Creating and Testing an Online Platform for Language Learning in the Mexican Context

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Abstract This chapter presents the results of a case study conducted in 2016-17 at the National School of Higher Studies in Morelia (ENES-M), Michoacán, Mexico, where a pilot programme was implemented at bachelor's level for students learning English as a foreign language. The platform used in this study was composed of small digital units called Learning Support Units (UAPAs) first developed in 2011 to help students practice and develop their linguistic skills at two levels, basic and pre-intermediate. These selected UAPAs were hosted in a portal named *Ambiente Virtual de Idiomas* (AVI) (Language Virtual Environment) administrated by the Coordination of Open University and Distance Education (CUAED). Later, in 2015, it was proposed that a more complex and complete platform be designed and in 2016 the new UAPAs for levels A1, A2, B1 and some of B2 were developed and then piloted for further evaluation. As a result, the experimental groups exposed to a blended teaching reported higher scores in the post test than control groups that were taught with no use of technological elements, hence proving that blended-learning teaching is a good pedagogical option for university students.

Keywords Blended learning. Higher education. Digital educational Technology. Virtual learning environments. Learning management systems.

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1   Introduction

The National Autonomous University of Mexico (UNAM) is characterised as a transformative space dedicated to critical analysis, freedom of thought, creativity and innovation. Language learning and the mastery of information technologies are among the most relevant skills promoting critical thinking, problem solving and collaboration.

At UNAM, language learning has become an essential element of the BA curriculum. In line with the notion of multilingual education established by UNESCO in 1999 (30 C/Res.12), UNAM provides for the possibility of using at least three languages in education, the mother tongue, an indigenous language and a foreign language. In particular, the learning of English, as the dominant language of the global academy, has become a fundamental tool for accessing knowledge, while the use of Information and Communication Technologies (ICT's) is valuable in achieving learning objectives. This is the scenario in which AVI (Language Virtual Environment) emerged as an interactive platform to expand language learning possibilities.

The aim of this study is to illustrate the impact and effectiveness of this platform in combination with the mandatory face-to-face classes for students at tertiary level. We believe that students exposed to a blended learning model will achieve better results in their English language learning.

In the first part of the chapter, we review the educational context that gave rise to the emergence of the AVI language learning platform at ENES, UNAM, its design process and the theoretical framework of blended learning that is utilised in the study. In the second part, methodological and sample considerations for data collection will be explained. Finally, in the last part, we discuss the results and conclusions.

2   Theoretical Framework of AVI
(Language Virtual Environment)

The academic model of all National Schools of Higher Studies (ENES) is innovative. The creation of ENES is part of the 2011-15 Institutional Development Plan proposed by the former university rector, Doctor José Narro Robles. Thus, on 31 March 2011, in an extraordinary session of the University Council, the creation of our National School of Higher Studies Unidad León (ENES León) was unanimously approved to teach innovative bachelor's and postgraduate degrees. Similarly, on 9 December 2011 ENES Morelia was created to offer Mexican society new options for higher education in the centre-western region

of Mexico.[1] ENES campuses were created as a way of expanding the possibilities for more and more people to pursue university studies.

Perhaps, one of the aspects that makes ENES a more up-to-date academic and pedagogical model is the fact that English is no longer seen as a mere elective but is rather integral to the programme. This responds to the status of English as the dominant language of international business and academia and renders students more competitive and better equipped to navigate the globalised world.

At ENES, students cannot qualify with their bachelor's degree if they have not taken English subjects corresponding to their programme.

Features of English instruction at ENES include:
1. upon entering the bachelor's degree, students must take a placement test in order to determine their level of proficiency in English;
2. students take English classes for the duration of their bachelor's degree and are expected to attain B2 level on the CEFR framework;
3. aside from their regular English classes, other workshops directed to specific areas or subareas of language are offered through the Self Access Learning Centre.

Entrance tests and proficiency levels are an inexact science and it is of course inevitable that the level of English among students in any given class varies to some degree. Compounding this issue, in face-to-face classes professors and instructors cover grammar and vocabulary topics in a relatively linear process, leading to some students being unable to follow the class in its entirety or finding a particular aspect of the class difficult. There are also students who, due to internships or fieldwork related to their areas, are absent from face-to-face classes for certain periods during the semester. In this scenario, online instruction combined with face-to-face instruction becomes more of a necessity than an option.

3 Language Virtual Environment Project and UAPA's Development

UNAM has always been a leading educational institution, and in the case of language teaching this is no exception. CUAED (Coordination of Open University and Distance Education) is a UNAM institution in charge of administrating systems and platforms in virtual

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[1] Information taken from the official sites of ENES León: `https://enes.unam.mx/` and ENES Morelia `https://www.enesmorelia.unam.mx`.

learning environments. Thus, in partnership with other faculties of the University, CUAED carries out various projects aimed at the development of virtual environments.

ENES Morelia and ENES León were able to collaborate with CUAED to create different projects aimed at learning languages. The projects are aimed at providing university students with tools and activities that promote language development in autonomous learning environments. In 2017, in collaboration with other institutions at the University, the Virtual Environment of Languages (AVI) project was launched to design and develop materials. UNAM's Language Virtual Environment is a platform that hosts four-skill courses (that is, courses involving the development of Speaking, Listening, Reading, Writing) so that university students can learn English, as well as French and Italian soon. The materials are organised into Learning Support Units (UAPA) that allow students to work on aspects of the language in which they feel they need practice. This means it is a resource that can be used as a language course or as a side component of a language learning process. Learning Support Units are designed for autonomous use by students. Feedback is immediate and effective.

The process of developing a unit involves different players. The project administrator coordinates human and material efforts to achieve institutional objectives, identifies project requirements and monitors implementation. The content expert – a language professor/instructor – is in charge of the pedagogical design of the activities that will be included in the UAPA as well as their development. Each learning activity must include clear objectives for the student and a guide on how to carry out tasks on the platform, as well as the corresponding feedback. It is necessary to point out that the language used within the unit must be friendly and motivating, which encourages the student to continue working on the material because, as we have already mentioned, they are autonomous tasks without teacher supervision. Once the first part of the process of creating a unit is carried out, the pedagogical advisor reviews the instructions, objectives and characteristics of the activities, to verify that the objectives that have been set out correspond to the activities and feedback provided. An editor takes over standardisation of the style within the instructional script and with respect to the educational programme in general, verifying also that the terminology used is adequate. This part of the process is extremely important because it ensures that each unit is coherent and perfectly integrated with the whole.

After this, the visual communicator conceptualises the graphic interface of the website (image, colours and navigation characteristics) based on the navigation diagram. Finally, the systems engineer supports the visual communicator and the pedagogical advisor ensuring that the interactive platform operates seamlessly.

This process is of course not linear but completely iterative. The team works together to ensure that the activities in the unit are perfectly integrated and cohesive. The final product is a digital learning unit with its own content and activities that can either function along with other units independently.

4 The Language Virtual Environment. An Innovative Approach to Learning English in Higher Education

The AVI platform responds to the needs of the Mexican context and UNAM's mission to ensure ever greater societal access to tertiary education. The relationship between the University and greater Mexican society is paramount and the audience of this platform includes not only registered students but the general public who can access the platform free of charge.

Also, as part of the university's goals vis-à-vis its own student body, AVI represents an important innovation. One of the priorities outlined by the rector of the UNAM, Enrique Graue Wiechers, in his 2019-23 institutional development plan is the massively expanded use of new Learning and Knowledge Technologies.[2]

An additional advantage is that it allows a smooth transition between educational modalities, for example distance learning, in order to "move towards an education that uses the educational resources of Learning and Knowledge Technologies as a complement to face-to-face education" (Graue 2019, 46). Along these lines, AVI represents online support for subjects with high failure rates such as compulsory English courses.

It is important to highlight that this platform responds to one of the key objectives of tertiary education: student autonomy.[3] The transition between secondary and higher education can be understood in term of students' dependence on teachers. The platform allows students to work autonomously and at their own pace. Students are able to follow different learning pathways. Students may follow a linear sequence corresponding to mastery levels (from A1 to B2) or, alternatively, they can organise their learning according to themes or indeed use the platform as a resource of activities to support their in-class curriculum.

The UAPA's activities are self-assessed and offer extensive feedback – not just based on right or wrong, like most free online plat-

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2 The platform is managed as an existing resource that must be articulated and consolidated by incorporating it into face-to-face education, which represents the essence of blended learning.

3 Learner's language autonomy is understood as the act of acceptance of one's responsibility of learning and implementing consciously language learning strategies (Little 2002, 22; Macaro 2008, 54).

forms that offer activities with correct or incorrect answers – helping you to improve your skills autonomously and with the expectation of more significant progress, based on more specific performance criteria. Moreover, it covers not only grammar or vocabulary practice but all four skills, both separately and in integration.

5 Designing a Blended-Learning Experience at ENES

After the Learning Support Units were designed and developed, and the platform made available online, it was necessary to test its effectiveness as a pedagogical tool under the rubric of blended learning.

Graham (2006, 3)[4] offers a precise definition: "*Blended learning systems* combine face-to-face instruction with computer-mediated instruction". However, a definition that gives us a greater range when talking about the technological aspect is required. According to Means,

> It is not sufficient to merely put course contents on a web site for students to download for a blended-learning course to be successful, [n]or does the mere inclusion of more resources such as video or online quizzes appear to influence the amount of student learning. (cited in Hew, Cheung 2014, 5)

Thus, the definition proposed by Dziuban, Hartman and Moskal – although established a couple of years earlier – paints a more comprehensive picture:

> [b]lended learning is a pedagogical approach that combines the effectiveness and socialisation opportunities of the classroom with the technologically enhanced active learning possibilities of the online environment, rather than a ratio of delivery modalities. (2004, 3)

This broader definition is more appropriate because it accounts for the integration of technology and digital media with traditional classroom activities led by a teacher in the interest of providing a more dynamic learning experience. The technology is not only used to complement but also to transform and improve the learning experience; as Garrison and Vaughan (2008, 6) note, blended learning is a complex mixture of resources, classroom and online activities.

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4 There are several definitions for blended learning, some patently too broad, such as the following: "blended learning involves the combination of two fields of concern: education and educational technology" (Chew, Jones, Turner 2008, 1). See also Sharma 2010, 457-8.

It is important to emphasise that considering this platform a pedagogical tool implies that we are aware that blended learning does not happen automatically just by adding technological resources to a traditional classroom programme. It is indispensable to understand how these two components interact. In keeping with Dziuban, Hartman and Moskal (2004)'s position, Hew and Cheung state:

> blended learning should be viewed as a pedagogical approach that combines the opportunities of face-to-face learning with the opportunities of the online environment such as increasing the interaction between students and students, as well as students and instructors. (Hew, Cheung 2014, 3)

Therefore, the implementation methodology for the learning units rested on two practice models in blended learning. These models were proposed by Staker (cited in Hew, Cheung 2014, 9) and considered because of the student's requirements:

Rotation model	• Students rotate on a fixed schedule between learning online in an individualised, self-paced environment and a traditional face-to-face classroom • Online learning component can be remote or on site in school • The face-to-face teacher usually oversees the online work
Self-blend	• Students take online courses to supplement their school curricula • The online courses are always remote

Among the main reasons for using these models are:
- they provide flexible, personal and more attentive training to the learner, that is to say, the students take their classes in their established schedules and gain freedom to organise their time when doing the modules online, giving them greater control on their learning;
- they give the student the confidence to clear up doubts that arise from the online modules in the face-to-face classes;
- they cover a variety of learning styles and teaching methodologies: face-to-face learning activities (interaction, face-to-face, role-plays, labs) and online activities (videos, chats, forums, live connection);
- they make it possible to solve problems and develop critical thinking from different perspectives to access knowledge (collaborative work, teamwork, use of digital tools);
- they make it easier to study face-to-face subject matter online when the student is forced to miss class;
- they optimise classroom time because the student can review the class topic online in advance.

6 The Blended-Learning Experimental Experience at ENES Morelia

The objective of this study was to measure the effectiveness of blended learning through the implementation and the analysis of the teaching modules of the online platform (UAPAS) in a face-to-face class of English as a foreign language in university students of ENES Morelia.

The pilot phase began in August 2016 and terminated in August 2017. The selected population was composed of 10 groups – Basic (A1), Pre-intermediate (A2) and Intermediate (B1) levels – from the National School of Higher Studies (ENES) of UNAM in Morelia, Michoacán. The school offers BA programmes which include English as a standard subject and some of the teachers who participated in the design of some of the UAPAs were employed at ENES at the time of the study. A total of 290 students were involved in this study. The female/male split was 52% to 48%. 99% of all the students were between 17 and 18 years old, while the other 1% were older (20, 22 and 66).

Before piloting began, the research team[5] had two options, either to pilot the programme as an online course, or to implement it in the classes as an innovative tool, turning the course into a blended experience. Since the creation of the platform was still in progress, it was decided that a blended experience would be more meaningful and productive.

It was decided that five groups would be exposed to the blended experience and the other five would not, providing two hypothetical outcomes: one being that the test groups would not perform differently (H1); the other being that the control groups would have scored lower owing to the lack of extra input from the blended experience (H2).

7 Methodology

For piloting the platform, only A1, A2 and B1 groups were included. Five teachers (all of whom had at least 4 years of experience) were selected to run the pilot project. Coordinating and assessing the process was the language coordinator of the School. The decision to exclude B2 level students was taken because the creation of the B2 learning unit was not complete at the time. There were a total of 10 groups: four groups of A1 level students, 2 experimental groups (B and Bi) and two control groups (C and Ci). The same structure applied to four A2 level groups. The B1 level subjects were divided into only 2 groups (1 experimental and one control). In total there were 290 students involved in the study: 142 in the experimental groups

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5 Project leader was MA Ana Lilia Villegas.

and 148 in the control groups. It may be relevant to mention that the total population of students of English at that time in the School was around 800, divided into 4 groups at A1 level, 6 groups at A2 level, 6 groups at B1 level, 6 groups at B2 level, 3 groups at C1 level, and other groups of academic English (around 100 students enrolled in 6 different groups). The number of groups for the pilot chosen was thus statistically meaningful.

The English programme consists of four hours of contact teaching per week for 16 weeks, amounting to a total for each level/term of 60 hours a semester and four hours for exams. Consequently, every level of English, consisting of two semesters, would be covered ideally in 120 hours a year. Since the two blended-learning models selected for this project implied a mix of face-to-face classes and online work, it was decided that, for the experimental groups, an equal amount of teaching time would be given over to the two modalities. Thus two hours per week of face-to-face interaction was performed to cover the textbook, speaking and reading skills, as well as new grammar and checking book exercises while the remaining two hours would take place on the platform on which students would practice the grammar taught in class, as well as developing writing and listening skills. In addition, once a month the class was taken to the language lab to do online activities together. These were carefully selected by the teacher on the basis of the progress made by the group. In other words, the language lab class helped the group to clarify general doubts regarding certain grammatical structures as well as taking student questions. These questions were taken into consideration by the teacher who would then provide links to online resources aimed at resolving specific issues.

At the beginning of the course a placement test was administered to provide initial parameters. This placement test was administered by the English unit in Mexico City so that the neutrality of the results could be ensured. The same placement test was administrated as a post-evaluation before the pilot project ended. No instrument was applied to measure the digital capacity of the students. Nevertheless, to ensure that all students in the experimental groups had the minimum digital skills to navigate and use the platform, a mandatory tutorial had to be taken before starting the course itself.

The pilot was set to last the whole academic year, giving enough time to the experimental groups to familiarise themselves with the platform and blended learning. Clear instructions were given to the teachers so everybody involved would have a clear idea of what to do and whom to contact in case of technological, academic or logistic issues. The academic side would provide the necessary assessment regarding the topic or the sequence of the programme and the learning unit. Concerning technology, a selected team of engineers was assigned to help the teacher and students when a matter of connec-

tion, downloading or accessing the platform and its contents would arise. Finally, in terms of logistics the language coordinator of the school was charged with that task, reporting and recording all data in order to keep track of the piloting process and give advice on the success, or failure, of the AVI Programme.

The teachers from the control groups were not given any specific instruction other than following the subject programme as they would normally do, with no use of technology or online material and keeping record of the notes for the placement test at the beginning and at the end of the course. The programme for those courses was not modified or altered. In contrast, the teachers from the blended-learning groups were required to:

1. keep records of the notes of the pre- and post- test;
2. use an element (learning unit) of the platform to teach, practice, reinforce or wrap-up a grammar topic in class at least once a week;
3. ensure that students used an element (learning unit) of the platform to teach, practice, reinforce or wrap-up a grammar topic of the course at home at least once a week;
4. give feedback on the platform to the students at least once a week;
5. report, by means of email, any problem they encountered with the platform, and follow it up with the coordinator until resolved;
6. administer a qualitative test to the students at the end of the course in order to gather their impressions of the platform and ascertain whether the blended experience had been beneficial to them or not.

8 Data Collection

Over the course of one year, students from both the experimental and the control groups were monitored and assessed, using the rotation and self-blended models (Hew, Cheung 2014). Every teacher had to keep a digital weekly journal of situations that may be interpreted as variables that could affect the learning process of the students. The observations made in the journals were discussed in the monthly meetings and shared among all the teachers and the coordinator in order to evaluate how the platform and classes were evolving. The data collected from the pre- and post-tests were considered to measure the truth or otherwise of the first hypothesis. All teachers were asked to report the average grade, owing to the fact that this number was the absolute in the comparisons between the two groups and, therefore, the basis for assumptions regarding the effectiveness of the blended teaching experience.

9   Results

The 5 groups who were exposed to the blended-learning experience reported a similar, even lower mark in the pre-test, while the control groups reported marks in the expected range, between 6-7. As illustrated in graph 1, the average number of students per group was between 29 and 30. At A1 and A2 levels, the number of students was slightly higher, 33 maximum. However, the number of students is irrelevant in this study, because we were interested in measuring the impact of the blended teaching on the students, rather than teaching or learning techniques, which would be affected by the number of students in a group.[6]
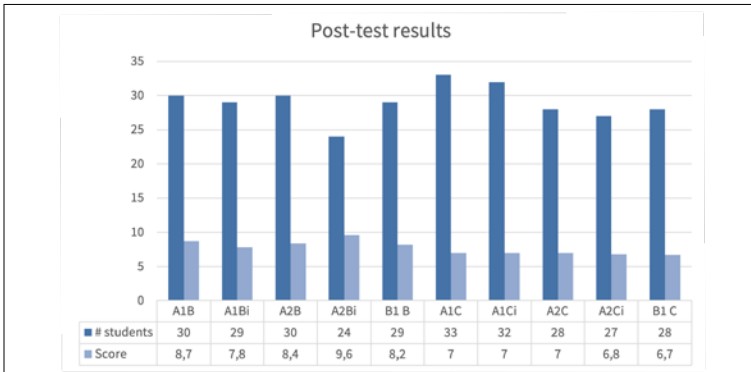
As we can see in graph 1, the experimental groups (B/Bi) achieved an average mark of 6.78, which is relatively low compared to the control groups (C/Ci) whose average grade was 6.98 **[graph 1]**. The data is extremely important because, as H1 states, it was expected that after the blended experienced all experimental groups would have a higher score in the post-test, compared to the control groups.
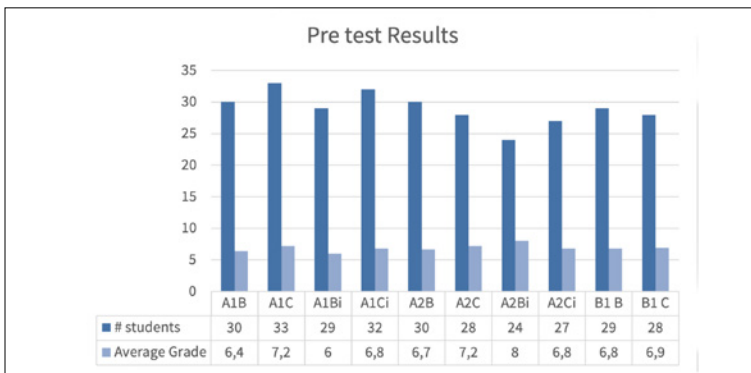
Graph 1: Pre-test results; experimental and control groups

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[6]   See Hallinan, Sørensen 1985, specifically on the impact of class size on teaching techniques.

As can be seen in graph 2, the post-test results reveal that the blended experienced was successful **[graph 2]**. As can be observed, the control groups reported similar scores as they did in the pre-test (6.9). In contrast, the experimental groups improved by 20% compared to the pre-test results, achieving an average mark of 8.2.


	A1B	A1Bi	A2B	A2Bi	B1 B	A1C	A1Ci	A2C	A2Ci	B1 C
▪ # students	30	29	30	24	29	33	32	28	27	28
▪ Score	8,7	7,8	8,4	9,6	8,2	7	7	7	6,8	6,7

Graph 2   Post-test results; Experimental and control groups

If we analyse the results level by level, comparing A1 levels in the case of graph 2, we can observe that experimental groups improved drastically with an average score of 8.25, compared to the pre-test results of 6.2. This means that the blended experience was well adopted by students and they responded positively to this innovative way of teaching/learning (they had not been otherwise exposed to other, similar types of teaching/learning at ENES Morelia.
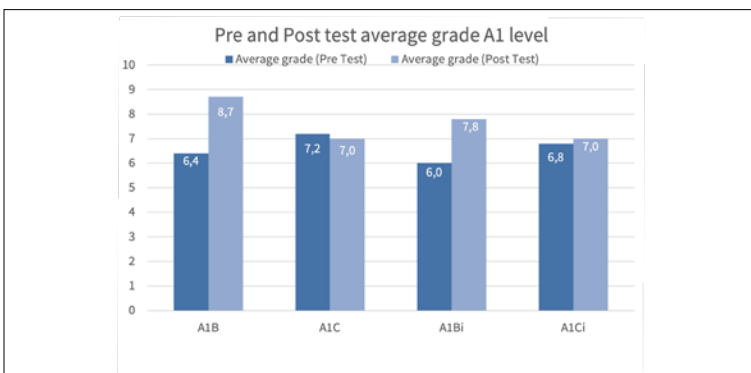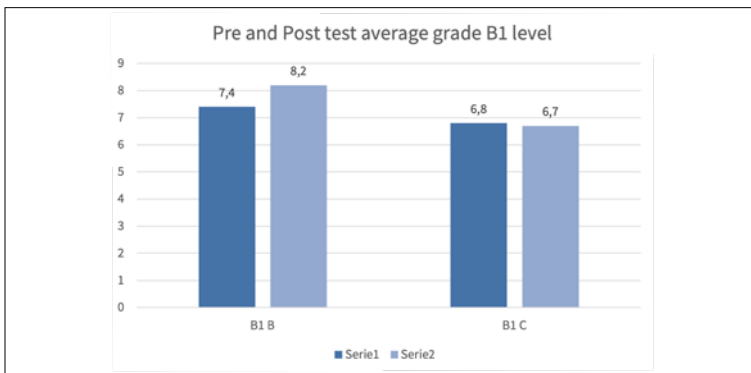

Graph 3   Pre and Post average grades A1 levels

In graph 4, it can be observed that the improvement is even greater at A2 levels than at A1 levels [graph 4]. This information is highly relevant when compared to the B1 level. A2 groups had been taught in a regular, communicative, yet not technology-based class. Thus, this change in their learning paradigm seemed to have a positive result, since their improvement was nearly 30% (average grade of 9) compared to the pre-test grade average (7.35).
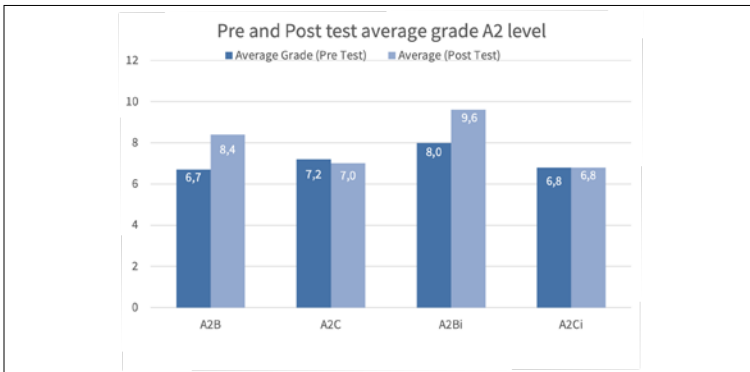
Graph 4 Pre and Post average grades A2 levels

At the B1 level [graph 5], the score in the post-test revealed, as mentioned above, that the change in learning experience motivated students and made them practice and learn in different ways. For this reason, students improved their scores in the post-test. Nevertheless, the difference between average mark results was not as high as in the other levels. Probably, this variable may have been related to other factors, like the teacher's lack of mastery of the technology, or that some of the units were not fully finalised in the platform. However, despite the above-mentioned drawbacks, as expected, there was an improvement (H1).

Graph 5 Pre and Post average grades B1 level

Finally, after applying the qualitative test to the final grades of the 142 students, the results reported that 70% of the students who underwent blended learning would agree to enrol in a blended-learning course again. The overall conclusion was that the experience itself was very satisfying, and the students would be more likely to repeat it as a result. This outcome is linked to the fact that 60% of students expressed that they would use the platform again, implying that the platform itself served its purpose to motivate and facilitate knowledge through interactive units hosted on the platform. Some comments related to technical failures and problems were reported as was expected since some of the units were under trial mode and others were even under construction. However, during the second term, most of those problems were solved and the experience with the learning units improved.

Lastly, regarding the evaluation, almost 68% reported that they were appropriately assessed by their teachers. This was primarily due to the close follow-up and commitment of the Language Coordinator, who weekly asked the teachers to report any situation they observed in order to have a prompt solution. Regrettably, 22% of students who provided negative feedback of their assessors, noted that the teacher was not committed to the class, or that response time on the platform was mediocre, and that some teachers did not master the technology being implemented. All these comments were considered and further measures were adopted.
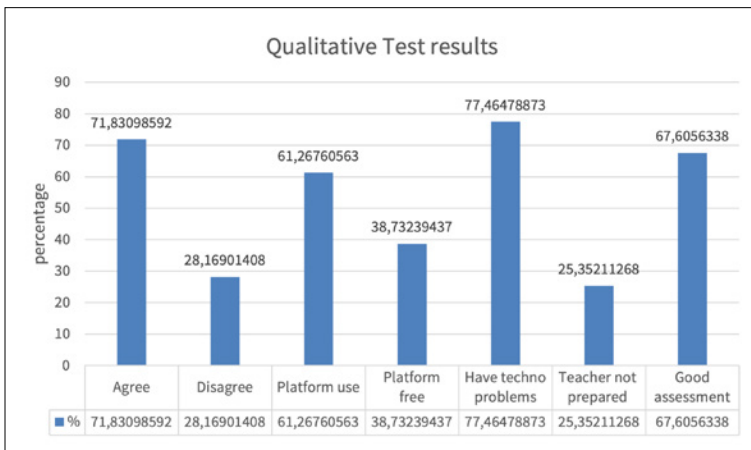
Summarising, reviewing the graph and results, the general sense of this case study is that blended learning does affect language teaching. As it was illustrated, level by level, all of the groups achieved higher scores in the post-test, and regarding the qualitative test, most of them expressed that the experience was motivating and innovative, despite the technological disruptions they encountered.

10   Conclusions

The study shows that blended learning can be a feasible and positive option for undergraduate students in the context and learning areas illustrated here (see Harahap, Nasution, Manurung 2019, 532). The selected models of rotation and self-blending provided the required elements for this experiment to be successful. Having fixed face-to-face schedules with the teacher who assessed the students on the platform increased the confidence and trust among all students as well as at an individual level. Constantly highlighting and reminding the students of the importance of doing the online exercises (learning units) as a way of supplementing the curriculum gave positive results, and most of the students either consolidated, practiced or learned structures, lexicon and language skills through the blended-learning experience. It is evident that implementing blended elements, carefully selected and merged harmoniously into the face-to-face programme, can result in improved scores in the final test. More importantly, it can provide an innovative and motivating method of learning for students: the blended-learning experience proved

to render the overall learning experience more dynamic and meaningful (see Dziuban, Hartman, Moskal 2004).

Thanks to this pilot and its results the UAPA project and the AVI Programme at UNAM[7] was fully developed, compiling the learning units into structured modules organised by levels, A1, A2, B1 and B2. The online platform has already been implemented as a fully online course for BA distance majors in Mexico. A training course for teachers has been developed in order to minimise further negative experiences, like those reported by some students in the qualitative survey. Also, this experience has opened the possibility of expanding courses to other languages like Italian, Spanish and French. The learning tool has also been made available more broadly as part of the official English Programme at UNAM as well as a supplementary tool for anybody who wants to practice English online thanks to it being open-access.

Even though in assessing this specific experiment thorough statistical tests were not conducted, owing to the nature of the experiment itself (a piloting project rather than a validity one), we think that further studies should be conducted taking into account elements such as the level of English of the students, the blended learning models, the quantity of time exposed to the online activities, as well as the time spent in the language lab. It is suggested (see Portridge, Ponting, McCay 2011) that a more formal and interdisciplinary discussion should take place[8] in order to implement blended learning programmes more broadly and organically using the platform in the future. Further research could and should be done to test the AVI content and capability as an educational technology (see Castro 2019) in other blended models, levels of language mastery, and educational contexts.

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7 The program can be viewed here: http://avi.cuaed.unam.mx.

8 E-learning critical factors may be considered, taking into account flexibility integration, student learning process assistance and the fostering of effective learning environments (Kerzˇič et al. 2019, 3).

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