

# Assessing the Effectiveness of a Technological Model to Improve Written Skills in English in Higher Education

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## ABSTRACT

This paper examines the effectiveness of a blended learning model that was implemented to improve students' written skills via Moodle in the course Foreign Language and its Didactics I (English) at the Pontifical University of Salamanca.

According to the data of quantitative and qualitative analysis of 716 questionnaires and 91 unstructured interviews, the asynchronous tools used to carry out different e-activities promoted collaborative and individual learning as well as interaction and the creation of a learning community made up of all the participants in the teaching-learning process.

It has been verified that the model implemented is appropriate for blended learning modality, since it can eliminate temporal and spatial barriers, and provide solutions for the new educational demands of the knowledge society.

Our study provides important information for future educational proposals that will allow us to decide better the priorities of educational intervention and achieve an effective teaching-learning model of English or any second language in blended learning instruction in higher education.

## Categories and Subject Descriptors

K.3.1 [Computers and Education]: Computer Uses in Education - *collaborative learning, computer-assisted instruction (CAI), computer-managed instruction (CMI), and distance learning.*

## General Terms

Design, Human Factors, Languages

## Keywords

Written skills, adult learning, second language, blended learning, hypermedia modular model, collaborative and autonomous learning

## 1. INTRODUCTION

The aim of this study was to analyse a model implemented in blended learning modality to verify if it was an appropriate model

to improve students' written skills in English, and to know if this model and the blended modality adapt to students' professional and personal duties. Before introducing the model, we will review studies in which Moodle and its tools have been used to create a teaching-learning environment in English.

### 1.1 Literature Review

The experience developed by Savignon & Roithmeier [21] was focused on using forum as a tool to promote cultural exchange and to learn a second language (L2). This exchange took place between students who were learning German in the USA and students learning English in Germany. Students of both countries participated in different discussion topics during several weeks through forums. This study pointed out that there were evidences of collaborative dialogue, and cooperative construction of texts, as well as the use of asynchronous communication strategies to promote the exchange of knowledge and create a community of learning.

The study of Fitze [8] also expressed the positive aspects of using forum to teach a foreign language. In this occasion it combines traditional and online instruction through an e-learning platform. The study concluded that there was a broader range in the vocabulary used, as well as a greater interaction and participation of students in written expression.

The study of Farabaugh [6] was conducted at Cornell University in literature classrooms. The Farabaugh study used two versions of the wiki software: QwikiWiki and MediaWiki. The author concluded that this technology was a good tool to carry out reading and writing assignments that encouraged language awareness in the literary domain. The results also emphasized that this asynchronous tool was appropriate to improve writing skills, to extend group work outside the class, to promote collaborative writing, and to help students to create their own knowledge rather than just receiving it from teachers.

The study conducted by Kol & Scholnik [14] also focused on the use of forum in the teaching-learning process of English. Although the purpose of this research was to establish valid criteria to assess the contributions on the part of students, the research focused on the use of forum for academic purposes. It emphasized students' positive perceptions towards the use of this tool to improve written skills.

We also highlight the study of Lund [16] in Norway about the use of wiki as a collaboration tool in teaching English. The results of the study showed that wiki was an appropriate tool to promote

collaborative and cooperative abilities in learning foreign languages.

In the research carried out by Franco [9] the use of wiki was also emphasized. The study was developed in Brazil with students of intermediate level in English. The use of wiki was analysed to promote peer correction in a virtual group environment. The results confirmed once again the positive attitudes of students towards the use of this resource in their progress in learning English.

The study of Mak & Coniam [17] was conducted in Hong Kong with high school students whose level in English was intermediate. According to the results, the use of wiki helped students develop their writing skills and wiki promoted collaborative writing between students with minimal input and support from teachers. Students were able to write authentic texts and to work together.

The study of Kovacic, Bubas & Zlatovic [15] started in November 2006 at the Faculty of Organization and Informatics, University of Zagreb, Croatia, and was developed during the 2006/2007 and 2007/2008 academic year. They wanted to assess the applicability of wiki technology in teaching English for special purposes to engage students in different individual and collaborative online learning activities; to evaluate these activities, and to allow them to choose the most appropriate activities for learning a L2. The use of this tool allowed students to participate more actively in the course, contribute in the development of activities and demonstrate what they had learned. The students concluded that they had improved both their writing skills and vocabulary. The teachers also had different elements to evaluate the students' participation more precisely and objectively.

We also highlight the study carried out by Miyazoe & Anderson [19]. They discussed the positive effects of the simultaneous implementation of three written activities through technological tools such as forum, blog, and wiki in a blended learning environment for teaching and learning English at the University of Tokyo. In the final results, the positive perception of these three tools on the part of students was proven, highlighting wiki as the most favourable one, followed by blog and forum. The study established the usefulness of each one of the online writing tools, and observed a general improvement in students' writing abilities. According to the conclusions of this study a significant step forward has taken place in how we must think about online writing and its effectiveness in language teaching, and learning strategies.

Ferriman [7] develops a quasi-experimental study into the impact of a blended e-learning environment on academic writing assignments in English at Thai International College. An experimental group of students used an on-line bulletin board and face-to-face communication in class to share information for essay topics they were preparing. A same size control group used only F2F for the same task. The experimental and control groups were compared on three variables for each of the 3 essays they wrote: number of references used; word count; essay score. Results indicated that the experimental group had higher means on six of the nine outcomes, though these were not statistically significant, suggesting that the bulletin board may have more than compensated for the larger class size.

Finally, we reviewed the study of Twu [22] that highlighted the learners' positive attitude toward language learning in Wiki environments, and toward interaction developed in wiki in English as L2 classroom. The results identified some effective strategies to

involve students in this activity, and maximize language in learning environment using wiki as a tool of communication to build a learning community.

We could conclude that most of the studies developed around learning English as a L2 and the use of technological tools requires that more studies must be performed in this field. Building on the results of previous research, we were very motivated to conduct this study, analysing a hypermedia modular model, which was designed and implemented through Moodle. We wanted to contribute to the knowledge base in this area and gather more information for the implementation of educational programmes that allow teachers to decide better the priorities for educational intervention. In addition, our objective was to design an efficient model for learning a L2 through blended learning instruction in higher education.

## 1.2 Blended Learning Model

In our study we analyzed a model implemented via the platform Moodle whose technological tools facilitate the learning experiences and written interactions in English between the participants of the teaching-learning process [2]. We focused on the analysis of the interactive (online glossaries) and collaborative resources (wiki and forum) of Moodle to improve written skills in English.

Regarding interactive resources, we used the online glossary. It was used to create a dictionary of grammatical terms. Each student included two terms with their entries and examples. Although this activity was designed to do individually, students shared their definitions to promote collaborative learning. Regarding the rules to develop the glossary, students had to write everything in English, since its purpose was to help them improve their written skills.

Referring to collaborative resources, two asynchronous tools were used: wikis and forums. In our model there were two assessment forums; one was about methodology and the other one about English culture. In the first forum, students could share their ideas for teaching English in primary education, attaching different documents in which they included good practices. The second forum was used as a complement of the different wikis of English culture and allowed each group to interact, exchange points of view and make decisions about the content, and format that they wanted to reflect in their final wikis. Regarding the rules of use of these forums, teachers established that students use English in all their interactions and in the document uploaded, since the forums were designed to improve students' written skills.

The second collaborative resource used in the model was the wiki. It was used to carry out a group activity about different topics of English culture. Small groups of students developed each wiki and when they finished the activity, they shared it with their classmates. As mentioned before, each wiki was complemented with a forum to establish a more fluent interaction and decide the points they wanted to include and their roles in the process. All contents developed through this resource were written in English. Therefore, this activity had the purpose of learning different cultural contents as well as improving written skills.

Teachers evaluated all the activities developed through interactive and collaborative resources as part of students' final grade.

## 2. METHOD

We have used a mixed research method: quantitative and qualitative. According to Padgett's classification [20] our research is an example of the second form. First, we used a quantitative

instrument, a questionnaire, followed by an unstructured interview, a qualitative instrument, to go deeply into the quantitative results obtained in order to meet our objectives.

The quantitative study of our research is an ex-post-facto design [13]. We studied natural groups already formed and consisting of students enrolled in the course of English. Our research addresses a descriptive study, a survey method, using techniques of descriptive and inferential analysis for the different strata sample of the study [1]. We have followed three phases [3]. First, a theoretical and conceptual phase: the objectives and/or problems and research hypotheses are set. Second, a methodological phase: selection of the sample and the variables of the study and preparation of the pilot questionnaire and its definitive formulation. Finally, statistical and conceptual phase: coding and data analysis to obtain the results from which generalizations can be made, and conclusions drawn.

The qualitative approach of our research is based on the Grounded Theory. The theory emerges and develops inductively from the research data, not deductively from theoretical frameworks. The process of analysis is dynamic and creative, and two fundamental strategies can be distinguished: the theoretical sampling and the method of constant comparison [11]. Researchers encode and reflect on the type of data they are collecting from the beginning. The method is distinguished by four stages: 1) comparing incidents and data that are applicable to each category; 2) integrating these categories and their properties; 3) bounding the theory; and 4) setting out the theory [11].

## 2.1 Population and Sample

The population of our research are the students of the Pontifical University of Salamanca enrolled in the course Foreign Language and its Didactics I (English) in blended learning modality. According to the data provided, there were 451 students in this course.

The quantitative sample is a probability sample since any member of the population has the same probability of being selected, and the results of the study can be generalized to a larger population. The kind of sampling is cluster sampling since all the members of our research form natural groupings. Our sample was composed of a total of 358 students, men, 23.2%, and women, 76.8%, aged between 20 and 58. All the students had finished a previous Degree and were studying for this Degree to enhance their education. Most of students were working: 25.10% had a part-time job and 57% a full-time job. In addition, 86.73% had a job related to education and most of them worked in a Primary or Secondary school.

The quantitative sample,  $n=358$ , was sufficiently representative, with a relative error of 2.5%, to reach conclusions that can be generalised to a larger group. It was a non-probabilistic sample, cumulative and sequential; we have the sample needed to get enough information, reaching the theoretical saturation to meet the objectives of the study. Our sample was made up of a total of 91 students, aged between 20 and 58.

## 2.2 Variables and Instruments

The instrument used in the quantitative method was the questionnaire that was made in three phases. First, the initial draft of the questionnaire included a large number of questions divided into several parts. In the second phase, experts in education, educational research methodology, English, and technology, analysed this draft and did a report, including contributions and suggestions. In the final phase, we analysed the different

contributions of experts, and carried out the changes proposed. We used different kinds of questions: open, closed, multiple choice, and Likert scale-rating questions to avoid possible negative effects such as the halo effect. The internal consistency of the questionnaire was assessed using Cronbach's alpha, having high internal consistency  $\alpha=0.910$ , so its measures were stable and consistent. The experts mentioned above, carried out the external validity. They analysed the content of items, clarity of the questions, adequacy of the terms used, and relevance of the items in relation to the dimensions studied.

The qualitative instrument was an unstructured interview to let people express their opinions freely, without being influenced by researchers [5]. The categories were not established a priori, but interviewees generated them. Internal validity was achieved because the criteria established by Coleman & Unrau [4], and Hernández, Fernández & Baptista [12] were met. Referring to the reliability of the coding, we had the collaboration of 16 experts in this matter. They had a tree of categories and the transcription of different interviews to code them. We compared their encodings with ours to identify the agreements that existed between them, with an agreement of 81%. This level of reliability meant that the encodings were clearly valid. The high level of agreement determined that each category was part of the final tree.

We followed the scheme proposed by Miles & Huberman [18] about the processes of qualitative data analysis. There were three basic tasks: a) data reduction, b) data display, and c) drawing and verifying conclusions. It is a nonlinear design but convergent and recursive, that finishes when saturation of information is reached.

## 2.3 Data Collection and Analysis

Students filled in the questionnaires during the first and the last face-to-face lesson of the course. Once the fieldwork was finished, we ordered the data. We prepared the register coding to process the 716 questionnaires collected in an ad hoc file. After creating the data matrix, we introduced and debugged the data, and did descriptive and inferential analysis using the SPSS statistical software version 19. We carried out a descriptive analysis of the variables expressed in frequencies and percentages and an inferential analysis, calculating t-Test for the significance of the difference between the means of two independent samples (student's t-test), a one-way analysis of variance (ANOVA), and chi-square test to see if there was a relationship between two categorical variables. The quantitative obtained results were depicted through graphics and tables using Microsoft Office Word 2010.

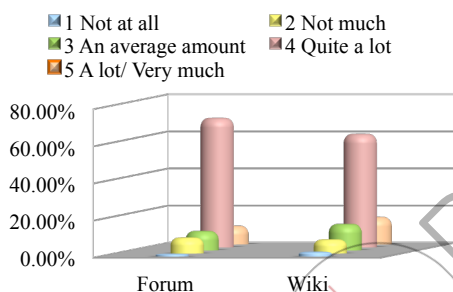
Regarding qualitative method, 91 interviews were conducted. Interviews were videotaped to transcribe them accurately. Researchers did interviews until theoretical saturation occurred. In the data reduction phase we carried out the separation of units according to thematic criteria, considering the units according to the theme tackled. We used the line as a textual unit in order not to distort the meaning of the text. We also identified and classified the elements through categorizing and coding of data units to recognize their thematic components and classify them in a certain content category. In our study the categories have been defined deductively, with a priori categories, and inductively, introducing modification when data were examined, so categories were renamed or eliminated. We used NUD\*IST software version 6 to carry out categorizing and coding. The choice of the program was due to its foundations, which allowed us to carry out the content analysis according to some of the principles of the grounded theory [11]. The third task of the data reduction phase was

synthesis and clustering, leading to a physical grouping of the units belonging to the same category, and synthesizing in a meta-category all the information that is contained in different categories with points in common. Once we finished the data reduction phase, we carried out the second basic task of analysis proposed by Miles & Huberman [21]: data display. In our research the data were arranged in different charts and crosstabs. We used Microsoft Office Word 2010 to illustrate the results. Finally, we reached the phase of drawing and verifying conclusions that led to the presentation of results and their interpretation and the extraction of the conclusions from the study.

### 3. RESULTS

Based on the overall evaluation of the blended course, the majority of students, 96.8%, considered that the e-activities were appropriate to improve their written skills.

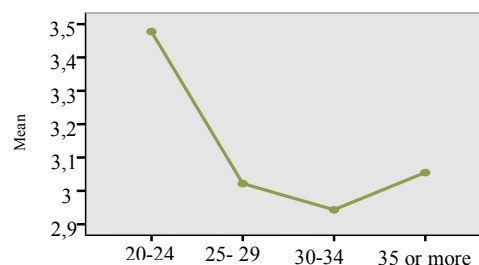
Referring to collaborative resources, 69.7% of students pointed out that the use of wiki and forum had helped them quite a lot. Just 8.5% assessed the use of wiki as not very helpful (“not much”) and 1.4% assessed them as not helpful at all (“not at all”). Similar results were obtained when students evaluated online glossary, since 61.1% assessed it as quite helpful, and only 7.5% and 2.5% assessed it as not very helpful (“not much”) and not helpful at all (“not at all”) (Figure 1). Moreover, the students viewed these activities and technological tools as essential for blended learning instruction. *“The activities were appropriate for this kind of instruction. We need to practice our written skills and to do it like that is perfect.”* (a female student, 42 years old).



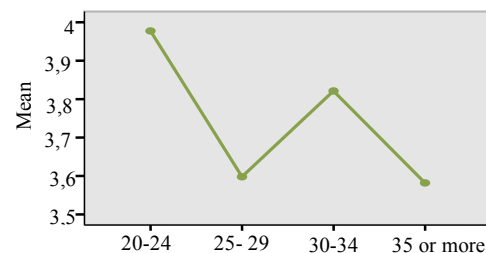
**Figure 1 Use of wiki and forum to improve written skills**

Referring to students' frequency of use of forum, wiki, and online glossary, in the case of forum, 24.3% of the students responded with “average amount” and 33.8% responded with “quite a lot”. The results in wikis were better, since 25.4% of the students responded with “all the time” and 39.1% responded with “quite a lot”. Concerning the use of online questionnaires, 39.1% of the students responded with “quite a lot” and 29.3% responded with “all the time”.

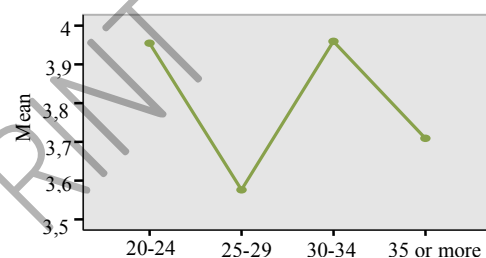
The results of analysis of variance according to the different age groups showed that there were significant differences in the participation in forums between the youngest students and the group of students aged between 30 and 34 ( $p = 0.010$ ), with the youngest ones participating in these activities with more frequency (Figure 2). Conversely, in the participation in wikis there were significant differences between the youngest students and the group of students aged between 25 and 29 ( $p = 0.032$ ), with the youngest students being the most involved (Figure 3). Finally, there were also significant differences in the participation in the online glossary between the students aged 30 and 34, and between aged 25 and 29 ( $p = 0.022$ ), with the oldest ones participating more often (Figure 4).



**Figure 2 ANOVA participation in forums**



**Figure 3 ANOVA participation in wikis**



**Figure 4 ANOVA participation in online glossary**

Our findings also indicated that students consider that the interactive and collaborative asynchronous tools (wiki, forum, and online glossary) promoted collaborative learning, interaction, and the creation of a learning community. The students pointed out how forums had allowed them to interact and decide what they wanted to include in the wikis of English culture. Moreover, the forums permitted them to exchange their ideas and opinions while respecting different points of view and recognizing their classmates' work. They also concluded that the activities developed through wiki, forum, and glossary made it possible to share their works with the rest of the participants of the model, enhancing active participation, and the creation of knowledge. There was a change from a traditional individualism to a collective construction of knowledge which was a dynamic, active process in which learners participated actively. This resulted in an increase in students' motivation. *“The model provides us different tools to work as a team. We have had forums to work together and to communicate with our classmate”* (a female student, 28 years old).

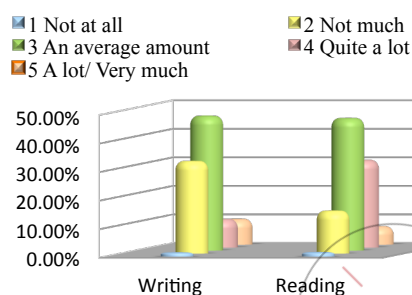
The students emphasize how the tools used to design e-activities to improve written skills eliminated all temporal and spatial barriers of traditional instruction, since the tools were always available. Students could decide when and where they got connected. They highlighted how this facilitated different activities in the group and a constant communication between them. *“We have had access to the platform 24 hours a day. This is essential in a kind of education in which one of its characteristics is flexibility. Temporal and spatial barriers disappear”* (a female student, 45 years old).



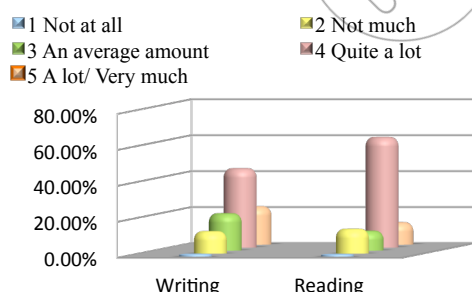
They also considered that the model implemented allowed teachers to design different assessment activities to carry out a continuous evaluation, and assess all activities developed during the course. They thought that this was possible because the model had different asynchronous tools that eliminated, as mentioned above, the temporal and spatial barriers of the traditional education. *"I would like to stress the possibility to carry out continuous assessment. We have had different activities done through these technological tools during the course and teachers have evaluated them"* (a male student, 45 years old).

They concluded that teachers' work was essential, and, in a way, success depended on them. This was directly related to the involvement of teachers in the process, since they had to master technology, structure and plan activities, and anticipate students' difficulties by designing a platform that did not lead to any error that prevented student learning. *"Teachers' work is essential. Their work is very important because they must help and guide students. It is a more independent education, but students need to have their support"* (a male student, 38 years old).

At the beginning of the course students self-assessed their writing skills. In the case of writing, 32.4% of the students responded with "not good" and 47.2% responded with "average". However, these results improved at the end of the academic year, since almost half of the students, 44.1%, responded with "very good". The results in reading skills were better. 46.4% responded with "average" and 30.7% of the students responded with "very good". These results also improved at the end of the academic year, as 61.5% of the students responded with "very good" (Figures 5 and 6).



**Figure 5 Students' self-assess of their level of writing & reading at the beginning of the course**



**Figure 6 Students' self-assess of their level of reading & writing at the end of the course**

According to the results obtained, students improved their reading and writing skills. There were differences in the variables that referred to written skills. To determine whether these differences were significant or not, we calculated the student's t-test for related samples. This test showed statistically significant differences between these variables ( $p=0.00$ , 14.312 writing;  $p=0.00$ , 11.906 reading), therefore the null hypothesis was

rejected. In other words, there is a relation between the improvement of reading and writing and the use of the technological tools provided in the hypermedia modular model such as forum, wiki, and glossary.

## 4. CONCLUSIONS AND DISCUSSION

Our study proves the benefits of the blended learning model as a tool to improve students' written skills in English as a L2. Learners considered that wikis, forums, and online glossary, made it possible to practice reading and writing, plus learn some cultural topics and methodological aspects of teaching English in Primary Education.

The findings of our study emphasized that the use of these asynchronous tools contributed to the creation of a learning community, since they strengthened teamwork, in which all the students participated and interacted to do the activities provided by the teachers [10]. Therefore, wikis, forums and online glossary enabled the development of a collaborative learning process because students worked together in a participative platform. As a community of authors, all the members were able to create, modify or eliminate content. This facilitated the involvement of students in the creation of the contents of the course and promoted multidirectional communication in which students participated actively and abandoned their passive role as simple observers and recipients.

This led to the successful creation of a blended learning model which was tailor-made for the requirements of this kind of instruction and for students' educational needs. With regards to the learning approach in which this model was based on, our empirical study suggested that it supported learner-centred pedagogy, since students were placed at the centre of teaching-learning process and created knowledge that they shared with the rest of classmates. As mentioned previously, students had an active role that led to the shift from students as passive recipients to active participants.

Special emphasis has been placed on the benefits of these asynchronous tools to promote continuous assessment, taking into account the activities that students developed through the platform during the whole academic year. Moreover, the tools were an excellent means to promote peer correction in a virtual environment. The participants of the platform or the members of the different groups helped each other to solve their problems and correct their mistakes in English. Combined, this also promoted students' self-assessment because they could reflect about what they wrote and about their progress in this L2.

Final data show the potential for using forums, wikis, and online glossary for academic purpose beyond all temporal and spatial barriers of traditional education. Thus, this kind of instruction enables students to continue studying despite their personal situation and allows students to reconcile professional and personal obligations with lifelong learning and mobility.

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