Enhancing Young Learners' Writing Skills Through the Application of Web 2.0 Tools and Educational Technology in Project-Based Teaching and Learning: An Action Research Study

Irene Manidaki[1] & Makrina Zafiri[1]

[1] Hellenic Open University, Patra, Greece

Correspondence: Makrina Zafiri, Aristotle University of Thessaloniki, Greece. E-mail: m_nzafiri@yahoo.gr

Abstract

This research probed into the application of educational technology and Web 2.0 tools in Project-Based Learning (PBL) to 6th grade Greek Primary School learners who are learning English as a foreign language. More particularly, this research probed into the teaching of writing skills to the aforementioned students through Web 2.0 tools and Project-Based Learning. Action research was conducted in which sixteen learners who attend a Greek State Primary School participated; they were involved in a five-month differentiated instruction program using Google Docs and blogs. Pre-tests and post-tests were distributed to the learners to investigate their level of writing skills according to criteria related to the learners' overall ability to complete the writing tasks and the quality of writing production, namely spelling and punctuation, vocabulary range, accuracy and appropriacy, and to evaluate their improvement respectively. Qualitative research was also conducted: pre- and post-semi-structured interviews investigated their attitudes concerning the effectiveness of PBL in combination with Google Docs and blogs in terms of collaboration and process writing. The researchers/teachers also kept a reflexive journal which concentrated on the use of Web 2.0 tools, the writing processes, and the collaboration which took place amongst and between the learners and their teachers (who were also the researchers). Findings revealed that integrating project-based learning with educational technology and Web 2.0 tools was an effective means of enhancing young learners' writing skills.

Keywords: English as a foreign language, project-based learning, Google Docs, class blog, process writing, collaborative writing, young learners (YLs)

1. Introduction

The advent of technology has inevitably presented a need to expose young learners to educational technology in the foreign language class, placing emphasis on Web 2.0 tools and using digital writing for real life communication (Richardson, 2010). Google Docs and blogs provide a collaborative writing environment for young learners, promoting creativity, critical thinking, decision making, peer feedback, and socialization while at the same time Google Docs and blogs encourage learners to become digital citizens (Thomson, 2008; Zhang, 2009; Suwantarathip & Wichadee, 2014).

By integrating Google Docs and blogs in a project-based learning environment, young learners are offered the chance to foster lifelong learning skills through collaboration, thus becoming able to solve real life problems and to create end products (Van Lam, 2011). This dynamic learning approach challenges learners to construct learning on their own thus taking over the role of the teacher, who now becomes the facilitator. The learners now become the teachers and are also responsible for their own learning (Bell, 2010; Goodman & Stivers, 2010). Collaborative process writing opportunities can be offered to learners in PBL, as they can give and receive feedback, acquire communication skills and ultimately improve their writing skills.

The aim of this research was to explore the extent to which the use of Google Docs and blogs enhanced collaborative writing in a young learners' class, and to investigate whether the integration of Web 2.0 tools into project-based learning can improve young learners' writing skills. A blended learning course was designed, which consisted of ten differentiated instruction lessons based on the learners' needs and preferences and the objectives of the Unified Curriculum for foreign languages, as well as the official 6th grade course book (Efraimidou, Frouzaki, & Reppa, 2009).

1.1 Teaching English as a Foreign Language in a Greek State Primary School

English as a foreign language is a compulsory subject in all grades in Greek State Primary schools. The current Unified Curriculum for all foreign languages (Government Gazette, 2016), which are taught in Greek state primary schools aims to develop learners' oral and written mediation and interaction skills, as well as their learning and communication strategies, thus enhancing their intercultural awareness as well as their communication ability. It is based on specific proficiency levels which were determined by descriptors, which take into consideration the Common European Framework of References for Languages (Council of Europe, 2001), which are also in line with the specifications of the state Certificate of Language Proficiency exam. The Unified Curriculum for all foreign language descriptors consists of detailed statements concerning the goals learners are expected to achieve in each level. They define the actions which learners should take in order to reach a desired educational level. The state Certificate of Language Proficiency descriptors determine the use of the language, which candidates are expected to have by the time they are examined in the language, depending on the proficiency level for which they wish to be certified.

The course book used in the 6th grade class (Efraimidou et al., 2009) is intended for learners who are at a pre-Intermediate level and is consistent with the A2 Level of the European Framework of References for Languages (Council of Europe, 2001). Regarding the teaching of the writing skill, learners are asked to produce a variety of genres (articles, posters, poems, emails, biographies). Model texts and a variety of writing activities are provided, with no guidance (vocabulary tips and strategies), in most cases, and are accompanied by visual material, which is sometimes irrelevant to the task or is unclear or needs an explanation from the teacher.

1.2 Project-Based Learning (PBL)—Benefits of Using the PBL in a Foreign Language Class

Project-based learning is a learner-centered and teacher-facilitated approach to learning (Bell, 2010), which engages learners in the acquisition of knowledge while they are working on a "project". Learners are urged to investigate a topic worth learning more about, thus encouraging them to use authentic language in order to communicate, just as they would, in real-life situations outside the foreign language class (Fried-Booth, 1997). With an emphasis on learner-centeredness, the purpose of project-based learning is to foster lifelong learning and to contextualize learning by solving real life problems (Van Lam, 2011). It also gives learners a chance to develop their confidence, self-esteem, and independence when collaborating upon a task which they themselves have defined (Fried-Booth, 2002)

Two essential components of project-based learning are required according to Blumenfeld et al. (1991) namely a question or problem that learners can be responsible for and which they can investigate or solve by asking questions, exchanging ideas, predicting, designing plans and drawing conclusions, communicating information to others and creating a series of specific products (an article, a report, a video, a poster, etc.) which can be shared. Peers and teachers can give feedback but most importantly the learners themselves can revise and reflect on their own knowledge which has been constructed through the process of their own generation.

The use of technology as a cognitive tool is also a distinctive feature of project-based learning which provides ample access to information, interaction, and collaboration opportunities amongst learners through the social media and the tools for product creation (Krajcik, Blumenfeld, Marx, & Soloway, 1994). In this way learners do not leave the classroom to search for resources and information elsewhere.

1.3 Integrated Technology and Web 2.0 Tools in the Foreign Language Class

Information and Communication Technology (ICT) is considered a useful tool which enhances learning experiences offering learners a great variety of resources and ways to communicate inside and outside the classroom in real and authentic contexts. Studying the foreign language within its cultural context helps learners to feel that they are citizens of a global classroom as they practice worldwide communication and interaction with native speakers (Lee, 2000) and familiarize themselves with cultural changes completing and publishing their final products for a wider audience to read.

Using educational technology in the foreign language class motivates learners and promotes learner-centred and interactive learning as a rapid expansion of technology has led teachers and learners to use the World Wide Web for personal use not only as a means of communication but also as a limitless source of information and as an application which will be used in order to achieve their goal (Yang, 2009).

Furthermore, technology enables teachers to adapt activities and authentic teaching materials according to their learners' needs (Chapelle, 2008) and to facilitate language learning as learners are exposed to the foreign language input and interact at their own pace thus enhancing autonomy and independent learning (Benson, 2001).

By using technology and Web 2.0 applications (Weblogs, wikis etc.) and online word processors such as Google Docs, learners use not only verbal but written communication to interact with their teacher, their peers, and also with other Internet users who may have access to the application. Thus, they become involved in a real-life "written dialogue" and improve their writing and reading skills while at the same time they also become independent from their teacher and class peers as they can work at any time or at any place (Lai & Kritsonis, 2006). Collaborative learning is promoted as learners work in groups in front of their computers assigning authentic roles to themselves (leader, researcher, typist, art director), or by sharing their opinions in order to solve real life problems thus taking control of their own learning (Kundu & Bain, 2006).

1.4 Web 2.0 Tools and Writing Instruction in Project-Based Learning

1.4.1 Collaborative Writing

Even though writing is generally considered an individual activity, in project-based learning environments learners are engaged in pair or group work writing tasks which require the production of a shared final product where group members engage in substantive interaction and share decisions and responsibilities for the document (Allen et al., 1978). Learners enhance their social skills as they work together to achieve a common goal, they improve autonomy and commitment to self-learning, thus enhancing their ability to carry out individual and shared activities (Garrison & Vaughan, 2011) while at the same time they develop their critical skills as they analyze texts and ideas producing their own products (Speck, 2002).

Collaborative writing can be facilitated with technology and Web 2.0 tools offering learners time and place flexibility as well as options to review their texts or view the corrections of their peers. Tools such as wikis, blogs and online processors, Google Docs, for example, allow for various Web-based collaborative tasks developing learners' distinct processes (Kessler, Bikowski, & Boggs, 2012) thus increasing their individual autonomy and stimulation to write (Kessler & Bikowski, 2010).

1.4.2 Google Docs, Blogs and Their Exploitation in the Writing Process

Google Docs, an online version of the word processor, is part of a free, web-based software office suite within Google Drive service which enables learners to create and edit documents, spreadsheets and presentations, to create surveys and display them on blogs and websites (Franco, 2010). Google Docs is a powerful tool which facilitates collaborative writing in English as a foreign language (Suwantarathip & Wichadee, 2014), thus improving learners' writing skills through the recursive process of drafting and editing.

In a project-based learning environment, Google Docs allow learners to collaborate outside the class time instead of finding a suitable time for all group members to meet in order to work on their projects and to allow the teacher to monitor their work using history revision in order to locate each one's improvements and weaknesses, as a different colour is used for each editor and immediate feedback is given thus facilitating the procedure.

Google Docs offer new learning opportunities for both givers and receivers (Corgan, Hammer, Margolies, & Crossley, 2004) and gives learners the chance to search Web engines (Google, etc.), to evaluate online sources and to make decisions concerning the use of information, thus improving critical thinking (Shaughnessy, Viner, & Kennedy, 2018).

A weblog (or blog) is a free online journal where people can publish their reflections and experiences, exchange information without place and time constraints, and improve their knowledge, thus meeting their needs and interests (Godwin-Jones, 2008). All three types of blogs (teacher, learner, class) (Campbell, 2003) can be used in project-based learning as learning communities encouraging learners to explore websites following links, exchanging ideas, and sharing opinions. Blogs encourage learners to study individually, work collaboratively, and also interact by using comments on peers' and teacher's posts, thus acquiring new literacy skills as well as high order thinking skills and eventually become autonomous learners (Nickolson & Galguera, 2013). Blog entries allow commenting on them, thus giving learners the chance to exchange ideas, learn the "netiquette" (the framework of customs and rules) that govern how Internet users behave (Strawbridge, 2006), and create a self-paced writing environment, and a pleasant learning atmosphere amongst learners (Vurdien, 2013).

Young learners develop their social interaction skills and learn to work at their own pace with their peers and their teacher in and out of the English, as a foreign language, class synchronously and asynchronously in their own stress-free environment which may be their home. The teacher is allowed to monitor their work in order to locate each student's improvements and weaknesses.

1.4.3 The Aims of the Research and the Research Questions

Taking into account the Web 2.0 tools' characteristics, namely Google Docs and blogs, the proposed five months

of differentiated instruction aimed to investigate the effectiveness of the integration of Web 2.0 tools into project-based learning in connection with the young learners' writing skills. The extent to which the use of Google Docs and blogs enhance collaborative writing in a young learners' class will also be investigated.

More specifically, the following research questions were posed:

1) Can Google Docs contribute to the development of collaborative writing in a young learners' English as a foreign language class?

2) Can blogs contribute to the development of collaborative writing in a young learners' English as a foreign language class?

3) How do Google Docs improve process writing skills in young learners?

4) How do blogs improve process writing skills in young learners?

2. Method

2.1 The Research Method: Action Research

For the needs of this research, action research was conducted in a State Primary School in Greece over a period of five months from October 2019 until February 2020. The researchers identified the problem; namely that the course book does not meet the learners' needs, concerning their writing skills in the foreign language, and developed a plan to improve it, acted on the plan, collected and analyzed data to assess its effectiveness on the specific teaching context and, lastly, reflected on the process which helped them to make decisions for further planning (Kemmis & McTaggart, 1988).

To triangulate, qualitative research was conducted with the participants using pre-semi-structured interviews, which explored their preferences and perceptions of the writing process and also their awareness of Information Communications Technology (ICT) integration in a project-based learning environment. Post-semi-structured interviews were conducted to investigate the learners' attitudes concerning the effectiveness of project work in combination with Google Docs and blogs in terms of collaboration and process writing. All interviews were conducted face to face, in one of the school's classrooms which was vacant and the interviewees were asked whether they would like to be interviewed in English or in their mother tongue which, in this case, was Greek. All the learners opted for Greek so the researchers attempted to create a friendly atmosphere of trust and confidence (Kothari, 2004) so that all learners would feel comfortable during the interview to express their views (Alshenqeeti, 2014). Open-ended questions were used mostly in order to give the interviewees more opportunities to fully express themselves. Furthermore, a reflexive journal was kept concentrating on the use of Web 2.0 tools, task completion, time management, motivation, writing processes and collaboration.

The writing skills of the participants were assessed through the State Certificate of Language Proficiency (KPG) test, before and after the implementation of the differentiated instruction.

2.2 The Participants

Sixteen 6th grade learners (eight girls and eight boys) of a state primary school in Greece, participated in this research. They were about eleven years old and their proficiency level ranged from A1 (beginners) to A2 (pre-intermediate), according to the Common European Framework of References (Council of Europe, 2001). Two boys and one girl had been diagnosed with dyslexia by the Greek Centre for Educational and Counseling Support, so they faced learning difficulties, especially with their writing skills. Furthermore, all learners also attended different level afternoon classes in private English language institutes, so the specific class of learners can be considered to be a mixed ability class, especially concerning their writing achievement. The researchers have been teaching English to the specific learners for four years so they are fully aware of their strengths, weaknesses, learning styles and preferences.

The specific learners are all highly motivated and enjoy doing group work activities which accommodate their different learning styles and competences, in addition to the course book material. Most of them enjoy learning the foreign language using new technologies and watching videos on YouTube, or listening to music and being involved in real life communication activities, as long as they have the chance to become active and autonomous learners. Twelve learners are of Greek origin so their mother tongue is Greek. The mother of one of the girls comes from Serbia so she speaks both Greek and Serbian at home. The rest of them (three in total) come from Albanian families, so they are also bilingual.

2.3 Data Collecting Tools

2.3.1 Pre- and Post-State Certificate of Language Proficiency Writing Tests

For the needs of this research, pre- and post-intervention tests were administered to the learners, as tests are one of the most powerful tools for collecting data, according to Dornyëi (2007) and Dimitrov and Rumrill (2003). The State Certificate of Language Proficiency tests are based on the principles of the Common European Framework of References for Languages and use the levels of proficiency set by them (Council of Europe, 2001). They provide consistent and stable results every time they are used thus establishing reliability and, therefore, validity of the certification procedure, namely the degree to which a test actually measures what it claims to measure, rendering it a vital tool to be relied upon. The A1/A2 level pre-test, which focused on the writing skill, was distributed to the learners before the application of differentiated instruction, at the beginning of this research, and aimed to determine learners' prior knowledge and level of writing competence. The same test was administered to the learners after the completion of the intervention of the project-based lessons in order to determine whether there was improvement in the learners' writing skills and to what extent.

All the activities of both writing tests were evaluated according to the criteria related to the learners' overall ability to complete the writing tasks and the quality of writing production, namely spelling and punctuation, vocabulary range, accuracy, and appropriacy, text organization, cohesion, and coherence. All the criteria were formulated by the State Certificate of Language Proficiency which proposes the following Likert scale to measure the quality of the writing production (https://rcel2.enl.uoa.gr/kpg/):

1 = Unsatisfactory, 2 = Nearly satisfactory, 3 = Moderately satisfactory, 4 = Satisfactory, 5 = Fully satisfactory.

2.3.2 The Semi-Structured Interviews

In order to self-assess the teaching practice and to make decisions on the planning of the differentiated instruction which was applied, semi-structured interviews before and after the intervention were conducted. Semi-structured interviews offer the interviewers the flexibility to digress and introduce new topics according to their own interests, throughout the interview process (Elliot, 1991), this is why they were chosen for the needs of this research.

The semi-structured interviews were based on six main axes encouraging learners to express their opinions regarding their cognitive level in the foreign language, their needs and difficulties concerning their writing skills and the strategies they activate during the teaching and learning of the writing skill, their attitudes towards project-based learning and the Information Communications Technology (ICT) integration in the English language class and towards Web 2.0 tools and collaboration in a project-based learning environment and, lastly, learners' attitudes towards process writing and Web 2.0 tools. During the process, data were collected through note taking and recordings which were then transcribed aiming at a clear understanding of the learners' views and experiences (Mills, Eurepos, & Wiebe, 2010).

2.3.3 The Reflexive Journal

For the purposes of triangulation (Bechhofer & Paterson, 2000), the teachers-researchers employed a third tool to collect qualitative data thus enhancing the validity and reliability of their findings (Sagor, 2000). This was a journal that contained class action recordings, notes from class observations, ideas, plans, learners' feelings, reactions and thoughts and documentation of the different stages of the research process that allowed the teachers/researchers to monitor the teaching intervention and critically reflect on the research methods (Altrichter, Posch, & Somekh, 1993).

The teachers' journal played a crucial role in collecting authentic data that concerned the learners' motivation and participation, group collaborative work, behaviors amongst learners and their attitudes towards the use of Google Docs, blogs and process writing allowing the researchers to identify problems and difficulties which learners faced during the lessons thus facilitating the procedure according to their needs.

2.3.4 The Differentiated Project-Based Lessons

Ten differentiated project-based writing lessons were designed for the specific learners based on the objectives of the Unified Curriculum for foreign languages, and the 6th grade course book. The aforementioned lessons were taught in the school computer lab. The ten lessons were differentiated according to the content and the learners' proficiency level, needs, and preferences as they were drawn on the pre-semi-structured interviews and the pre-test results. Web 2.0 tools (Google Docs and blogs) and educational technology (e.g., Quizlet and Voki) were integrated into all the stages of the project-based lessons (planning, implementation and evaluation), aiming at enhancing collaborative writing and at improving the learners' process writing skills.

3. Results

3.1 Results of the Pre-Semi-Structured Interviews

Interview data were gathered which were transcribed and analyzed based on axial coding in order to reduce and simplify, as well as to expand, and convert its contents into meaningful units (Cunby et al., 2011).

3.1.1 The First Axis: Opinions Regarding the Learners' Cognitive Level in the Foreign Language

The first axis dealt with the learners' opinions regarding their cognitive level in the foreign language. All learners expressed positive feelings and attitudes on the way the English language was taught in the specific teaching context and half of them named English as their favorite school subject. However, eight learners stated that they would prefer less noise during their classes and three said that they would like to be assigned less vocabulary activities as homework. Collaborative work and projects were amongst learners' preferences when they were asked to express their opinions concerning the way foreign language had been taught so far.

This valuable piece of information, and the fact that more than half of the learners (10 in number) considered reading as one of their strengths, and only three of them were confident about their writing skills, intrigued the researchers and prompted them to become involved in this action research as a means of improving the learning environment and the way writing is taught aiming, ultimately, at enhancing learners' writing skills (DeCuir-Gunby, Marshall, & McCulloch, 1994).

What is more, when learners were asked to discuss their overall weaknesses regarding learning English, eight learners mentioned spelling and grammar rules and two more admitted that finding and using the appropriate vocabulary was a real challenge for them.

3.1.2 The Second Axis: Attitudes Towards Writing as a Productive Skill and the Learners' Needs and Difficulties Regarding the Specific Skill

The second axis included questions which concerned learners' attitudes towards writing, as a productive skill, and their own needs and difficulties regarding the specific skill. A crucial information derived by the pre-semi-structured interview was that not one learner expressed an explicitly negative attitude towards writing as half of the learners (eight out of sixteen) answered that they liked writing tasks. Mixed feelings were reported by four learners who admitted that, even though they faced difficulties, they considered writing tasks "nice". The rest of the learners stated that it was difficult for them to write. One learner mentioned that writing tasks made her feel nervous as she faced difficulties regarding the specific skill. Learners' responses, regarding their difficulties, reveal that vocabulary is their main difficulty as 62% of the learners were worried about using the appropriate words in their writing tasks. Furthermore, brainstorming ideas and expressing them appropriately, constructing accurate sentences, correct spelling and handwriting were additional difficulties which were mentioned. It's worth mentioning that three of the male learners stated that they would perform better in the writing tasks if they were given more time as, in this way, it would be easier for them to remember known vocabulary and to brainstorm ideas. The learners' answers, regarding their writing skills, also reveal that all of them would like to improve their writing skills through topics they were interested in.

Moreover, all learners consider that project-based learning integrated with educational technology could enhance their writing skills due to the fact that they would be working in groups, which was fun for them. As regarding the Web 2.0 tools, the researchers mentioned that learners seemed willing to learn how to use them in the writing process, even though the majority of the learners had never heard of them before the intervention. More specifically, 68% of the participants were not familiar with blogs, and Google Docs, and how the aforementioned were used.

3.1.3 The Third Axis: Strategies Learners Activate in Order to Overcome the Difficulties They Face During the Writing Process

The third axis included questions which endeavored to reveal the strategies learners activate in order to overcome the difficulties they face during the writing process. All learners replied that they would ask the teacher for clarifications in cases where they could not comprehend the instructions or in cases of vocabulary or grammar inadequacy. Only three of them stated their preference for other options (try harder or look something up in their notebooks) before asking for help. Turning to their peers for help also seemed to be one of the strategies for almost half of the learners (43%).

Group work was considered helpful during the writing tasks, for the majority of learners (68%), due to the fact that they shared their ideas and cooperated by making decisions as groups, and there was also a lot of peer support. However, when working in groups, a small number of learners would feel more comfortable asking the

teacher for help. Yong (2010) also proved that during process writing, learners could be aided by their interaction with their peers, sharing knowledge and making decisions collaboratively, even dealing with conflicts.

It is also indicated that when they write, most of the learners (81%) who participated in the present research, preferred that the class be quiet so that they can concentrate, plan and perform to the best of their abilities. Motivational material and an inspiring atmosphere seemed to improve the writing performance of four of the learners. These findings are in line with the research of Lowyck, Elen and Clarebout (2004) who proved that learners' positive attitudes towards the learning environment could facilitate language learning. Lastly, all learners replied that they revised their assignments before handing them in, however only 43% of them were involved in all the stages of process writing (generating ideas, drafting, revising, editing, redrafting and publishing).

3.2 The State Certificate of Language Proficiency Pre- and Post-Test Results

3.2.1 The Pre-Test Results

The pre-test was applied so as to diagnose the learners' strengths and weaknesses regarding their writing skills (Cohen, Manion, & Morrison, 2007), their overall ability to complete the writing tasks and the quality of writing production, namely spelling and punctuation, vocabulary range, accuracy and appropriacy, text organization, cohesion and coherence.

Due to the fact that two of the learners (L2 and L16) scored over 80%, the group's pre-test average score increased slightly. It is also worth mentioning that the learners with the lowest scores seemed to need more time to complete all the activities of the test, since, even though they had produced two or three moderately satisfactory texts, they failed to receive a grade which was higher than 1 out of 5 in one or two of their activities. The communicative purpose of their answers was not achieved as the answers which were provided were either not comprehensible or they didn't provide any answers at all.

3.2.2 The Post-Test Results

The same test was administered as a post-test after the completion of the intervention in order to investigate whether there were any differences regarding the writing performance of the learners. All learners completed all four activities of the post-test. On the whole, the results (see Figure 1) revealed that all learners not only achieved higher scores but also managed to complete all four activities before the time expired.
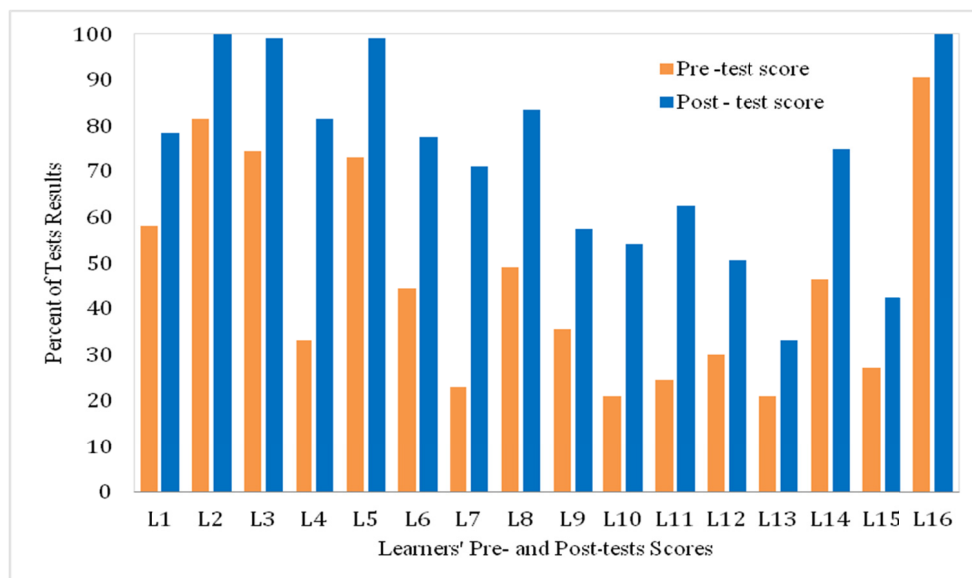

Figure 1. Comparison of the pre- and post-tests results

More specifically, 68.75% of the learners (11 learners in total), who had scored under 50% in the pre-test, increased their achievement by 30.18% in the post-test. Lastly, the two learners who had scored over 80% in the pre-test scored 100% in the post-test.

All in all, it can be concluded that the learners, after being exposed to differentiated project-based lessons

integrated with educational technology and with Web 2.0 tools, significantly improved their writing performance (see Figure 2).
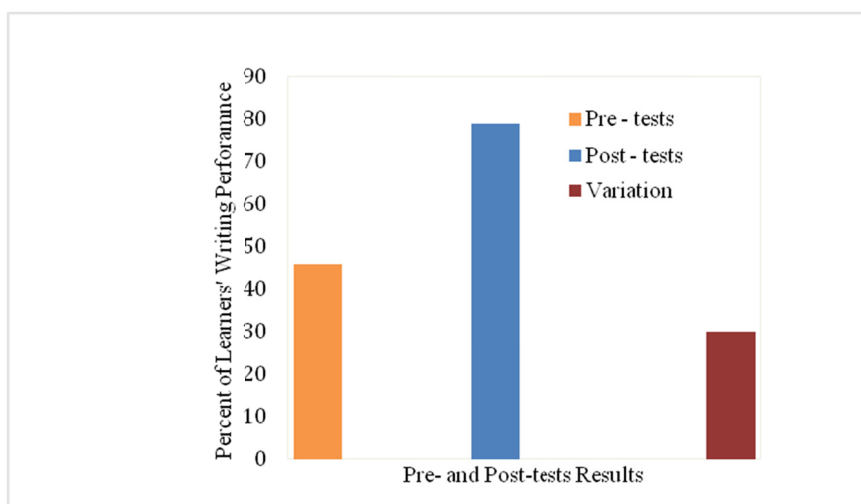

Figure 2. Learners' overall writing performance in pre- and post-KPG tests (%)

3.3 Results of the Post-Semi-Structured Interviews

All in all, the post-semi-structured interview results reveal learners' positive disposition towards the integration of Web 2.0 tools (Google Docs and blogs) and educational technology into project-based learning. All learners claimed that their writing skills were improved due to the collaborative work which they conducted and due to the use of Google Docs and blogs and all of them would like to continue working in a project-based learning environment, which is an encouraging outcome.

3.3.1 The First Axis: Attitudes Towards Project-Based Learning and Information Communications Technology Integration in the Foreign Language Class

Questions which concerned learners' attitudes towards project-based learning and Information Communications Technology integration, in the foreign language class, were included in the first axis. All learners expressed positive feelings in dealing with project-based learning. They seemed to have enjoyed all ten lessons, mostly due to the collaborative work they were engaged in, as thirteen learners (81%) mentioned that this was the main reason why they were enthusiastic about it. They suggested that the implementation stage was the most interesting one, not only due to the chance which they were given to research, explore resources and discover things dealing with topics which catered for their interests and created fun in the foreign language class (Papaefthymiou-Lytra, 2014) but also due to the collaborative work in which they participated. This finding is in line with the findings of other research that revealed that learners consider collaborative learning as a significant project-based learning feature (Praba, Artini, & Ramendra, 2018; Al-Rawahi & Al-Mekhlafi, 2015).

Regarding the integration of Information Communications technology in the foreign language class, all learners reported that it contributed to the development of new skills as they became familiar with Web 2.0 tools through which they not only improved their vocabulary but also enhanced their writing skills. Moreover, as all learners use technology for communicative purposes, they stated that they welcomed Web 2.0 tools since they also had the chance to promote their digital writing to a great extent. They became creative producers of messages using texts, videos and images and increased their ability to access online information and, most importantly, to become critical thinkers and evaluators of resources and new information.

3.3.2 The Second Axis: Learners' Attitudes Towards Web 2.0 Tools and Collaboration in a Project-Based Learning Environment

Learners' attitudes towards Web 2.0 tools and collaboration in a project-based learning environment were probed into using the questions of the second axis. Collaborative work was assessed positively by all learners as they stated that they became organizers of their own work, they assigned roles to the group members, becoming, therefore, autonomous in their learning and they also developed their social interaction skills. In a similar

research conducted by Zhou, Simpson and Domizi (2012), which also dealt with the application of Google Docs, as a collaborative writing tool, the majority of the thirty-five participants rated their experience with Google Docs a positive and considered it as a useful Web 2.0 tool for group work.

However, the vast majority of the participants (81%) described working on Google Docs as a "very nice" experience. As for the reasons why learners enjoyed the lessons, their main reasons were the sharing of their ideas and suggestions, the fact that they discussed their ideas and made decisions as groups, as well as the fact that they become autonomous learners. A few learners reported having mixed feelings about using Google Docs as it was a new Web 2.0 tool, and they also needed time to learn how to use it in class. Similar findings in Jeong (2016) showed learners' positive perceptions concerning the use of Google Docs, as a collaborative writing tool, and as a peer-editing experience.

Regarding the exploitation of blogs during all the stages of project-based lessons, all participants, except one, declared that it was a positive experience which offered them chances to exchange ideas with their peers and made them feel proud of themselves when they were approved. Huang's (2016) research also revealed that using blogs in writing classes was considered entertaining, by the participants, due to its collaborative nature, and the peer feedback which they received. Giving and receiving feedback from their peers, during the evaluation stage, was characterized as a beneficial and effective experience which contributed to the development of high order thinking skills. This allowed learners to actively participate in the teaching/learning process by viewing their final products from various viewpoints and reflecting on them, thus, enhancing their metagognitive skills and their learning performance. In her research with junior high school learners, Daskalogiannaki (2012) argued that, when working with blogs, learners gradually enhanced their writing skills and developed cognitive and metacognitive skills. Vurdien's (2013) research also proved that blogging can improve writing skills, fostering collaboration and encouraging learners to understand the effect of their peers' feedback.

Providing written comments to their peers' blog posts provoked contrasting attitudes, since almost half of the participants expressed their willingness to write comments, and the same number of learners also showed their concern about their peers' reactions to their comments. This resulted in the learners' producing very short positive comments which, however, offered them encouragement and a view of appreciation.

3.3.3 The Third Axis: Learners' Attitudes Towards Process Writing and Web 2.0 Tools

The third axis includes questions which denote the participants' attitudes towards process writing and Web 2.0 tools. Data revealed that all learners were satisfied with their participation in process writing except for one male participant who admitted that he didn't participate in the first two stages of process writing (generating ideas and writing the first draft) as he was generally reluctant to share his ideas due to his low self-esteem.

The rest of the learners (15 in number) stated that the collaborative work which took place during the use of Google Docs helped them, to a great extent, to enrich their vocabulary, which was an encouraging outcome for them, since meaningful communication cannot happen without the use of 'words' (McCarthy, 1990). The aforementioned is in line with Boas (2011), whose research showed that technology, integrated with process writing, helped to improve her learners' writing skills and collaborative work.

The class blog was used in various ways throughout the writing process. The class blog was considered, by all the learners, as an appealing and effective medium which allowed them to improve their style of writing, enriching their vocabulary and, as twelve learners reported, generating new ideas. This was probably due to the fact that blogs provide links, visuals and model texts. Model texts were used productively throughout the writing process (Tardy, 2006) and were considered an essential tool which enhanced the learners' sense of security (Melissourgou & Frantzi, 2015). Half of the learners noticed an improvement in their grammar and syntax which met their personal needs and difficulties. Similar findings were revealed in research conducted by Avgerou and Vlachos (2016) amongst junior high school learners. The vast majority of the learners admitted that blog writing improved their vocabulary, the quality of their ideas, as well as their grammar, and syntax.

Difficulties were reported by half of the learners during the stage of generating ideas and writing the first draft. The first draft was addressed through brainstorming activities, links and videos which were offered on Google Docs and through the class blog. The aforementioned helped some of the learners to generate new ideas and to express their thoughts on a topic and enhance their writing skills. The findings of this research are in line with the findings of Daskalogiannaki (2012), who noted that blog entries and videos helped her learners to trigger their background knowledge and to generate ideas regarding a specific topic. The findings of her research also revealed that thirteen out of the sixteen learners were satisfied with their personal improvement on the texts' structure and content. Not only did they produce longer texts but they also improved their organization and punctuation skills. All participants mentioned that collaboration with their group partners was crucial to

improving their writing skills.

Revising each other's texts and receiving feedback from their peers were the two most critical stages of process writing, according to the majority of the participants of this research, as they reported that through this procedure their writing skills were enhanced to a great extent. This finding is also in line with previous studies (see for example Meletiadou, 2012) which showed learners' appreciation of their peers' feedback. Similarly, Quintero's (2008) research with 17 learners showed that feedback was an essential factor which helped learners to produce longer and more complex texts.

3.4 The Teachers' Journals

Valuable qualitative data were also provided by the teachers' journals, which were kept by the researchers / teachers, and which showed learners' attitudes towards the use of Google Docs, blogs and process writing throughout the project-based lessons. These findings revealed that all learners enjoyed all ten differentiated lessons, as they were designed according to their proficiency level, preferences and needs. Their eagerness increased, especially during the semi-structured projects, when they were allowed to search for online information, watch videos and use their imagination to create their final products.

They familiarized themselves with the Web 2.0 tools which were used in class quite easily, and after the 5th project-based lesson they asked if they could learn new ways to exploit Web 2.0 tools during the creation and publication of their products, thus, requesting for more learner autonomy. The participants' attitudes towards Google Docs were positive as they not only familiarized themselves with them, but they were also willing to switch them on and use them as soon as they took their seats in front of their computers. They asked for clarifications and explanations, mostly in the first four lessons, thus giving the researchers the chance to monitor and facilitate the procedure. Gradually the students became more independent and were eager to work in groups and make their own decisions.

All groups worked well throughout all stages of the project-based lessons, assigning roles to the members of the group and encouraging each other to practice on all aspects of technology. Especially during the evaluation stage, learners were eager to write comments on the other groups' posts, as it simulated real life communication amongst their peers. Concerning the process writing stage, all participants worked collaboratively, thus acquiring multiple perspectives on the lessons' topics and, in this way, sharing their ideas and knowledge, something which encouraged novice learners to write too. However, two of them were reluctant to participate in writing the first draft as they were not confident enough to share their ideas with their peers. Throughout the process writing stage, learners used their mother tongue, most of the time, in order to communicate with each other and the foreign language to answer to the questions of the teachers. Revising their peers' drafts caused anxiety to the learners during the first three or four lessons, as it was a new experience for them. They needed time to adjust and to realize that this stage was one of the most essential and effective stages for most of them, according to the answers they gave in the post-semi-structured interview questions. Initially, learners focused on vocabulary, spelling and punctuation mistakes; therefore, the researchers provided them with revising criteria in order to instruct them and to facilitate the procedure. They were excited to be engaged in evaluating their final products in the last stage of the project-based lessons showing leniency to their peers' work while at the same time they were eager to notice problematic areas and to make suggestions. Lastly, concerning time management, the participants gradually managed to overcome their difficulty to keep themselves in line with the time requirements for the creation of their final products.

All in all, the findings of the teachers' journals confirmed the fact that the participants, working in a PBL environment and exploiting Google Docs and blogs, improved their process writing skills, as their work now conveyed meaningful messages.

4. Discussion

After analyzing the results of both the pre-test and the post-test, the learners' responses to the semi–structured interviews, and the teachers' journals, certain conclusions can be drawn.

The effectiveness of integrationing Web 2.0 tools in project-based learning concerning the enhancement of young learners' writing skills was confirmed. In relation to the first research question, "can Google Docs contribute to the development of collaborative writing in a young learners' English as a foreign language class and the second research question, "can blogs contribute to the development of collaborative writing in a young learners' English as a foreign language class", the results revealed that the participants felt that they were engaged in enjoyable and authentic activities. They also felt that they had the chance to use Web 2.0 tools in order to research, explore resources, analyze information, and work collaboratively to create their final product,

developing high order thinking skills which helped them reach a higher language proficiency level (Soufi, Saad, & Nicolas, 2015). Not only did they become familiar with Web 2.0 tools, by exploiting them, they also became aware of the effectiveness of new technologies in the foreign language class (Nickolson & Galguera, 2013; Lynch & Campos, 2014). Results revealed that all learners were inspired to work collaboratively with both Google Docs and blogs. Google Docs and blogs increased their responsibility towards the writing task, promoted their individual skills and the sharing of expertise and, all this, allowed them to feel approved by their peers (Harmer, 2007; Lankshear & Knobel, 2007; Chinnery, 2008) and also helped them to enhance their writing skills. Lastly, both Web 2.0 tools provided learners with opportunities to become exposed to online materials (websites, texts, videos, online dictionaries, etc.) beyond their language competence, thus learning the foreign language (Krashen, 1982).

Regarding the third research question, "how do Google Docs improve process writing skills in young learners", the research outcomes revealed that Google Docs are compatible with the process-based writing approach as they can be exploited in the pre-writing/generating ideas stage in order to help learners to activate their prior knowledge and to introduce new vocabulary, thus helping them to generate ideas on the topic they explore. Also, links can be included in Google Docs to enable learners to collect, analyze, and critically evaluate information. The aforementioned will help students, throughout the process of writing, revising and editing their drafts in order to create meaningful texts. The vast majority of the research participants reported that Google Docs improved their process writing skills as, due to the collaborative nature of the specific tool, they managed to develop their writing skills as well as their drafting skills (Suwantarathip & Wichadee, 2014). The learners, who revealed in the pre-semi-structured interview that they did not want to become involved in process writing, later stated that drafting, revising, and redrafting during the intervention stage, was an effective process which enhanced their writing skills.

Lastly, regarding the fourth research question, "how do blogs improve process writing skills in young learners", the findings indicated that the class blog functioned not only as an appealing source of links, visuals, and model texts which allowed them to plan their work, enrich their vocabulary and generate new ideas, but also as a real life context and a specific audience which helped them to make the writing process meaningful (Hyland, 2009) and enabled them to practice the final step of process writing, namely publishing their products, and communicating their ideas with their peers, their teachers, their parents, even the world.

To sum up, project-based learning integrated with Web 2.0 tools (Google Docs and blogs) seems to be an effective way of enhancing young learners' writing skills.

Despite the positive findings that have been revealed from the data analysis of this research, certain limitations must be outlined. Firstly, technological difficulties such as lack of sound and slow Internet connection caused stress and impatience to the learners. The use of the overhead projector during the planning and the evaluation stage was also occasionally problematic, so the learners had to gather around the teachers/researchers' computers to watch the videos or to evaluate the groups' blog posts. This resulted in time issues since some groups faced difficulties in completing their final products within the time limits which they were given.

Moreover, since the present research involved sixteen 6th grade participants with specific needs and preferences who attend specific learning classes, it is considered a small-scale action research, the results of which cannot be generalized to all learners of the Greek state primary schools, who have different learning styles, face different difficulties and have different interests. Further research on a larger number of students, involving learners of all grades, is suggested aiming to investigate to what extent project-based learning integrated with Google Docs and blogs can enhance young learners' writing skills in Greek state schools in order to draw safer conclusions.

Lastly, since both of the Web 2.0 tools, which were integrated into the foreign language class, for the needs of this research, can also be exploited as a form of asynchronous communication amongst learners or between the teachers and the learners, these aspects of the tools should also be researched. In this way, more thorough results concerning the effectiveness of the proposed integration of tools in a young learners' learning context will also be examined and revealed.

This research attempted to investigate the effectiveness of integrating educational technology, and Web 2.0 tools, in project-based learning in connection with young learners' writing skills. The extent to which the use of Google Docs, and blogs, enhance collaborative writing in a young learners' class, were also investigated upon. The analysis of the data confirmed the research hypothesis. Due to the fact that this was a small-scale research further research, concerning a larger sample of participants, should be conducted. This should involve learners attending all grades of primary school in order to draw safer conclusions regarding the extent to which project-based learning, integrated with Google Docs and blogs, can enhance young learners' writing skills in Greek state

primary schools.

References

Al-Rawahi, L. S., & Al-Mekhlafi, A. M. (2015). The effect of online collaborative project-based learning on English as a Foreign Language learners' language performance and attitudes. *Learning and Teaching in Higher Education: Gulf Perspectives*, *12*(2), 1−18. https://doi.org/10.18538/lthe.v12.n2.186

Allen, N., Atkinson, D., Morgan, M., Moore, T., & Snow, C. (1987). What experienced collaborators say about collaborative writing. *Journal of Business and Technical Communication*, *1*(2), 70−90. https://doi.org/10.1177/105065198700100206

Alshenqeeti, H. (2014). Interviewing as a Data Collection Method: A Critical Review. *English Linguistic Research*, *3*(1), 39−45. https://doi.org/10.5430/elr.v3n1p39

Altrichter, H., Posch, P., & Somekh, B. (1993). *Teachers Investigate their Work: An Introduction to the Methods of Action Research*. New York: Routledge.

Bechhofer, F., & Paterson, L. (2000). *Principles of Research design in the Social Sciences*. Psychology Press.

Bell, S. (2010). Project-based learning for the 21st century: Skills for the future. *The Clearing House*, *83*(2), 39−43. https://doi.org/10.1080/00098650903505415

Benson, P. (2001). *Teaching and researching autonomy in language learning*. Harlow, England; New York: Longman.

Blumenfeld, P. C., Soloway, E., Marx, R. W., Krajcik, J. S., Guzdial, M., & Palincsar, A. (1991). Motivating Project-Based Learning: Sustaining the Doing, Supporting the Learning. *Educational Psychologist*, *26*(3−4), 369−398. https://doi.org/10.1080/00461520.1991.9653139

Boas, I. V. (2011). Process writing and the Internet: Blogs and Ning networks in the classroom. In *English Teaching Forum* (Vol. 49, No. 2, pp. 26−33). US Department of State. Bureau of Educational and Cultural Affairs, Office of English Language Programs, SA-5, 2200 C Street NW 4th Floor, Washington, DC 20037.

Chapelle, C. A. (2008). Computer assisted language learning. In B. Spolsky & F. M. Hult (Eds.), *The Handbook of Educational Linguistics* (pp. 585−595). Oxford: Blackwell Publishing Ltd. https://doi.org/10.1002/9780470694138.ch41

Chinnery, G. (2008). ON THE NET You've Got some CALL: Google Assisted Language Learning. *Language Learning and Technology*, *12*(1), 3−11.

Cohen, L., Manion, L., & Morrison, K. (2007). *Research Methods in Education* (5th ed.). New York: Routledge. https://doi.org/10.4324/9780203029053

Corgan, R., Hammer, V., Margolies, M., & Crossley, C. (2004). Methods-making your online course successful. *Business Education Forum*, *58*(3), 51−53.

Council of Europe, (2001). Common European Framework for Languages. *Council of Europe, Democracy, Education and Languages, Language Policy*. Retrieved from http://www.coe.int/t/dg4/linguistic/Cadre1_en.asp

Daskalogiannaki, E. (2012). Developing and assessing EFL students' writing skills via a class-blog. *Research Papers in Language Teaching & Learning*, *3*(1).

DeCuir-Gunby, J. T., Marshall, P. L., & McCulloch, A. W. (2011). Developing and using a codebook for the analysis of interview data: An example from a professional development research project. *Field Methods*, *23*(2), 136−155. https://doi.org/10.1177/1525822X10388468

Dimitrov, D. M., & Rumrill Jr, P. D. (2003). Pretest-posttest designs and measurement of change. *Work*, *20*(2), 159−165.

Dörnyei, Z. (2007*). Research methods in applied linguistics*. Oxford: Oxford University Press.

Efraimidou, H., Frouzaki, F., & Reppa, H. Z. (2009). *English 6th Grade, Pupil's book*. Athens: Ministry of Education and Religious Affairs, Pedagogical Institute.

Elliot, J. (1991). *Action research for educational change*. McGraw-Hill Education (UK).

Franco, C. P. (2010). Teaching Using Google. *The Internet TESL Journal*. Retrieved from http://iteslj.org/Techniques/Franco-Google/

Fried-Booth, D. L. (1997). *Project work* (8th ed.). Oxford: Oxford University Press.

Fried-Booth, D. L. (2002). *Project work* (2nd ed.). New York: Oxford University Press.

Garrison, D. R., & Vaughan, N. D. (2011). *Blended Learning in Higher Education: Framework, Principles, and Guidelines*. San Francisco. CA: John Wiley & Sons.

Godwin-Jones, B. (2008). Emerging technologies: Web-writing 2.0: Enabling, documenting, ad assessing writing online. *Language Learning and Technology*, *12*(2), 7−13.

Goodman, B., & Stivers, J. (2010). Project-based learning. *Educational Psychology*, 1−8. https://doi.org/10.3726/978-1-4539-1279-9

Government Gazette. (2016). FEK 2871, The Unified Curriculum for the foreign languages. *Ministry of Education, Research and Religious Affairs*, *2*, 30321−30388.

Grundy, S. L. (1994). The Curriculum and Teaching. In E. Hatton (Ed.), *Understanding Teaching* (pp. 27−33). Sydney: Harcourt Books.

Harmer, J. (2007). *The practice of English language teaching* (4th ed.). Essex, England: Pearson Education.

Huang, H. (2016). Students and the Teacher's Perceptions on Incorporating the Blog Task and Peer Feedback into EFL Writing Classes through Blogs. *Journal of Advances in English Language Teaching*, *4*(5), 60−67. https://doi.org/10.5539/elt.v9n11p38

Hyland, K. (2009). *Teaching and researching writing* (2nd ed.). London: Pearson.

Jeong, K. O. (2016). A Study on the Integration of Google Docs as a Web-based Collaborative Learning Platform in EFL Writing Instruction. *Indian Journal of Science and Technology*, *9*(39). https://doi.org/10.17485/ijst/2016/v9i39/103239

Kemmis, S., & McTaggart, R. (1988). *The action research planner*. Victoria, Australia: Deakin University Press.

Kessler, G., & Bikowski, D. (2010). Developing collaborative autonomous learning abilities in computer mediated language learning: Attention to meaning among students in wiki space. *Computer Assisted Language Learning*, *23*(1), 41−58. https://doi.org/10.1080/09588220903467335

Kessler, G., Bikowski, D., & Boggs, J. (2012). Collaborative writing among second language learners in academic web-based projects. *Language Learning & Technology*, *16*(1), 91−109. http://llt.msu.edu/issues/february2012/kesslerbikowskiboggs.pdf

Kothari, C. R. (2004). *Research Methodology: Methods and Techniques* (2nd ed.). New Delhi: New Age International Publishers.

Krajcik, J. S., Blumenfeld, P. C., Marx, R. W., & Soloway, E. (1994). A collaborative model for helping middle grade science teachers learn project-based instruction. *The Elementary School Journal*, *94*(5), 483−497. https://doi.org/10.1086/461779

Krashen, S. (1982). *Principles and practice in second language acquisition*. Pergamon Institute of English (New York): Language teaching methodology series.

Kundu, R., & Bain, C. (2006). WebQuests: Utilizing technology in a constructivist manner to facilitate meaningful preservice learning. *Art Education*, *59*(2), 6−11. https://doi.org/10.1080/00043125.2006.11651581

Lai, C. C., & Kritsonis, W. A. (2006). The advantages and disadvantages of computer technology in second language acquisition. *Doctoral Forum: National Journal for Publishing and Mentoring Doctoral Student Research*, *3*(1), 1−6.

Lankshear, C., & Knobel, M. (2007). Researching new literacies: Web 2.0 practices and insider perspectives. *E-Learning and Digital Media*, *4*, 224−240. https://doi.org/10.2304/elea.2007.4.3.224

Lee, K. W. (2000). English teachers' barriers to the use of computer-assisted language learning. *The Internet TESL Journal*, *6*(12), 1−8.

Lowyck, J., Elen, J., & Clarebout, G. (2004). Instructional conceptions: Analysis from an instructional design perspective. *International Journal of Educational Research*, *41*(6), 429−444. https://doi.org/10.1016/j.ijer.2005.08.010

Lynch, A. B., & Campos, J. L. E. (2014). The Use of Technological Tools in the EFL Class. *Revista De Modernas*, *20*, 427−434.

McCarthy, M. (1990). *Vocabulary acquisition*. Oxford: Oxford University Press.

Meletiadou, E. (2012). The impact of training adolescent EFL learners on their perceptions of peer assessment of writing. *Research Papers in Language Teaching and Learning*, *3*(1), 240–251. http://rpltl.eap.gr/images/2012/03-01-240-Meletiadou.pdf

Melissourgou, M., & Frantzi, K. (2015). Testing Writing in EFL Exams: The Learners' Viewpoint as a Valuable Feedback for Improvement. *Procedia: Social and Behavioural Studies*, *199*, 30–37. https://doi.org/10.1016/j.sbspro.2015.07.483

Mills, A. J., Eurepos, G., & Wiebe, E. (Eds). (2010). *Encyclopedia of case study research*. SAGE Publications Ltd. https://doi.org/10.4135/9781412957397

Nicholson, J., & Galguera, T. (2013). Integrating new literacies in higher education: A self-study of the use of Twitter in an education course. *Teacher Education Quarterly*, *40*(3), 7–26.

Papaefthymiou‑Lytra, S. (2014). L2 lifelong learning/use and new media pedagogies. *Research Papers in Language Teaching and Learning*, *5*(1), 16–33. Retrieved from http://rpltl.eap.gr/images/2014/05-01-016-Papaefthymiou-Lytra.pdf

Praba, L. T., Artini, L. P., & Ramendra, D. P. (2018). Project-based learning and writing skill in EFL: Are they related? *SHS Web of Conferences*, *42*, 00059. EDP Sciences. https://doi.org/10.1051/shsconf/20184200059

Quintero, L. M. (2008). Blogging: A way to foster EFL writing. *Colombian Applied Linguistic Journal*, *10*, 7–49. https://doi.org/10.14483/22487085.96

Richardson, W. (2010). *Blogs, wikis, podcasts, and other powerful web tools for classrooms*. Corwin press.

Sagor, R. (2000). *Guiding school improvement with action research*. Ascd.

Shaughnessy, M., Viner, M., & Kennedy, C. K. (2018). Search Engines and Critical Thinking, Evaluation and Investigation. *World Journal of Education Research*, *5*(2), 107–116. https://doi.org/10.22158/wjer.v5n2p107

Soufi, N., Saad, K., & Nicolas, M. O. D. (2015). Blogs as a way to enhance EFL reading classes in a Lebanese tertiary institution. *Teaching English with Technology*, *15*(1), 31–47.

Speck, B. W. (2002). *Facilitating students' collaborative writing*. California: Jossey-Bass.

Strawbridge, M. (2006). *Netiquette: Internet etiquette in the age of the blog*. Software Reference.

Suwantarathip, O., & Wichadee, S. (2014). The effects of collaborative writing activity using Google Docs on students' writing abilities. *The Turkish Online Journal of Educational Technology*, *13*(3). Retrieved from http://www.tojet.net/articles/v13i2/13215.pdf

Tardy, C. (2006). Researching first and second language genre learning: A comparative review and a look ahead. *Journal of Second Language Writing*, *15*, 79–101. https://doi.org/10.1016/j.jslw.2006.04.003

Thomson, J. (2008). Don't be afraid of the web 2.0. *Education Digest*, *74*(4), 19–22.

Van Lam, N. T. (2011). Project-based learning in teaching English as a foreign language. *VNU Journal of Foreign Studies*, *27*(2), 140–146.

Vurdien, R. (2013). Enhancing writing skills through blogging in advanced English as a Foreign Language class in Spain. *Computer Assisted Language Learning*, *26*(2), 126–143. https://doi.org/10.1080/09588221.2011.639784

Yang, S. H. (2009). Using Blogs to Enhance Critical Reflection and Community of Practice. *Educational Technology & Society*, *12*(2), 11–21.

Yong, M. F. (2010). Collaborative writing features. *RELC Journal*, *4*(1), 18–30. https://doi.org/10.1177/0033688210362610

Zhang, D. (2009). The Application of Blog in English Writing. *Journal of Cambridge Studies*, *4*(1), 64–72.

Zhou, W., Simpson, E., & Domizi, D. P. (2012). Google Docs in an out-of-class collaborative writing activity. *International Journal of Teaching and Learning in Higher Education*, *24*(3), 359–375.

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