

The Academic Literacy at the University: A predictive Study

La alfabetización académica en la universidad: un estudio predictivo

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Resumen

El proceso de alfabetización académica presenta en el sistema universitario español numerosas deficiencias en nuestros días, lo que es especialmente preocupante en el caso de los futuros maestros de Educación Infantil y Educación Primaria, dada la influencia que este colectivo tendrá en la alfabetización de los alumnos en los primeros años de escolarización. Este estudio trata de determinar qué variables definen la alfabetización académica de los estudiantes universitarios y qué prácticas docentes y discentes pueden ayudar a explicarla. Un "Cuestionario sobre hábitos lectores y escritores" fue aplicado a una población de 513 estudiantes del Grado de Magisterio de Educación Infantil y Primaria de la Universidad de Sevilla. Los resultados de la aplicación de dicho Cuestionario nos han permitido describir las prácticas docentes y discentes que favorecen la alfabetización académica así como los propios niveles de alfabetización académica alcanzados por los alumnos. Para determinar la capacidad explicativa de las prácticas docentes y discentes (predictores) sobre la alfabetización académica (criterio) se ha utilizado un análisis de regresión para datos categóricos. Los predictores elegidos explican satisfactoriamente la variabilidad de los distintos niveles de alfabetización académica en los alumnos, que muestran valores diferentes para los matriculados en los grados de Educación Infantil y Educación Primaria. Una conclusión que se deriva de este estudio es que la adquisición de determinadas estrategias de lectura y escritura crítica, por parte los futuros maestros, requiere de una instrucción específica más allá del desarrollo de la socialización académica en una comunidad de práctica, que les permita transformar el conocimiento y desarrollar una toma de conciencia y autorregulación intelectual.

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Abstract

The academic literacy process in the Spanish university system shows many shortcomings now days. This situation is particularly worrisome among future teachers of Pre-School and Primary Education, given the influence that these students will have on the literacy in the early school years. This study aims to determine which variables define the academic literacy of college students and which teaching and learning practices can explain it. A "Questionnaire on reading and writing habits" was administered to a population of 513 students from the Primary Education Bachelor Degree of the University of Seville. The results of this questionnaire allowed us to describe teaching and learning practices that promote academic literacy as well as the academic literacy levels attained by the students themselves. A regression analysis for categorical data was applied to determine the explanatory power of teaching and learning practices (predictors) on academic literacy (criteria). The predictors selected explain satisfactorily the variability in the different levels of academic literacy in students, which show different values for those enrolled in Pre-School and Primary Education Bachelor degrees. One conclusion from this study is that the acquisition of certain reading strategies and critical writing

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by future teachers requires a specific instruction beyond the development of academic socialization in a community of practice, allowing them to transform knowledge and develop an awareness and intellectual self-regulation.

Keywords:

Higher Education; Critical Literacy; Writing and Reading Strategies; Writing Across the Curriculum

Starting in the 1990s, a growing concern has arisen amongst university educators regarding the deficiencies in the reading and writing of academic texts in the Spanish educational system. (Solé et al., 2005; Mateos, Martín & Luna, 2007; Mateos, Martín & Villalón, 2007; Villalón and Mateos, 2009). Since then, this reality has opened up a debate that continues even now about how to develop academic literacy in university students. The information about what and how today's students read upon entering college requires a serious reflection (Nist & Simpson, 2000) which could allow an improvement in the teaching-learning processes at the university.

With this objective, the idea of academic literacy is born in the framework of the New Studies on Literacy (Barton, 1994; Street, 1984) and it is created, amongst others, by contributions from Lea and Street (1998) in the education context of the United Kingdom. They produced a profound criticism of the teaching methodology at British universities and highlighted the plurality of practices found at the higher education level. As a consequence, they looked at literacy as a plural and heterogeneous act that depended as much upon the requirements of the university institution (writing at the epistemic or critical level) as it did upon the different academic disciplines (Alexander & Jetton, 2000). On this point, literacy is the result of a social practice, dependent on a context: the university (Street, 1984; Gee, 1996; Lea & Street, 1998; Barton, Hamilton & Ivanič, 2000; Lillis, 2001; Wingate & Tribble, 2012). The study of academic literacy implies, at the same time, distinguishing three distinct concepts, described in several studies of Lea and Street (1998; 2006): a study skills model, an academic socialization model and, lastly, an academic literacies model.

The study skills model refers to the competency of students to transfer their knowledge of reading and writing from one

context to another. That is to say, that this perspective analyzes if the student is able to adapt to new writing models and types and transport with him or her that knowledge. Thus, this is an individual and cognitive skill of the student's literacy. At the university, this model requires a critical and epistemic writing ability (Miras, 2000). In order to do this, a reflection is needed on the diverse aspects of a discipline as an instrument for awareness and for intellectual self-regulation (Emig, 1977; Olson, 1998; Echevarría, 2006). Such a reflection is carried out at different levels (technical, descriptive, dialogic and critical) in the writing process (McLellan, 2004), but it is this last level the one which allows for access to a full academic literacy.

Critical or epistemic literacy (Muskrat, Luke & Freebody, 1997) is not found in all writers and readers, since "knowledge transforming" requires the development of certain skills both in the content and discourse area and as a strategic writer (sensitive to the audience, planned out and organized according to its purpose). In order to do this, tasks must be undertaken where the available information is manipulated, contrasted and reflected upon and this should be the way to recreate personal, reflective thinking (Bereiter & Scardamalia, 1987; Olson, 1998; Martí, 2003). This reflective and critical feature of writing is what gives discourse its character as an epistemic function of language, since literacy on its own does not produce changes in how learning takes place. This is why things become dependent on how writing is used (Kozulin, 2000; Tynjälä P., Mason, L. & Lonka, K., 2001). In the end, epistemic writing becomes a fundamental learning tool which allows entrance into a community of university practice (Tynjälä, 1998; Tynjälä, P., Mason, L. & Lonka, K., 2001), the student's autonomous intellectual development (Brockbank & McGill, 1998) and the practice of self-regulation in writing (Ertmer & Newby, 1996).

The concept of academic socialization deals with the learning process of the prototypes in genre and discourse found within a student's discipline or specific field of study. A student must learn new ways of listening, speaking, reading and thinking in a given discipline. Presumably, this learning of the rules of academic discourse is indispensable in order for the students to be able to succeed in their university studies. According to Lillis (2006), students implicitly pick up the conventions of academic writing as a part of their learning without being instructed or having explicitly practiced it. This is related to the concept of "Practice Communities" (Lave & Wenger, 1991), given that students develop a learning process that goes from the outside of a given community of academic practices to their insertion in the academic discursive community. Academic socialization cannot be developed through an instructional approach; this is acquired from the relationship the students establish with the university by the mere fact of belonging to it.

Nonetheless, this academic socialization turns out to be insufficient for the students' full development in a university environment. The academic institution generally proposes a homogeneous culture and the norms and practices that form it can be learned as long as the student body is homogeneous; the disciplines, stable; the professor-student relationship, one directional. As has been made clear by Lea & Stierer (2009), these elements are always heterogeneous and for an academic identity to develop, writing which allows for the incorporation of the student into the practice community is necessary.

Ultimately, the concept that encompasses all the preceding elements and transforms them into a learning process is *academic literacy*. It incorporates into the socialization elements related to the acquisition of the aforementioned competency as well as serving as a model for curricular development and educational practices carried out in an educational institution. Thus, academic literacy addresses the specific needs of the students (academic writing) in a context (the

university). It is, therefore, a process of situated literacy which requires a particular learning of ideas and strategies. This is not usually learned in a natural fashion for the reason that it is done in a concrete, precise university context and it requires the participation (production and text analysis) in a discursive culture of a specific discipline (Carlino, 2003).

The academic writing required at the university comes into conflict with the identity and the previous knowledge and experiences of the students with respect to writing (Ivanič, 1998). Learning academic literacy implies the development of belonging to a community of sociocultural practice (Zavala, 2011). On this matter, participation in just such a community is subject to the student body in a degree program being academically literate and interacting in a social practice (Lave, 1996). To this end, university students should partake of a process of *enculturation* (Prior & Bilbro, 2011) that involves acquiring a series of reading and writing tools in a specialized community which permits them to carry out a social activity in an academic environment while interacting with it (Carlino, 2013). The development of academic literacy not only intervenes in the capability of the student to read and write in a determined field, but also transforms their personal and social identity (Curry & Lillis, 2003).

The analysis of academic literacy as a practice situated in the university requires, then, the study of two distinct environments: the reading and writing habits of students and the teaching practices which facilitate academic literacy. With this goal, the analysis of the reading and writing habits presents the question if students' reading has as its purpose information searching or if it is for learning; if their visiting a library is to read books and magazines or if they write as a way to reflect. With regards to these matters, the integrated nature of reading and writing in critical literacy should not be forgotten (Spivey & King, 1989; Bean, 2000). Consistent with this, the university student should assume certain strategies and practices which allow him or her

to construct a discourse following a set structure as well as searching, selecting and comparing different sources of information. Similarly, the planning in academic writing, the reading of sources (of similar structure) and the reviewing of what they have written develop in a student the ability to self-regulate their writing in an academic context (Solé et al., 2005).

At the same time, teaching practices of academic literacy become one of the pillars of this learning process. For this reason, our research has insisted on analyzing the teacher's role in the university classroom when the professor facilitates access to a subject's bibliography (he or she comments, analyzes and reflects upon it), the students are able to recognize the academic text's source and the professor instructs them to carry out complex assignments, such as writing a text with a critical or epistemic language level (a research paper or a brief monographic study on a specific topic). These complex tasks which integrate written comprehension and composition (Spivey & Kind, 1989) attempt to develop an authentic cognitive process during academic writing (Villalón & Mateos, 2009).

The research has tried to achieve the following objectives:

- a. Describe the teaching and learning practices relative to academic literacy of students as well as strategies of academic writing
- b. Predict the degree of academic literacy of university students based on teaching and learning practices
- c. Define the writing strategies for academic text creation that students use in their practices of critical literacy

- d. Determine the possible existing differences among teaching and learning practices which favor academic literacy, and academic text writing strategies in the Primary Education and the Preschool Education degree levels.

Method

Design

Our study aims to determine which variables define academic literacy and which factors can explain it. For this, we have used a correlational methodology, specifically the predictive study variant. To begin with, we have considered as the criterion variable the scores of one of the questions in the "Questionnaire for reading and writing habits in college students. 2014 version", which be part of the "academic literacy" dimension. The question under consideration is number 39 and it includes 8 items. The following question was chosen: "When you write a paper, a project or a similar text for one of your school subjects, which writing strategies do you utilize?" This was our chosen question because we consider that the degree to which the student's writing approaches the features that define epistemic or critical literacy as the best measurement of their level of academic literacy in a university degree. The chosen predictors correspond to 6 questions (which include 12 items) of the aforementioned questionnaire which refer to the factors that, in our estimate, can most highly influence the academic literacy we have spoken of: the teaching and learning practices. In Table 1, both types of items have been collected.

Table 1. Criterion and Predictor Variables

<p style="text-align: center;">PREDICTORS OF ACADEMIC LITERACY</p> <p style="text-align: center;">Teaching and learning practices that favor academic literacy</p>	<p style="text-align: center;">CRITERION</p> <p style="text-align: center;">Writing strategies used by the student for the creation of academic texts</p>
<p>Teaching Practices:</p> <ol style="list-style-type: none"> 1. The teacher provides an annotated bibliography 2. The teacher analyzes the recommended readings in class 3. In class, the students form oral or written personal reflections based on the recommended readings 4. The students must create a text which includes an argued critical opinion 5. The students must write a synthesis of a text and rework its most relevant points 6. The evaluation includes individual or group research papers and projects <p>Learning practices:</p> <ol style="list-style-type: none"> 7. The students read the chapters of the book 8. The students read articles in scientific journals 9. The students create outlines or concept maps based on what they read 10. The students create concept maps or outlines when they have comprehension problems 11. The students make critical commentary based on what they read 12. The students broaden their knowledge by reading complementary texts when they encounter problems of comprehension 	<ol style="list-style-type: none"> 1. I question myself about what I already know about a topic. 2. I search for information about a topic. 3. I seek out a study with similar purposes and structure. 4. I work from a work outline or a structure given by the teacher. 5. I elaborate a work plan or an index. 6. When I am writing I look for bibliographic references that support my arguments. 7. I review what I have written. 8. I make use of the teacher's corrections during the writing process.

Sample

Our research has centered on a sampling of students doing a degree in Primary Teacher Training and others doing Preschool Teacher Training at the University of Seville. The choice of future teachers in Preschool Education and in Primary Education for this study is due to the fact that this group represents a type of university student of special importance given the influence that their own training as teachers will have on the reading and writing habits of their pupils (Colomer & Munita, 2013; Granado, 2014).

During the school year 2013-2014, a total of 820 students were enrolled in the two degree programs combined. No selection process was carried out, and students from both degrees were invited to participate. The sample group that ended up participating in our study was composed of a total of 513 students, which represents 62.56% of the total

number of those enrolled. Of the 220 students enrolled in the first year of the Preschool degree, 212 participated (96.36%) and of the 600 students enrolled in the second year of the Primary Education degree program, 301 participated (50%). For 82.9% of the students, their studies was the activity that occupied most of their time and to have access to their degree programs the majority finished Secondary school, though a third (22.8%) had completed Advanced Vocational Training previous to entrance.

Procedure

The gathering of information was done through a self-report on reading and writing habits and was filled out by the students online. We have called the self-report "Questionnaire for reading and writing habits in college students. 2014 version". It can be found in its online version at

https://es.surveymonkey.com/s/habitos_lectores_2014. This instrument is structured into five dimensions, as described in Table 1. In addition to 6 questions related to identifying the students, there are 33 questions which are

then broken down into a total of 146 items. Each one of the items is assessed using the Likert scale, going from 0 (Never) to 5 (Always).

Table 1. Dimensions and items of the questionnaire

DIMENSION	DESCRIPTION	QUESTIONS	ITEMS
Cultural Literacy	Reading events outside the academic environment	7-13	1-26
Creation and Ingenuity	Writing events outside the academic environment	14-18	27-46
Cultural Production and Consumption	Literate events related to the publishing market	19-23	48- 66
The Culture of Memory	Uses of libraries and information storing	24-28	67-90
Academic Literacy	Practices and strategies used to access or facilitate access to prototypical discourse in a discipline of field of study	29-39	91-146

An analysis of the psychometrical characteristics of the Questionnaire shows us that its internal consistency or reliability – measured through the Cronbach Alpha- is 0.941. The study of this reliability by dimensions can be seen in Table 2 and it yields Alpha values of around 0.80, with the “Academic Literacy” dimension as the highest scoring value and “Cultural Production and Consumption” as the lowest.

The construct validity of the questionnaire has been analyzed using the Non-Metric Multidimensional Scaling (PROXSCAL), given that the measuring scale used in that

instrument is of a Likert type with 6 ordered categories (Biencinto, Carpintero and García-García, 2013). For this, we have created a proximity matrix whereby the transformed proximities would maintain their original order. The four values, which measure the stress data, show scores close to zero. The other two measurements are the explained dispersion (D.A.F.) and the Tucker’s Congruence Coefficient, which measure fit. In the results collected in Table 2, we can find very good indicators of adjustment that ratify the existence of the dimensions proposed in the structure of the questionnaire.

Table 2. Questionnaire Dimensions and Items

DIMENSION	Cronbach Alpha	Stress measurements				Adjustment measurements	
		Ngs ¹	Stress I	Stress II	S-Stress	D.A.F.	TCC
Cultural Literacy	0.813	0.04687	0.21649	0.47118	0.14540	0.95313	0.97628
Creation and Ingenuity	0.804	0.02844	0.16865	0.37543	0.06051	0.97156	0.98568
Cultural Production and Consumption	0.744	0.02671	0.16344	0.34583	0.07045	0.97329	0.98655
The Culture of Memory	0.772	0.05169	0.22736	0.48848	0.10185	0.94831	0.97381
Academic Literacy	0.928	0.06401	0.25300	0.51102	0.15273	0.93599	0.96747

¹Ngs: Normalized gross stress

Data Analysis

In order to address the objective that we set with respect to the practice of teaching and learning practices of students we carried out a frequency distribution of the items that best represent these practices as well as the items that describe students' strategies for epistemic writing.

Another of the objectives of our study was to be able to predict students' scores in academic literacy, following a previously defined model (see Table 1). For this reason, we have taken as a criterion variable the scores in one of the questions in the "Cuestionario sobre hábitos lectores y escritores en estudiantes universitarios. Versión 2014", which make up the part called "academic literacy". The question we refer to is number 39 and it includes 8 items. The eight items can be reduced to a single dimension, according to the analysis of the main components for categorical data (CATPCA), which is able to explain 44.8% of the variance, with a Cronbach Alpha equal to 0.865. In this dimension all the items reach saturation above 0.68. The question chosen, "When you write a paper, project or a similar text for one of your school subjects, which writing strategies do you utilize?", was done so because we

consider a student's written production to be the best measurement of his or her academic literacy level.

As well, the predictors chosen were those questions of the Questionnaire which could explain the variability observed through the academic literacy levels of the students. A total of 6 questions were chosen from the Questionnaire (12 items).

With the goal of reducing the number of predictors, conceptual and empirically, an analysis of main components for categorical data has been employed (CATPCA). The result of the CATPCA ended up showing the existence of two main components, while it is true that one of the components explained a scant percentage variance (11.23%) and its Cronbach Alpha was only 0.254. For this reason, we decided to consider the solution of a single main component – with a 54.54% of variance explained by a Cronbach alpha of 0.816– and one in which all the items had saturations above 0.40 (see Table 3). Consequently, the predictor variables can be explained in terms of a dimension that forms a group of the educational practices developed by professors to favor the academic literacy of the students themselves in order to match their behaviors to the teaching demands.

Table 3. Saturations of the Main Categorical Components

	Dimension	
	1	2
TEACHING PRACTICES		
1. The teacher provides an annotated bibliography	0.505	0.176
2. The teacher analyzes the recommended readings in class	0.443	0.649
3. In class, the students form oral or written personal reflections based on the recommended readings	0.598	0.436
4. The students must create a text which includes an argued critical opinion	0.574	0.269
5. The students must write a synthesis of a text and rework its most relevant points	0.637	-0.077
6. The evaluation includes individual or group research papers and projects	0.668	-0.116
LEARNING PRACTICES		
7. The students read the chapters of books	0.583	-0.385
8. The students read articles in scientific journals	0.406	-0.466
9. The students create outlines or concept maps based on what they read	0.692	-0.295
10. The students create concept maps or outlines when they have comprehension problems	0.654	-0.284
11. The students make critical commentary based on what they read	0.492	0.166
12. The students broaden their knowledge by reading complementary texts when they encounter problems of comprehension	0.570	0.100

With the aim of determining the explanatory ability of the predictive variables on the criterion variable, we have used a regression analysis for categorical data given that both types of variables are of an ordinal type. This analysis carries out a non-linear transformation of the scores, allowing analysis of the items at various levels until the most appropriate model is found. In our case, a linearoptimal scaling has been defined in which the order of the modalities of observed variable (each one of the Questionnaire items) was conserved in the optimally scaled variable.

Our third goal was to determine the consistency of the explanation offered by the regression analysis in terms of the observed variability in the variable literacy of the students. For this, we separated the students into two groups based on their scores in the aforementioned criterion variable. Thus, in order to configure one of the groups we chose those students who obtained at least 4 points out of 7 in each and every one of the items that make up the variable academic literacy (criterion variable) while in the formation of the other group we chose those students whose score in each and every one of the items of that variable is equal to or below 3 points. In the first group, the high-score one, we identified a total of 51 students and in the second group, that of the lower scores, a total of 41. Once the two groups were formed, we compared their scores in the predictor variables so as to determine the existence of statistically significant differences using the Mann-Whitney U test.

The fourth and final goal of our work was to determine the existing differences among students enrolled in Preschool Education and those in Primary Education with respect to the teaching and learning practices which favor academic literacy and the academic text-writing strategies. With that in mind, we once again used the Mann-Whitney U test.

Results

A description of the students' responses to the Questionnaire, related to the predictor variables of our study, reveals a diversity of teaching and learning practices. These do not clearly identify a teaching and learning model which openly opts for academic literacy in first year students in the degree program in Education. Thus, it is very striking that around 50% of professors never or seldom (values equal to or below 2 out of 5) provide an annotated bibliography to their students nor do they analyze recommended readings in class. It is also relevant that 60% of the teachers never or seldom require the creation of written texts where students need to express critical and argued opinions. For their part, almost 67% of students point out that they never or seldom read journal articles, 70% never or seldom produce critical commentaries based on what they read and more than 54% never or seldom read complementary texts when they have comprehension problems (see Table 4).

Regarding the criterion variable, which alludes to the strategies developed by the students to write epistemically, it is also worth pointing out the diversity observed in the responses to the Questionnaire. It is worth pointing out the fact that 68% of students never or seldom consider models of academic papers as a reference for writing their own texts. As a result, it is probable that these students will not acquire the necessary training in the different sub-types of academic writing. Likewise, almost 50% of those surveyed indicate that they never or seldom search bibliographic references to support their arguments when writing their papers or that 39% do not examine their own ideas or experiences on a given topic prior to undertaking the creation of their papers or projects.

Table 4. Percentages of students' response to the criterion and predictor variables

	Scores ≤ 2
TEACHING PRACTICES	
1. The teacher provides an annotated bibliography	48.3
2. The teacher analyzes the recommended readings in class	50.1
3. In class, the students form oral or written personal reflections based on the recommended readings	42.9
4. The students must create a text which includes an argued critical opinion	60.3
5. The students must write a synthesis of a text and rework its most relevant points	33.8
6. The evaluation includes individual or group research papers and projects	19.8
LEARNING PRACTICES	
7. The students read the chapters of books	32.4
8. The students read articles in scientific journals	66.6
9. The students create outlines or concept maps based on what they read	25.0
10. The students create concept maps or outlines when they have comprehension problems	34.7
11. The students make critical commentary based on what they read	69.8
12. The students broaden their knowledge by reading complementary texts when they encounter problems of comprehension	54.1
LITERACY	
1. I question myself about what I already know about a topic	39.2
2. I search for information about a topic	16.5
3. I seek out a study with similar purposes and structure	67.8
4. I work from a work outline or a structure given by the teacher	29.3
5. I elaborate a work plan or an index	31.8
6. When I am writing I look for bibliographic references that support my arguments	48.0
7. I review what I have written	11.7
8. I make use of the teacher's corrections during the writing process	32.8

The results of the analysis of the data corresponding to the predictive study are shown in Table 5. This table shows us that the academic literacy of the students is explained at a value of 78% (R squared adjusted= 0.78)

by the teaching practices which favor this literacy and by the practices by the students themselves, represented by the predictor variables.

Table 5. Summary of the Regression Model

R multiple	R squared	R squared adjusted	Error of apparent prediction
0.899	0.809	0.780	0.191

The analysis of the variance, whose results are shown in Table 6, allows us to reject the null hypothesis regarding the lack of influence of the predictor variables on the criterion variable for a confidence level clearly above

99%. This result allows us to verify that together the predictor variables provide information in the explanation of the criterion variable.

Table 6. Variance Analysis

	Sum of Squares	gl	Mean Square	F	<i>p</i>
Regression	192.477	31	6.209	28.096	0.0001
Residue	45.523	206	0.221		
Total	238.000	237			

The results for the Beta values which are displayed in Table 7 allow us to reject the null hypothesis for most of the predictor variables in the sense that they would not add significant information so as to explain the observed variability in the criterion variable (for a confidence level above 99). In all the variables except those corresponding to items 7 “The students reader chapters from books” ($p = 0.112$) and 10 “The students create concept

maps or outlines when they have comprehension problems” ($p = 0.973$). As a consequence, we can point out that the predictor variables relative to the teaching practices to promote academic literacy as well as the students’ learning practices considered in this study provide significant information so as to explain the observed variability in academic literacy.

Table 7. Regression Coefficients

	Standardized Coefficients		gl	F	<i>p</i>
	Beta	Bootstrap Estimation ¹			
TEACHING PRACTICES					
1. The teacher provides an annotated bibliography	0.118	0.038	2	9.378	0.0001
2. The teacher analyzes the recommended readings in class	0.144	0.044	3	10.650	0.0001
3. In class, the students form oral or written personal reflections based on the recommended readings	0.157	0.041	3	14.980	0.0001
4. The students must create a text which includes an argued critical opinion	0.205	0.045	3	20.921	0.0001
5. The students must write a synthesis of a text and rework its most relevant point	0.154	0.049	2	9.852	0.0001
6. The evaluation includes individual or group research papers and projects	0.268	0.066	3	16.492	0.0001
LEARNING PRACTICES					
7. The students read the chapters of books	0.060	0.042	3	2.019	0.112
8. The students read articles in scientific journals	0.129	0.036	3	12.712	0.0001
9. The students create outlines or concept maps based on what they read	0.178	0.047	1	14.502	0.0001
10. The students create concept maps or outlines when they have comprehension problems	0.012	0.072	2	.027	0.973
11. The students make critical commentary based on what they read	0.110	0.049	2	4.990	0.008
12. The students broaden their knowledge by reading complementary texts when they encounter problems of comprehension	0.204	0.048	4	18.046	0.0001

¹(1000) standard error

The results of the comparison between the highest- and lowest-scoring students in the criterion variable based on their scores in the predictor variables (done using the Mann-Whitney U test) are shown in Table 8. There

the existence of statistically significant differences can be observed between both groups of students in all the predictor variables (with a confidence level above 99%).

Table 8. Teaching and learning practices related to academic literacy, according to the high and low scores of the students in their academic text-writing strategies

	Scores	Average range	Sum of ranges	Mann-Whitney U	<i>P</i>
TEACHING PRACTICES					
1. The teacher provides an annotated bibliography	<i>high</i> <i>low</i>	53.06 27.38	2865.00 876.00	348	0.0001
2. The teacher analyzes the recommended readings in class	<i>high</i> <i>low</i>	51.87 27.55	2801.00 854.00	358	0.0001
3. In class, the students form oral or written personal reflections based on the recommended readings	<i>high</i> <i>low</i>	54.33 25.22	2934.00 807.00	279	0.0001
4. The students must create a text which includes an argued critical opinion	<i>high</i> <i>low</i>	55.56 23.11	3111.50 716.50	220.5	0.0001
5. The students must write a synthesis of a text and rework its most relevant points	<i>high</i> <i>low</i>	58.87 26.36	3355.50 922.50	292.5	0.0001
6. The evaluation includes individual or group research papers and projects	<i>high</i> <i>low</i>	60.04 24.46	3422.00 856.00	226	0.0001
LEARNING PRACTICES					
8. The students read articles in scientific journals	<i>high</i> <i>low</i>	58.72 25.66	3405.50 872.50	277.5	0.0001
9. The students create outlines or concept maps based on what they read	<i>high</i> <i>low</i>	57.66 25.27	3344.50 783.50	280.5	0.0001
11. The students make critical commentary based on what they read	<i>high</i> <i>low</i>	50.78 23.80	2843.50 642.50	264.5	0.0001
12. The students broaden their knowledge by reading complementary texts when they encounter problems of comprehension	<i>high</i> <i>low</i>	53.63 29.63	3057.00 948.00	420	0.0001

When the students' scores are compared according to the years they have been studying their degree program, and using the Mann-Whitney U test, the data obtained highlight the existence of statistically significant differences in teaching and learning practices that favor literacy in the degree Education programs, in all cases favorable towards the degree in Preschool Education. In the case of the strategies used by students in academic text

writing, statistically significant differences are found in the strategies which, as well, favor the students of the Preschool Education degree (see Table 9). As a consequence, the results seem to indicate that there exist different teacher and learner practices between Preschool Education and Primary Education. These practices also reflect a different goal towards academic literacy and epistemic writing strategies of academic texts.

Table 9. Differences between teaching and learning practices for favoring academic literacy and the strategies of academic text writing in students of Preschool and Primary Education

	Average ranges	
	Preschool	Primary
TEACHING PRACTICES		
1. The teacher provides an annotated bibliography	221.91	235.02
2. The teacher analyzes the recommended readings in class	236.03**	203.07
3. In class, the students form oral or written personal reflections based on the recommended readings	248.05**	209.02
4. The students must create a text which includes an argued critical opinion	242.86**	180.61
5. The students must write a synthesis of a text and rework its most relevant points	299.77**	198.06
6. The evaluation includes individual or group research papers and projects		
LEARNING PRACTICES		
8. The students read articles in scientific journals	186.17	202.66
9. The students create outlines or concept maps based on what they read	284.10**	211.87
11. The students make critical commentary based on what they read	221.53**	187.16
12. The students broaden their knowledge by reading complementary texts when they encounter problems of comprehension	234.05	229.69
LITERACY		
1. I question myself about what I already know about a topic	284.20**	208.28
2. I search for information about the topic	327.37**	187.24
3. I seek out a study with similar purposes and structure	239.50	216.08
4. I work from a work outline or a structure given by the teacher	305.60**	197.71
5. elaborate a work plan or an index	300.29**	201.27
6. When I am writing I look for bibliographic references that support my arguments	264.60**	214.30
7. I review what I have written	337.19**	182.82
8. I make use of the teacher's corrections during the writing process	298.23**	202.98

· Statistically significant differences at 0.05

** Statistically significant differences at 0.01

Discussion

The creation of written texts in the context of the university (exercise books, critical commentaries, portfolios, projects, etc.) should be done adhering to set requirements. These are a consequence of the specific characteristics of the different academic text types that exist. From the time a student enters the university he or she begins a learning process of the different text types which culminates in the student writing research papers at the end of their degree program, at the end of a Masters program or writing a

Doctoral thesis. These textual characteristics differ from those acquired in secondary education given that they are not competencies that are developed in earlier stages of their schooling and because the textual characteristics in question are specific for each field of knowledge.

As a consequence, a student who is familiar with certain discourse forms found at the university level acquired during the process of academic socialization would not necessarily have developed true academic literacy. Studying for an undergraduate,

Masters or Doctorate degree entails developing a competency in critical text writing with those features and ways inherent to the discourse of a particular field of knowledge. This competency development is identified with academic literacy. The creation of written texts at the university demands that students construct epistemic discourse which enables the transformation of knowledge (critical literacy). Therefore, a student cannot be limited to reproducing the ideas obtained in his or her readings or to incorporating them without any contrasting or critical evaluation.

The acquisition of critical literacy is conditioned to a large extent by a professor's practices. These practices significantly guide a student's reading and writing habits. Therefore, according to the methods used by the teacher and the characteristics of the task at hand required of the students, thus will be the academic literacy strategies developed by the learners. The writing of academic texts requires the practice of critical, or epistemic, reading habits as well as the practice of writing habits. Such writing requires that reading and writing practices at the university become an instrument for awareness and intellectual self-regulation.

This study has identified some of the characteristics that define the teachers' and the learners' practices which best explain the academic literacy strategies used by students. We have considered such practices as predictors with the capability to explain the level of students' academic literacy, understood as a criterion. The results obtained in the study show that it is possible to predict, with an acceptable apparent margin of error (0.191), the strategies which the students use to write their academic texts according to the practices, which their professors promote, and, thus, of those which the students themselves use when they read or write at the university.

Among the university teaching practices which favor student academic literacy are the following: providing an annotated bibliography, analyzing recommended readings in class, proposing students to personally reflect, orally and by writing, upon

the recommended readings, creating a text which states their critical and argued opinions, carrying out a synthesis of a text and reworking its most relevant points, and proposing an evaluation which includes individual or group research papers and projects. These teaching practices favor certain reading and writing habits, geared towards the improvement of academic reading and writing. Among these habits would be the reading of articles from scientific publications, the creation of concept maps and outlines based on what students read, the creation of critical commentary on academic readings and the reading of academic texts to complete their training in a given field.

Students who develop all the aforementioned reading and writing habits in a context that has been enhanced by the previously mentioned teaching practices develop, with greater probability than other students, an academic literacy more closely in line with the demands of university studies. Thus, our study has been able to establish that teaching and learning practices which favor academic literacy explain strategies of epistemic writing for the creation of academic texts. Through these practices, a student develops the ability to self-regulate when reflecting upon what he or she already knows on a topic; as well, the student searches for information, seeks out a study with similar purposes and structure, utilizes a work outline or a structure given by the teacher, elaborates a work plan or an index, looks for bibliographic references that support one's own arguments, reviews what he or she has written and takes into account the teacher's corrections during the writing process.

In this study, we have been able to ascertain that students with higher levels of academic literacy are those whose practices are for the most part in line with the predictors previously described. These are also the students whose professors carry out teaching practices that favor academic literacy in a field of knowledge such as that of the Preschool and Primary Education Degree.

The results of this study highlight the importance of literacy practices in the training of future teachers, as developed and promoted by their professors. The data confirm an obvious hypothesis: the quality of academic writing in an area such as that of Education studies is the outcome of what the students learn during their training period. Differentiation among models of study, socialization and academic literacy have a critical influence in the training process. As such, universities and educators should deliberately and systematically intervene in the students' habits in order to achieve an adequate academic literacy. This intervention turns out to be especially important in the case of those graduates who, given their profession, will have the mission of making others literate.

Conclusions

Included among the characteristics underscored by the Spanish Qualifications Framework for Higher Education (MECES) are aspects related to the acquisition of knowledge and its corresponding understanding regarding different theoretical and practical aspects, the application of this knowledge and the development of the ability to compile and interpret information on which to base one's reflection in a given field of study. In a strict sense, the characteristics described in the Royal Decree 1027/2011 (in Spain, the *Real Decreto 1027/2011*, which incorporate the Dublin Descriptors, address academic literacy, and this can be seen in the decree's different sections. This literacy, then, becomes a genuine teaching-learning style of Higher Education (Boscolo, 1995).

With this goal in mind, a reworking of university teaching projects would be required so as to give academic literacy its place in syllabi, where each discipline would carry out instruction in the reading and writing of specific texts adapted to their own characteristics. To achieve this, it would be necessary to include reading and writing of academic styles in the classroom (Carlino, 2013) as well as including feedback to students on the quality of epistemic writing (Guzmán-Simón & García-Jiménez, 2014;

Cano, 2014). This task should be undertaken by the professor in each subject area, since these educators are the ones who should facilitate this kind of learning in the university classroom (Bailey & Vardi, 1999). On this point, the teaching-learning process cannot be separated from academic literacy.

In this manner, academic writing allows university students to make decisions related to the planning of their discourse and its identification with an academic textual model (Villalón & Mateos, 2009). This literacy requires of the student the building of a critical literacy, transforming, therefore, writing into learning. The teaching of these strategies in a specific subject matter implies fostering a genuine learning. In a strict sense, there can be no cognitive development unless we encounter a knowledge transformation in the writing of academic texts (Bereiter & Scardamalia, 1987). Consistent with preceding studies, the tasks asked of the students do not imply an authentic cognitive development and rarely require an epistemic writing (Applebee, 1984; Paris, Wasik & Turner, 1991; Tynjälä, Mason & Lonka, 2001). As a result, students have numerous problems in developing critical literacy in the academic sphere (Nist & Simpson, 2000)

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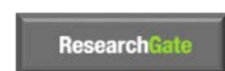


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