring a TED talk to the class or ask the students to search online and bring a piece of news the other session. Material developers can also specify a section in their textbooks applying one of these activities.

Considering the rest of the data presented, teachers and materials developers' knowledge about the fact that each L2 learner has their own unique trajectory in L2 development help them consider EFL learners' variations in designing lesson plans and textbooks.

The outcomes of the present study can further assist teachers and material developers to realize that in the development of spoken production, accuracy and fluency are not developed simultaneously and a rise in the progress of one variable might be the decline in the other. This realization leads both teachers and material developers to an understanding that too much focus on one of these factors possibly hinders the growth in the other.

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