The Just-in-time Flipped Classroom: 
A New Way to Learn English in a Teacher Education Setting

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Abstract—This paper discusses the implementation of two pedagogical models: Just-in-time Teaching and Flipped Learning. The study was carried out in an English as a foreign language (EFL) setting. Participants were seventh-semester pre-service language teachers, so the context is a Teacher Education Program. Results have shown that the implementation has favored not only the student’s learning process, but also their own reflection towards learning.

Index Terms: English as a Foreign Language, Just-in-time Teaching, Flipped Learning, Teacher Education

I. INTRODUCTION

This study was born from a bigger project at Universidad Libre, where researchers are inquiring how flipped learning can impact pre-service teacher’s autonomous learning. In this specific study, the researchers sought to commingle flipped learning with just-in-time teaching in an English Advanced II class, which is the last English level in the major of foreign languages. The objective was to see how this combination could help students strengthen their English level as future teachers.

Population are pre-service language teachers that are in seventh semester, evening shift. They are sixteen people, where four are men, the rest are women. All of them work during the day. They study from 6 to 10 pm. The English Advanced II class is taught 6 hours a week (each hour is a 45-minute period). For that reason, it was necessary to think about a strategy that could complement what students take in the F2F encounter. They had to invest more time for them to learn, and the teacher had to think of a strategy that could really help them in this matter.

For that reason, this article will take into consideration the three theoretical constructs of the study, that are: Just-in-time Teaching, Flipped Learning, and Teacher Education. Then, how the pedagogical intervention was carried out, mentioning the technological tools implemented and students’ outcomes. After that the methodology and results will be explained. Finally, conclusions drawn based on the intervention.

II. THEORETICAL FRAMEWORK

Three main constructs were considered for the development of this research project: Just-in-time Teaching, Flipped Learning, and Teacher Education.

A. Just-in-time Teaching

Just-in-time Teaching (JiTT from now on), originally developed by Novak, Patterson, Gavrin, and Christian [1], is an intentional pedagogical strategy meant to promote web-based study out-of-class time and active learning in-class time. In the former, students prepare themselves for class by accessing learning materials and completing assignments. In the latter, professors check students’ assignments ‘just-in-time’ to adapt in-class activities accordingly. In other words, professors guide class activities to solve students’ learning difficulties when preparing the upcoming lesson. Thus, class time is devoted to focus on those areas in which students need more help and it replaces the traditional lecture format.

JiTT is grounded on the idea of a feedback loop meaning that the out-of-class assignments influence the in-class activities. The close relation between out-of and in-class exercises causes a positive feedback loop that fosters student motivation and learning. According to Marrs and Novak [2], three factors, involved in JiTT, aim at helping students to learn:

1) Incorporation of active learning approaches in which students are engaged in their own learning process by doing activities such as problem-solving or reflecting.

2) Construction of new knowledge from prior knowledge. As noted by the National Research Council “All new learning involves transfer based on previous learning, and this fact has important implications for the design of instruction that helps students learn” [3, p. 53]. This learning theory, known as constructivism, postulates that students build new understanding on preceding attitudes, experience and knowledge.

3) Prompt feedback. This is a pivotal component that takes place in every class when professors respond to students’ assignments submitted prior to class.

B. Flipped Learning

Flipped Learning (FL for short) is a pedagogical approach in which content is accessed by students before class and deeper understanding through discussion and problem-solving activities is facilitated by professors during class time. The latter can be represented in fig 1, as follows:
The FL movement appeared in the early-mid 2000 and the term FL was coined by Bergmann and Sams [4], co-founders of the Flipped Learning Network. The definition of the new term and its four pillars, essential for FL to take place, were presented by this network in 2014 [5]. The pillars are: (F.L.I.P) Flexible environment, Learning culture, Intentional content, and Professional educator.

The first pillar implies that professors offer students learning spaces where they decide where and when to learn. Likewise, students’ timelines for learning and their assessment are flexible too. The second pillar involves a learner-centered approach meaning that students are actively engaged in knowledge construction and meaningful learning. Therefore, in-class time is devoted to examine topics in depth and originate fertile learning spaces.

The third pillar concerns professors determining what to teach and the materials students have to deal with by themselves. The use of intentional content aims at maximizing class-time by delivering content before class and doing active and meaningful learning activities in class. The last pillar is related to our role as professors. In this model, professors play the role of facilitators by observing students, providing relevant feedback and assessing students’ work. Professional educators are reflexive, work with colleagues to enhance their instruction, admit positive criticisms and accept controlled chaos in their classes.

After having explored JiTT and FL, the authors of this paper concluded that although they may seem very similar in nature, JiTT complements FL in the sense that the feedback loop of JiTT, which provides information to determine class activities based on students’ needs, is pivotal for the FL breakthrough.

C. Teacher Education

Teacher education (TE) is an ample thematic that is seen as a continuous process. In fact, Ref. [6], considers this topic should be deemed to be seen in two ways: pre-service and in-service teachers. The first one refers to all the training that subjects receive prior to teaching per se. The second one is more connected to the professional development that teachers should continue keeping in order to have more contextualized and updated lessons.

In the pre-service stage it is important to consider that TE cannot focus on the mere activity of transmitting knowledge, which is informational teaching [7], this would be a very narrow vision of teaching as a whole, and that is not framed within the meanings that embrace the concept of teaching how to teach [8]. On the contrary, active educators count on the application of different literacies than on reproducing disciplinary facts [9]. This reality is supported by students viewing their professors as a model to follow. For that reason, the job of an integral educator (knowledgeable and pedagogue) is of vital importance in a teacher education setting.

The disciplinary content is a must within a TE context [10], however, for pre-service teachers, learning how to teach is a way to sharpen that content in a teacher-like way [11]. In this respect, the practicum process has a high relevance for these future teachers, since it is the first scenario when they can prove themselves if they actually want to become teachers, so, the more exposure the have to this activity, the better they can perform. As a matter of fact, the disciplinary content has to be located in a real context where daily situations may happen in a classroom, and pre-service teachers need to know how to respond to them, like to use the thinking-in-action explained by Ref. [12].

In the same vein, Ref. [13] affirms that teachers need to have expertise on their field as well as to recognize how to be teachers in different environments. This process may require effort and time to practice. When students are at the university, they tend to criticize traditional teachers because classes are teacher-centered; however, when they become practitioners or even actual teachers, they keep on making the same as the teachers they were judging as bad ones. Hence, it is necessary to help pre-service teachers in order not to make those mistakes, but to actually impact their community by making changes in education, and having more learner-centered classes.

In the in-service stage, teachers are exhorted to work on their own professional development, which is a process that “results in improvements in teachers’ knowledge and instructional practice, as well as improved student learning outcomes.” [14 p. 3]. In other words, effectiveness depends not only on the activities that help teachers to improve, but on teachers’ performances after starting this process. If they do not apply knowledge gotten from these activities in their practice, the process itself becomes useless.

III. PEDAGOGICAL INTERVENTION

The pedagogical intervention has taken place in a teacher education program in foreign languages. The target population, described in the introduction, needs to comply with certain English levels until reaching B2 based on the Common European Framework [15]. For the present study, the JiTT has been implemented hand in hand with the FL pedagogical approach. This intervention has been addressed to an advanced English class, seventh semester, 16 students, evening shift.

The International Conference on E-Learning in the Workplace 2019, www.icelw.org
For this purpose, the professor prepares material before class, most of the times, it is videos. Students have access to that through the platform Google classroom. They are to check the material and fill out a form to take notes (Cornell notes, WSQ format, their own note-taking style, or an activity making use of any technological tool, such as Edpuzzle, Google forms or others).

Once they have watched the video, the professor has a part for students to write down a reflection about how they felt doing this activity or even if they hold queries in relation to the topic. That information is analyzed by the teacher in order to take it into account for the group learning space (GLS) discussion, which is carried out in the F2F encounters.

Once in class, the professor does a recap of the information provided by the students, so that doubts can be cleared up and if necessary, this process can be done in a personalized way, although questions can be useful for the whole class. After this activity, the GLS tasks are done, for instance, in-class flip [16], collaborative work, writing assignments, grammar points, plays, conversations, etc.

At this stage, a very important process takes place: the feedback by the professor on all the activities that students have been doing. Learners receive this in a whether personalized way or as a whole. In addition, there is always an objective in class, so at the end of it, the professor asks students whether this was achieved by having them give examples. After this process, the cycle starts over. All this requires that students actually do the activities they are supposed to do at home, so that in class, the environment is for engaging and active learning.

In this particular study lessons were flipped every two weeks in a ten-week period during the first semester of 2019. Topics and how the intervention was carried out is referenced in Table 1:

<table>
<thead>
<tr>
<th>Class</th>
<th>Date</th>
<th>Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Feb 4</td>
<td>How to write a paragraph</td>
</tr>
<tr>
<td>2</td>
<td>Feb 18</td>
<td>How to write a descriptive essay</td>
</tr>
<tr>
<td>3</td>
<td>Mar 4</td>
<td>Reported speech</td>
</tr>
<tr>
<td>4</td>
<td>Mar 18</td>
<td>How to write an opinion essay</td>
</tr>
<tr>
<td>5</td>
<td>Apr 1</td>
<td>Conditional sentences</td>
</tr>
<tr>
<td>6</td>
<td>Apr 12</td>
<td>Final interview</td>
</tr>
</tbody>
</table>

Table 1. Topics flipped

During the intervention, three topics about writing were flipped, and two in relation to grammar. It was done this way based on the syllabus of the course that is following the standards of the Common European Framework [15]. All videos are available on the Youtube channel of one of the authors: Clara Onatra.

IV. METHODOLOGY AND RESULTS

This action research study [17] took into consideration as data collection instruments the teacher’s journal (TJ), students’ reflections (SR), students’ results in the first and second terms (Figs 5-6), and a final interview (SI). Data analysis was carried out under the framework of Grounded Theory [18] [19], which is a systematic approach implemented to collect and analyze qualitative data to widen the understanding of social or psychological phenomena. Three stages of data analysis are involved in this approach: open coding, axial coding and selective coding.

Results will be shown according to the core category and subcategories that emerged from data. See fig 2.

Figure 2. Core Category and Subcategories

Flipped Learning and Just-in-Time Teaching to Foster English Language Learning. This core category can be defined as the backbone of the study since based on the implementation of the concepts of FL and JiTT, data generated that the most important roles were the ones from the teacher and prospective teacher. As this study sought to see how FL and JiTT could enhance the English level of the target population, the core category is to be the summary that shows how this goal was carried out. In the subsequent part of the paper, there will be a description of the instruments that made possible the existence of the subcategories and the core one of this study.

A. Educator’s Role:

This subcategory is defined as how the performance of the teacher-researcher was seen from her own perspective of her pupils’. Data display that the educator was especially viewed as a model, and a reflective planner. See Fig. 3.
Finally, in the teacher’s role as a reflective planner, we have the following quote from the journal: “Definitely FL and JITT have helped my class to be more student-centered despite the ‘extra’ time I need to devote for planning and the feedback loop” (TJ 5, Feb 18, 2019). It denotes that implementing FL and JITT increases lesson planning time, however, it is tremendously positive in terms of having a student-centered approach than a teacher-centered. [8] [11]. This paradigm should be applied in all educational settings.

B. Pre-service Teacher’s Role:

This subcategory presents how the future teacher perceives himself as well as how the professor sees her students. Data analysis makes evident that the pre-service teacher could act as a reflective subject and a language learning booster. See Fig. 4.

![Figure 4. Pre-service teachers’ role main codes](image)

The point of view of the pre-service teacher being a reflective subject is supported by the following citation: “I liked this methodology because I could go on my own pace, pausing or going backward to catch what the teacher was explaining” (SI, S2, Apr 12, 2019). This student is referring to the video implementation. Having the possibility of analyzing explanations at the students’ pace is a pivotal aspect in education nowadays (Second pillar of FL: Learning Culture [5]). Hence, the learner was reflecting on how he could learn based on the methodology implemented.

In relation to how the pre-service teacher is pondering what is taking place in the intervention, we can say that he is able to analyze even how the teacher is planning and taking many aspects into account for both the ILS and GLS [8]. “The fact of watching the video and noticing that the teacher has checked my questions before class tells me how carefully she’s planning lessons” (SR, S 13, Class 2, Feb 18, 2019). Also, “When I see that the teacher brings back the questions I wrote on the notes format, I feel important and I don’t feel stress in class” (SR, S 2, Class 4, Mar 18, 2019). These two quotes make evident that students recognize what their teachers do for classes. They analyze this aspect as well as how their feel towards those actions. In here it is pertinent to highlight the importance

Regarding the educator as a model, we have that conception written in the journal by the teacher: “I consider it’s important for students to have an appropriate model, so that they can apply that when they become teachers” (TJ 1, Feb 4, 2019). In here it is possible to see how the educator is concerned in how to be proper example for her students due to the fact that they will become teachers soon. Depending on the teacher’s performance, her learners could also behave in the future. This aspect goes hand in hand with the fourth pillar of FL: Professional Educator [5].

In the same way, it is so worthy seeing that students recognized the teacher as working on a different manner from the traditional model: “For me the way that the teacher has done the class has been innovative since it’s not the traditional way to explain things on the board. It’s been different [hahaha] and I’ve liked it” (SI, S6, Apr 12, 2019). This fact shows that the use of FL and JITT has favored how students behold classes, a pivotal aspect when they turn out to be teachers. This flexibility in class is in agreement with the first pillar of FL: Flexible Environment [5].

The professor was also a model for her students, not only in the GLS, but also in the individual learning space (ILS): “It was great to see the teacher on youtube explaining a topic. Personally, I prefer my teacher than somebody else” (SI, S15, Apr 12, 2019). With this quote it is evident that students feel more comfortable watching their own teacher’s explanation than another person’s. In that way, the teacher is considered as a model, it is the person who explains but using different channels of communication, that students can adapt to their learning style [5] [11].

Also, based on data, the educator is a reflective planner. An example of that is the following excerpt from the journal: “As I was checking my students’ questions, I could reorganize the way to go over conditionals in class” (TJ 5, Apr 1, 2019). This fact demonstrates that it is not only to prepare the explanations via youtube, but also to emphasize on the importance of using JITT [1] [2] to know beforehand students’ queries and work on them in class. In this way the teacher that normally plans a class, notices that a new ingredient can be added to the GLS based on the information students can give regarding the explanation given.

![Figure 3. Educator’ role main codes](image)
of lesson planning, and how students may perceive that performance [11].

The last aspect concerning this subcategory is the pre-service teacher as a language learning booster. This aspect is in regard to how the teacher and students view the learning process. The first instrument to be mentioned in here is the journal: “I think students have improved how to write the structure of an essay. Theses and topic sentences are clearer now” (TJ 4, Mar 18, 2019). Along the experience of researchers, they have noticed how difficult is to structure an essay in the proper way. Based on that conception, it is worth emphasizing that students could have some progress based on the explanation, feedback loop, and activities developed in class [1] [2].

Also, the use of videos was a very useful technique helping students get better in their learning processes. For instance: “I hadn’t understood this topic [conditionals] very well before. This time with the video it was much easier to me” (SR, S 8, Class 5, Apr 1, 2019). In addition, “I think that the video explanation was fruitful because in class they could answer questions more fluently as long as the game [jenga] was being carried out.” (TJ 5, Apr 1, 2019). These two quotes show that appropriate resources can strengthen the process of learning a language (third pillar of FL: Intentional Content [5]), and this aspect is even more important when the subjects will be teaching in a near future [11].

Finally, the last instrument that evidences how students were actually improving the language is the grades gotten during the first and second terms as it can be observed in Fig. 5.

In Fig. 5 it is noticeable an increase in most of the students’ performance, especially subjects 1, 4, 5, 6, 9, 10, 12, 13 and 16 (9 out of 16); whilst others decreased their scores like the cases of students 2, 3, 7, 11, 14 and 15. The latter were 6 out of 16. Just one student (S8) kept the same marks. Having said this, it is considerable that although students did not improve in a very high percentage, the was a slight improvement based on the general average, see Fig 6; aspect that supports the basis of the study, to improve students’ language skills with the implementation of the FL and JITT.

The main conclusion is that the implementation of JITT along with Flipped Learning actually helped pre-service teachers improve their English level by the feedback loop where the teacher could adapt the content for the group learning space activities.

Another important highlight is how prospective teachers could reflect upon what was happening in both, the GLS and ILS. That awareness was also important in the way that they could foster their English level making use of that aspect, and changes by the teacher were necessary based on students’ comments and queries, because they could shape up in a different manner how to continue working during the intervention.

It is so relevant to mention that as this was a teacher education context, the professor is the immediate model for pre-service teachers to follow. For that reason, an educator has a pivotal role, students are following their steps. In this implementation is so necessary that there is a dialogic relationship between the actors (teacher and students) to end up with successful results. FL and JITT facilitate this regard quite much.

Finally, the use of technology creates a change in the normal mood that a class can be done. Students are now more into technology, thus, teachers have to make use of it in order to have more updated and contextualized lessons for students. However, pre-service teachers should be also taught to work without any technology, due to this can be the scenario in future teaching context. This is an excellent exercise too. Due to that, for further research, it is suggested to check the role of resources, to see whether it has a big impact.

REFERENCES


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Manuscript received 15 March 2019. This work was supported by Universidad Libre, Bogotá, Colombia. Authors want to acknowledge English Advanced II students belonging to the the BA in foreign languages, evening shift, same institution.

Published as submitted by the authors.