This is a post-peer-review, pre-copyedit version of an article published in *Culture and Education* 28(2), 396–418. The final authenticated version is available online at: https://doi.org/10.1080/11356405.2016.1158450

Escribir para aprender: una aplicación para la asignatura *Macroeconomía Intermedia*

Writing to learn: an experience applied within the subject *Intermediate Macroeconomics*

Concepción Román[a], Ana Millán[b] y José-María Millán[a]

[a]*Universidad de Huelva;* [b]*Universidad Autónoma de Barcelona*

Resumen

Este trabajo describe y evalúa una experiencia docente que aúna el uso de la prensa económica y del método '*escribir para aprender*' en la asignatura *Macroeconomía Intermedia*, perteneciente a las disciplinas económicas con mayor grado de abstracción matemática, en las que se hace imprescindible conseguir una verdadera asimilación de contenidos teóricos. Gracias a un convenio de colaboración alcanzado, se ofrece a los alumnos la posibilidad de publicar artículos de prensa relacionados con la realidad económica en un suplemento especial de *El Periódico de Huelva*. Los resultados obtenidos al comparar el rendimiento académico de alumnos participantes y no participantes parecen confirmar los efectos positivos del uso de métodos que, como el propuesto, promueven el aprendizaje activo.

Palabras clave: economía, aprendizaje activo, prensa escrita.

Abstract

This study describes and evaluates a teaching experience that combines the use of financial press with the '*writing to learn'* method, within the subject *Intermediate Macroeconomics*. The subject belongs to a field of economics which is characterised by a particularly high degree of mathematical abstraction and in which the accurate assimilation of theoretical content thus becomes essential. Thanks to the establishment of a collaboration agreement, students are offered the chance to publish press articles related to economic issues in a special supplement of *El Periódico de Huelva*. When comparing the academic performance of students who did or did not participate in the experience, the results appear to confirm the positive effects of using methods that promote active learning, such as the one used in this experience.

Keywords: economy, active learning, written press.

Over recent years, and since the beginning of the economic and financial crisis of 2008, the criticism traditionally directed at economists has intensified, thereby also affecting the training received by future economists (Vicente, 2013). These criticisms are related to the disconnection between university training and the economic problems observed, as well as the excessive predominance of formalism, technical sophistication and mathematical complexity. In line with this perception, 62% of *Economics* students in Spain think that university does not provide them with adequate training for their future professional careers (Fundación BBVA, 2010).

In this context, the financial press represents one of the best teaching resources available to discuss real economic problems in class and to help students assimilate the theoretical concepts studied. It is because of this that numerous professionals have been working along such lines for some years now, despite the fact that the use of such a resource increases teacher workloads (see, for example, Becker, 1998, 2002; Becker & Watts, 2001; or Iglesias, Toscano, & Román, 2012).

On the other hand, the progressive alignment with the *European Higher Education Area* means that reflection is needed on how to implement the transition from a passive learning model to one of active learning, in which students learn to think, ask questions, seek answers, and interpret what they observe, rather than simply memorising what they are taught (Hamlin & Janssen, 1987).

A method considered to be appropriate for promoting active learning is '*writing to learn*' (Emig, 1977). This method conceives writing as a process which generates ideas and creates knowledge, instead of as a mere medium for transmitting information or resuming concepts. This refers to the epistemic function of writing and the role it plays in creating and transforming knowledge itself (Carlino, 2004; Scardamalia & Bereiter, 1985; Serrano, 2014; Wells, 1990). In this regard, we find many situations in which students claim to know something but feel incapable of explaining it. However, if one is unable to explain a concept, it could be because it is understood at a very superficial level. Writing forces us to think in a more focused way and to describe what it is we want to say more precisely. When one tries to write something, that which has not been fully understood

becomes apparent. Within the framework of this method, written texts do not emerge in the form of a definitive version, but are instead 'live' documents subject to a meticulous process of re-reading, reviewing and re-writing, aimed at satisfying the need to inform eventual readers of the text. In the context of teaching economic disciplines, the objective is not so much to help students write better, but rather to offer them a tool to help them learn better (Greenlaw, 2003). Some examples of studies that have tested the effect of the 'writing to learn' method in the teaching of economic disciplines include Cate & Dynan (2010), Crowe & Youga (1986), Dynan & Cate (2009), Greenlaw (2003), Simpson & Carroll (1999), and Stowe (2010).

In view of the above, the objective of this study is to describe and evaluate a teaching experience that combines the use of economic publications and the 'writing to learn' method. Students taking the subject *Intermediate Macroeconomics* were thus offered the chance to write press articles related to real economic issues to be subsequently considered for publication in *El Periódico de Huelva.*

The idea underlying this approach has two principle objectives: (i) to write an article related to current economic issues it is necessary to know what these economic issues are; and (ii) writing for a reader who has no knowledge of the technical questions involved in macroeconomic models means that the writer has to first assimilate the content and understand it thoroughly before attempting to transmit it. The achievement of both these objectives should have a positive effect on learning within this subject. In order to confirm this hypothesis, this study compares the academic results of students who participated in the experience with those of students who did not participate.

CONTEXTUALISING THE EXPERIENCE

This study describes and evaluates a teaching experience carried out during the 2012-2013 year within the subject *Intermediate Macroeconomics*. With 6 ECTS credits,[1] which equate to 150 hours of student work, including 60 hours of class time, this subject is delivered during the second year of the Degrees in *Business Management and Administration* and *Finances and Accounting* of the *University of Huelva*.[2]

This subject helps students understand the economic context in which companies operate, with this information being vital to be able to make appropriate business and financial decisions. The subject covers relevant concepts such as economic growth, unemployment, inflation, public deficit, trade relations between countries, and competitiveness, which are presented through a series of economic models. For the subject to be developed successfully, it needs to be based on a thorough understanding of these concepts, the interplay between them, and their relation with real world events. In this sense, if the subject is not linked to current economic realities, students may perceive it to be abstract and complex and may consequently feel discouraged from studying it.

Conscious of the challenges faced by students taking subjects related to Economic Theory and, more specifically, the challenges posed by the high degree of abstraction involved in the study of Microeconomics and Macroeconomics, various members of the *Department of Economics* of the *University of Huelva* participate in different teaching innovation projects on an ongoing basis, trying to identify new methods that may have a positive effect on individual teaching/learning processes. This particular study originated in the project *Ensayando nuevas herramientas para la adquisición de competencias en disciplinas económicas: Aprender publicando*, '*Testing new tools to promote the acquisition of competences in economic disciplines: Learning by publishing'*, which is part of the *XVI Call for Teaching Innovation Projects* of the *University of Huelva*. It is thanks to this project that a collaboration agreement was signed between *El Periódico de Huelva* and the *Department of Economics*, to facilitate the publication of press articles related to economic issues written by students under the supervision of university tutors. This experience is described and evaluated below.

METHOD

After the signing of the agreement with *El Periódico de Huelva,* tutors explained the project to students taking the subject *Intermediate Macroeconomics*. The group of students who showed interest in the project were later called to an initial meeting for information and coordination purposes, in which the project was described in more detail,

paying particular attention to the need to cover current economic issues in the articles (that would capture readers' interest) out of the theoretical models covered in class. The meeting ended with each student being assigned a tutor who would be responsible for supervising them and guiding them during the process. This tutor would be responsible for reviewing the content and structure of their texts, encouraging students to *think more* about the economic issue discussed, while simultaneously remembering their target readers. After this, individual work began under supervision and lasted for 6 weeks. Finally, only students who submitted texts of a sufficient quality by the deadline specified managed to see their article published in *El Periódico de Huelva.*

At the end of the process, all students present during the last class of the subject (those who did and those who did not participate in the project) completed a personal questionnaire on aspects such as academic background, work experience, perception of the subject and participation in the project.[3] This information, together with the academic results of the subject,[4] were used to evaluate the experience. We would like to highlight two points concerning the reliability of the data collection process. First, while collecting data in an anonymous way tends to offer more reliable results, the design of this study meant that it was necessary to ascertain the identity of those surveyed since our aim was to analyse the impact that participating in the project had on students' final marks. Second, the objective nature of the data collected on previous academic results, work experience, and participation in the project, prevented us from carrying out internal consistency tests. By contrast, the information provided by the students on their perceptions of the subject shows good internal consistency, with a Cronbach alpha value of 0.77.[5]

SAMPLE PROFILE

The number of students enrolled on the subject during the 2012-2013 academic year was 278. If we cross-check the information on the number of students who took the final exam with the number of students who completed the questionnaire in the last session, we can classify students into 4 categories: (i) take the exam and fill in the questionnaire (108

students; 38.85%); (ii) take the exam but do not complete the questionnaire (92 students; 33.09%); (iii) do not take the exam but do complete the questionnaire (20 students; 7.19%); and finally, (iv) do not take the exam or complete the questionnaire (58 students; 20.87%).

In what follows, we aim to describe in more detail the subgroup of students who completed the questionnaire (128 students), who we believe to be representative of the whole group of students who attended lessons regularly. The subgroup comprises 76 females (59.38%) and 52 males between 20 and 47 years' old. A total of 93.75% of those surveyed were born in Andalusia, 2.34% in the rest of Spain, and the remaining 3.91% came from other countries (Colombia, Equatorial Guinea, Hungary and Venezuela). In relation to their academic background, 96 students (75%) accessed undergraduate studies by taking University Entrance Exams, with the others accessing the programme through other systems.[6] Regarding work experience, 72 students (56.25%) claim to have some kind of previous experience. Figure 1 shows the level of student agreement with two statements concerning their perceptions of the subject.

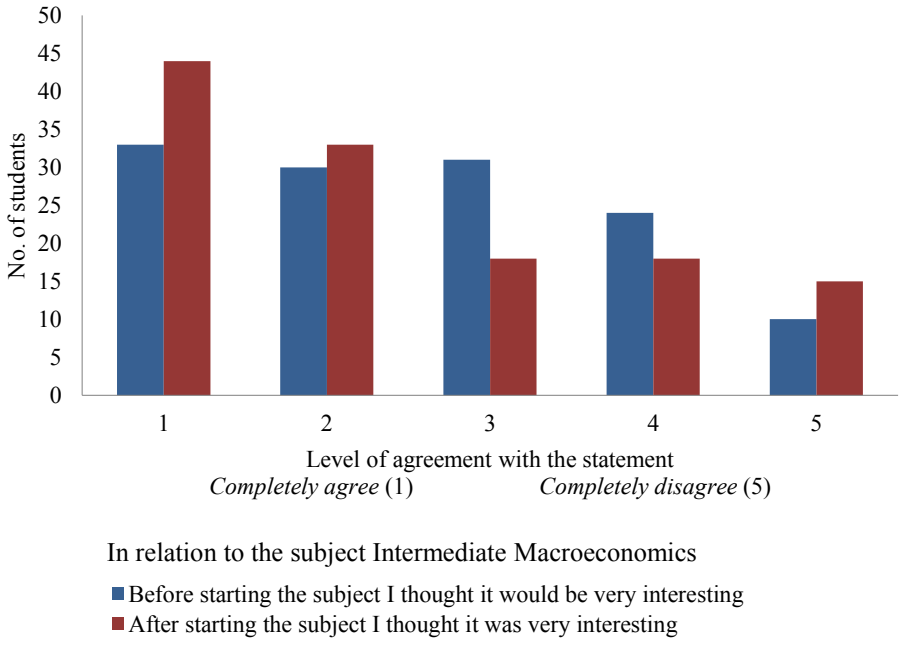

Figure 1. Distribution of level of interest shown in the subject

We can observe that 60.16% of those surveyed think the subject is interesting once they start studying it. This percentage is substantially higher than in the case of students who thought it would be interesting a priori (49.22%), which we consider to be very positive way. Finally, regarding participation in the *Learning by publishing* project, the initial working group included 12 students of whom only 5 managed to publish their work in *El Periódico de Huelva.*

RESULTS

The final objective of this section is to compare the academic results of students who participated in the *Learning by publishing* project with those who did not participate. The fact that the students chose to participate as opposed to being selected at random must be taken into account when interpreting the results obtained. Bearing this in mind, this section is structured into two different sub-sections. The first covers a series of preliminary questions and helps us understand the reasons behind differences in the scores obtained by students. The second shows the real effect that participating in the project has on academic results by asking questions which are key to this study.

Preliminary questions

What final marks do students obtain?

A total of 200 students sat the *Intermediate Macroeconomics* exam, with the mean score obtained being 5.41 (with a standard deviation of 2.51 and with the minimum and maximum marks being 0.1 and 9.8 respectively).

Are there any differences in marks between students who completed the questionnaire and those who did not?

Table 1 shows that students who completed the questionnaire (those who attend regularly) obtained higher marks than those who did not (students with particular circumstances: those repeating the course who study autonomously, those who cannot attend due to work circumstances, personal preferences, lack of motivation, etc.).

Table 1. Final qualifications according to whether students did or did not complete the questionnaire.

	Obs.	Mean	Stand. D	Min-Max
Subgroup 1. Students who completed questionnaire	108	5.92	2.46	1.4 – 9.8
Subgroup 2. Students who did not complete questionnaire	92	4.82	2.46	0.1 – 9.5
Equality of means t-test (Ha: mean 1 > mean 2)	t = -3.18		*p-value* = 0.001	

Are there any differences in the marks of students who access university studies through Entrance Exams and those who access the studies through further education vocational courses?

Table 2 shows that accessing university studies through *vocational training courses* tends to result in higher qualifications than accessing through *University Entrance* Exams. We should also remember, however, that students who access through vocational training are, on average, six years older than those who access through *University Entrance* Exams. They therefore tend to be more mature and more determined to find work in the short-time.

Table 2. Final qualifications and age according to type of access to university studies

		Marks		Age	
	Obs.	**Mean *(Stand. D)***	**Min-Max**	**Mean *(Stand. D)***	**Min-Max**
Subsample A1. Students who access via Entrance Exams	84	5.68 (*2.40*)	1.4 – 9.8	21.15 (*1.60*)	20 – 27
Subsample A2. Students who access via vocational training courses	24	6.78 (*2.53*)	2.3 – 9.5	27.04 (*6.70*)	21 – 47
Equality of means t-test for qualifications (Ha: A1 mean qualification < A2 mean qualification)		t = 1.91		*p-value* = 0.032	
Equality of means t-test for age (Ha: edad media A1 < edad media A2)		t = 4.27		*p-value* = 0.000	

Are there any differences in the marks of students with work experience and those without?

Table 3 shows that students with previous work experience obtain higher marks than those without.

Table 3. Final qualifications and age according to previous work experience

		Marks		Age	
	Obs.	**Mean *(Stand. D)***	**Min-Max**	**Mean *(Stand. D)***	**Min-Max**
Subsample B1. Students with previous work experience	61	6.29 (*2.39*)	1.4 – 9.8	23.64 (*5.16*)	20 – 47
Subsample B2. Students without previous work experience	47	5.45 (*2.49*)	1.4 – 9.8	20.93 (*1.47*)	20 – 27
Equality of means t-test for qualifications (Ha: B1 mean qualification < B2 mean qualification)		t = -1.75		*p-value* = 0.042	
Equality of means t-test for age (Ha: B1 mean age < B2 mean age)		t = -3.89		*p-value* = 0.000	

We therefore see that previous experience in the workplace could be responsible for widening these students' stores of knowledge which, in turn, may push their marks higher. The experience gained within the workplace could also lead these students to be more aware of the extent to which university degrees are valued in this sphere, which would also impact on their motivation levels and the effort they invest in their studies. Finally, age differences are once again notable between both groups, with students who have work experience being, on average, three years older than those without any experience.

Are there any differences between the final marks of students whose pre-university qualifications were higher than the mean achieved by their peers and those who obtained results equal to or lower than the mean?

Students who claim to have achieved marks above the mean marks of their peers in pre-university studies obtain higher final marks than those who claim to have obtained marks equal to or lower than the mean marks of their peers. These results are shown in detail in Table 4.

Table 4. Final qualifications according to qualifications obtained prior to university studies

	Obs.	Mean	Stand. D	Min-Max
Subsample C1. Students with > mean prior grades	42	7.02	2.27	1.4 – 9.8
Subsample C2. Students with ≤ mean prior grades	66	5.23	2.34	1.4 – 9.8
Equality of means t-test (Ha: C1 mean > C2 mean)	t = -3.94		*p-valor* = 0.000	

It should be noted that only 2 of the 128 students surveyed claimed to have obtained prior qualifications below the mean of their peers and that, as a result of this, the comparison drawn is between students with prior qualifications in the mean range and those with marks above this range. Some explanations can be given to justify the absence of students with 'low academic profiles' in this subject. On the one hand, the educational system effects a gradual screening process whereby only the most well-prepared students access the university system. Following this logic, our subject is taken during the second year of the degree meaning that additional screening has also occurred during the first year. Finally, this positive selection could also be due to the fact that the questionnaire was not anonymous and to the point that some students, worried that a more 'realistic' answer

might ‘signal them out’ to tutors as candidates who may be likely to fail the subject, prefer to put themselves on a scale above the actual one that may correspond to them.

Key questions

Are there any differences between the marks of students who participated in the Learning by publishing project and those who did not?

At this point we ask the most important question of this study in order to ascertain the merits of the project. We observe that students who participated in the project obtain higher marks than those who did not, as shown in Table 5.

Table 5. Final qualifications according to participation or not in the *Learning by publishing* project.

	Obs.	Mean	Stand. D	Min-Max
Subsample D1. Students who participated in the project	10	7.05	1.65	4.5 – 9.5
Subsample D2. Students who did not participate in the project	98	5.81	2.51	1.4 – 9.8
Equality of means t-test (Ha: D1 mean > D2 mean)	*t* = -2.14		*p-value* = 0.025	

Note: **2 students who participated in the *Learning to Publish* project did not sit the final exam**

These results mean that we are able to evaluate the *Learning by publishing* project in a very favourable light, while also enabling us to confirm the suitability of the ‘writing to learn’ methodology for assimilating technical and highly abstract information, such as that introduced in *Intermediate Macroeconomics*. It could be the case, however, that it is precisely the student group with pre-university qualifications higher than the mean (i.e. the most well-prepared) who are most attracted to this project. This could mean that their performance was not due to their participation in the project but, rather, that their positive performance was in fact predetermined. Nevertheless, we find that not all participants in the project had obtained higher than mean prior qualifications (only 70%), and also that no significant differences exist between the final marks of those who participated and had higher than mean prior qualifications and those with mean marks: this suggests that both categories of students who participated in the project benefitted from this participation, regardless of their prior qualifications.

Are there any differences between the marks of participants who published their work in El Periódico de Huelva and those who did not?

Of the 10 participants in the project who took the final exam of the subject, only 5 managed to produce an article of a high enough quality to be published in *El Periódico*

de Huelva. We observe that participants who finally managed to publish their work obtain higher marks than those who did not, as shown in Table 6.

Table 6. Final qualifications according to whether they published in *El Periódico de Huelva* or not

	Obs.	Mean	Stand. D	Min-Max
Subsample E1. Participants who published in *El Periódico de Huelva*	5	7.58	1.99	5.1 – 9.5
Subsample E2. Participants who did not publish in *El Periódico de Huelva*	5	6.52	1.20	4.5 – 7.5
Equality of means t-test		*Not applicable*		

These marks indicate that the extra effort required to write a piece which is suitable for publication, which is to say more developed and of high quality, results not only in a sense of satisfaction at having published successfully, but also in improved academic results; a point which further reinforces our positive evaluation of the project. We can therefore confirm that the participants' high marks are not (at least not strictly) the result of their own decision to participate, but rather (at least in part) due to their successful participation in the project.

CONCLUSIONS

This study describes and evaluates the teaching experience *Learning by publishing* that combines the use of financial press with the '*writing to learn'* method. Within the framework of this method, writing constitutes an important tool for discovering and working on ideas that have not yet been understood fully (the *epistemic* function of writing). The results obtained suggest that participation in the *Learning by publishing* project has positive effects on final qualifications in line with the conclusions drawn in most other studies that apply the '*writing to learn'* methodology and with the underlying idea of the method itself: writing not only involves writing what one knows; by writing, one ends up knowing more. Consequently, and without forgetting that such experiences increase tutor workloads and require reduced student-tutor ratios, we value this experience in a highly positive way since it has contributed not only to improving academic results, but also to helping students understand that economic models are not simply part of an abstract world but are, instead, important tools that enable a rigorous analysis of the different economic problems observed. We therefore consider this to be a

valuable tool that could be incorporated into the regular teaching practice of economic disciplines characterised by high levels of technical content.

At the same time, however, it is also worth noting that participation in the project was very low. Of those who did not participate, the main reason given by 65% of them was 'not having enough time'. It is therefore worth making every effort to convey as clearly as possible to students that this kind of experience is designed to help them learn and assimilate the subject. This is the only way to ensure that students become involved instead of considering the project 'a waste of time'. On the other hand, 24% of those who did not participate claim that they 'do not feel capable' of doing it, even though they achieved similar marks to the mean in the subject. We therefore think that this alleged lack of skill could be a question of perception or personal insecurity in some cases, rather than an objective fact. In any case, these low levels of participation could be resolved through the gradual introduction of the use of writing as a learning tool, with the degree of task complexity being increased gradually (progressing, for example, from noting down an opinion about a current economic issue, to summarising the ideas of a particular author or explaining how predictions are made following a particular economic model, to, finally, applying a suitable economic model to a specific economic situation and evaluating the results).

Whatever the case, any proposals for change should be preceded by a reflection process which considers how best to introduce and address economic problems in the classroom. Such changes could help increase learner motivation in the field of economic disciplines and improve assimilation of content, which would in turn help students solve the problems presented in a more effective way and, in short, improve confidence in the work carried out by economists.

Finally, and in more general terms, we consider this experience to be a creative example of *how to make good use of a community resource* – in this case the local press – that enables the generation of interesting synergies that have a direct beneficial effect not only on students, but also on other agents within the community; in this case the newspaper itself and its readers.

Notes

[1] The *European Credit Transfer and Accumulation System* (ECTS) is one of the key elements of the European Higher Education Area. Among other things, this system allows different higher education systems across Europe to be compared and thereby i) increases the transparency of university education, ii) offers quality guarantees, and iii) facilitates the recognition of all studies, greater student mobility and more flexible ways of obtaining qualifications.

[2] The adoption of a university system based on two cycles of undergraduate and postgraduate programmes is also one of the key elements of the *European Higher Education Area*. Based on the Anglo-Saxon model, qualifications within this area correspond to a general first cycle of between 3-4 years, known as undergraduate studies, and a second cycle of 1-2 years for specialised studies through Master and/or Doctoral studies.

[3] Although the original questionnaire is not provided here for reasons of brevity, it can be provided on request.

[4] Overall, 80% of the final mark depends on the results obtained in the final individual exam in which theoretical, practical and methodological knowledge is assessed. The remaining 20% is obtained from the assessment of personal work through i) the submission of practical exercises and (ii) attendance at tutorials and other activities (forums, conferences, seminars, workshops, etc.).

[5] Data on students' perceptions of the subject was collected through a block of six questions which ascertain levels of agreement with statements about whether the subject is interesting, useful for work purposes, and whether they think it is easy to pass or not at different points in time: (i) before starting the subject, and (ii) once they have started studying. Their level of agreement was measured with a *Likert* style scale of 5 points: 1: Totally agree; 2: Agree; 3: Partially agree; 4: Disagree; and 5: Totally disagree. Students who choose scores of 1 and 2 of the scale are considered to agree.

[6] Individuals who want to enrol at a Spanish university must meet certain requirements depending on the access route they choose. The usual system is by sitting a University Entrance Exam after completing upper secondary education. The results of this exam, along with the results obtained during the last two years of post-secondary education, determine whether they will be assigned a place at a university. Depending on the candidates' prior education, experience and age, a series of tests or procedures also exist to access university by alternative means. Among these, the most usual route is by undertaking *further education training*. Such training courses belong to the area known as vocational education or training and are particularly aimed at students who have successfully completed upper secondary education as an alternative to university: these students tend to look for higher education programmes that are practical and will provide them with the qualifications needed to find employment. Other less common ways of accessing university studies are (i) sitting access tests for over 25s or over 45s, (ii) access for over 40s through the accreditation of professional experience, (iii) recognition of foreign certificates, (iv) possession of a previous university certificate.

Acknowledgements

We would like to thank the editors of *Culture and Education*, Liliana Tolchinsky and Naymé Salas, Fernando Millán from the University of Seville, and the anonymous reviewer for their comments and suggestions. We would also like to thank the other university tutors who contributed to the project *Testing new tools to promote the acquisition of competences in economic disciplines: Learning by publishing*, out of which this study emerged. We would also like to highlight the important collaboration of the team at *El Periódico de Huelva*, particularly the director, Agustín Samaniego. Finally, we would also like to thank all students on the *Intermediate Macroeconomics* course for their willingness to collaborate in this study.