

Tutoring the end-of-studies dissertation: helping psychology students find their academic voice when revising academic texts

Montserrat Castelló · Anna Iñesta · Marta Pardo · Eva Liesa ·
Reinaldo Martínez-Fernández

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Abstract This intervention study aimed at helping undergraduate students of psychology learn to use the discursive resources useful to make academic voice visible in their texts and to improve their writing practices. The intervention involved tutorial meetings and collaborative revisions in two different learning environments, on-line and face-to face. The final text quality, the students' knowledge and the amount and the quality of revisions were assessed in both conditions. Results show that the quality of the texts improved for both intervention groups in contrast with for control group, and better texts were related with higher rates of revision and more students' satisfaction with the intervention.

Keywords Academic writing · Revision strategies · Academic voice · Higher education · Teaching writing

Introduction

Several studies have recently drawn into students' difficulties to write complex academic texts such as research projects, reports, papers or dissertations at the university (Aitchison

M. Castelló (✉) · A. Iñesta · M. Pardo · E. Liesa
Graduate School of Psychology, Blanquerna, Ramon Llull University,
C/Cister 34, 08022 Barcelona, Spain
e-mail: montserratchb@blanquerna.url.edu

A. Iñesta
e-mail: Ana.inesta@esade.edu

M. Pardo
e-mail: martape@blanquerna.url.edu

E. Liesa
e-mail: evalh@blanquerna.url.edu

R. Martínez-Fernández
School of Educational Sciences, Universidad Autónoma de Barcelona,
Campus Bellaterra, Edifici G-6, 08193 Barcelona, Spain
e-mail: JoseReinaldo.Martinez@uab.cat

and Lee 2006; Castelló et al. 2010; Maher et al. 2008; Solé et al. 2005). Consequently, an important number of applied research studies have been conducted with the objective of teaching students the strategies that will allow them to manage the complexity of writing these academic and scientific texts (Boscolo et al. 2007; Castelló et al. 2009; Dysthe 1996, 2002; Lee and Boud 2003; Mullen 2006; Prior 2004; Rienecker and Jorgensen 2000; Rijlaarsdam et al. 2005; Tynjälä and Mason 2001).

Despite their differing particularities, the interventions implemented as part of these studies place a special emphasis on three related—and, in some cases, complementary— aspects. On the one hand, some of the studies focus on the epistemic function of writing, that is, its potential to promote a more reflective approach to learning within the different subjects and disciplines (Tynjälä and Mason 2001). On the other hand, a number of studies have aimed at helping students acquire specific strategies useful for them to orchestrate the composition process (Rijlaarsdam et al. 2005). Finally, an increasing number of proposals has pointed out the importance of helping students become aware of how certain discursive mechanisms, such as maintaining a stance, dialoguing with other texts, using boosters and hedges appropriately, among others, can help them convey their ideas in a complex way and in accordance to academic standards (Hyland 2005; Swales 2004), relating the appropriate use of such discursive mechanisms to the construction of *academic authorship* in specific discourse communities (Castelló et al. 2010; Dysthe 2002).

This latter aspect, developing a sense of authorship, has been frequently related with the notion of *academic voice* and, in the last few years, this has become one of the most important challenges in higher education, especially when trying to avoid students' plagiarism. Until now, research in this area has mostly focused on construct conceptualization, analysing and reflecting upon what authorship and academic voice involve (Matsuda and Tardy 2007) or, more recently, exploring students' beliefs and attitudes regarding authorial identity (Pittam et al. 2009). While the theoretical interest of these studies, as well as their relevance in the reflection on higher education program objectives is undeniable, it seems necessary to conduct applied research studies as well so as to approach the implications of the notion of academic voice on instructional practice. More specifically, we need to explore whether and with the help of which instructional strategies it is possible to teach undergraduate students how to manage the discursive resources to make their voice visible without neglecting the requirements and conventions of academic texts. This is precisely the main aim of our study: to help undergraduate students find their academic voice when writing a highly demanding academic text such as their end-of-studies dissertation, and we claim this may be reached through collaborative peer-revision.

The notion of academic voice

The recent literature on academic writing shows an open discussion about the meaning and importance of the construct of academic voice which varies according to the perspective adopted. From a socially and culturally mediated activity perspective (Candlin and Hyland 1999; Castelló et al. 2009; Flowerdew and Peacock 2001; Johns 2002; Lea and Stierer 2000), texts are considered "*artifacts-in-activity*" (Prior 2006, p. 58) that become meaningful within a discourse community (Swales 1990). This conceptualization implies that texts are *living organisms* which come to life as a result of a complex two-way process whereby authors construct their academic voice through a highly demanding craftsmanship, and readers interpret and reconstruct the authors' voice from the discursive choices populating the final text. In this sense, saying that *the text is alive* may be useful as a metaphor to refer to the positive impact of an academic text which avoids the easy use of

plagiarism and successfully conveys a/n own/academic voice through the inter-textual dialogue with the voices of other members of the same academic community (Bazerman and Russell 2003; Spivey 1997). Needless to say, this positive impact has to do with the degree to which the text fulfils the expectations of the academic readers, who engage in authorial identity decoding even in blind manuscript review (Matsuda and Tardy 2007).

Among the features that have been identified as being involved in the construction of academic voice we find (1) the resources which reveal the author's positioning—hedges, boosters, attitude markers and self-reference deictic markers—(Hyland 2005; Koutsantoni 2006), (2) the rhetoric moves in the organization of information (Swales 1990, 2004; Kanoksilapatham 2005), (3) the use of citations (Candlin and Hyland 1999), (4) reporting verbs (Hyland 2002a) and (5) directive expressions (Hyland 2002b).

There is also some evidence that voice-related features may be closely related with text quality (Aitchison and Lee 2006). Precisely, this relationship between academic voice and text quality has been the focus of some controversy since in the study conducted by Helms-Park and Stapleton (2003) voice-related features did not seem to have an impact on the quality of undergraduate argumentative writing. It may be argued, however, that in this latter study the notion of voice and the analyses of those voice-related features were not approached from social perspectives on voice, clearly represented by the work of Dysthe (1996), Ivanic and Camps (2001), Matsuda (2001) or Prior (2001) among others, reporting positive evidence regarding relationships between academic voice and text quality. In any case, this is still an open issue which deserves more attention from teaching and learning writing research.

Teaching revision strategies

Research on teaching revision-strategies has been much more extensive, especially from cognitive perspectives, and it has mainly focused on primary and secondary or college students, while less attention has been devoted to higher education—undergraduate and graduate—students' revision strategies and practices (Allal et al. 2004; Couzijn and Rijlaarsdam 2005; Butterfield et al. 1996; Lindblom-Ylänne and Pihlajamäki 2003; Olive and Piolat 2003; Roussey and Piolat 2005).

Regarding the instructional strategies deployed, the Self-Regulated Strategy Development (SRS) model (Harris and Graham 1996, 1999), with its five stages—developing background knowledge, describing the strategy, modelling it, memorizing it and independent use—appears to have been one of the most widely used, even in higher education, as revealed in Graham's meta-analysis (2006). So far, most studies have focused on teaching revision strategies when the participants work individually or collaboratively while handwriting the texts (Allal et al. 2004; Zimmerman and Kitsantas 1999) or, more recently, while writing on a personal computer (Lindblom-Ylänne and Pihlajamäki 2003). When exploring the usefulness of revision in peer dyads, research has focused specially on face-to-face interaction (Olive and Piolat 2003; Roussey and Piolat 2005). Results of the studies that compared computer writing with computers versus paper-and-pencil writing obtained mixed results but, on average, they showed that students who use computers when learning to revise are not only more engaged and motivated in their writing but they produce longer texts and of better quality (Goldberg et al. 2003). In the last few years, an increasing amount of research has developed around the notion of asynchronous writing, but the focus of these studies is much more on interaction and facilitating instrumental aspects of writing than on the characteristics of learning the specific strategies and

mechanisms of academic writing (Liccardi et al. 2007; Weng and Gennari 2004; Zheng et al. 2006).

The study of Lindblom-Ylänne and Pihlajamäki (2003), focusing on undergraduate students collaborative revision, revealed that good essays were related with the active use of the computer-supported learning environment which allowed for drafts being revised by peers. However, students' experiences were divided between those who felt satisfied with the opportunity to share their unfinished texts and those who considered this activity to be too challenging or threatening. Despite the reported higher quality of the written essays, no evidence was provided regarding the type and amount of revisions. Therefore only an indirect relationship could be established between the revision that the intervention promoted and final text improvement, although students' active involvement in the computer-supported learning environment may suggest that they could have taken advantage of their classmates' revisions. Moreover, students' suggestions for revision seemed to be restricted to content because they critically discussed the information that should be included in the texts, but they did not reflect upon the characteristics of the specific genre they had to write nor about the discursive mechanisms useful to make their voice visible in their texts. Finally, we could ask whether different results could be found in face-to-face environments or whether specific characteristics could be related to each learning environment.

The intervention proposal we developed tried to contribute to the discussion around these questions and had the general aim to help undergraduate students' use the discursive resources to make their academic voice visible in their texts through collaborative revisions in two different learning environments: on-line and face-to-face tutorial meetings. We chose these two environments since both tutors and students frequently complained of time constraints to carry out collaborative revisions in face-to-face meetings. Besides, some students are reluctant to hold meetings in which their texts will be commented and criticised (Lindblom-Ylänne and Pihlajamäki 2003). We supposed that providing students with the possibility to revise their texts on-line could facilitate their implication and at the same time allow for asynchronous peer revisions.

More precisely, our objectives were

1. To compare the quality of the texts produced by students in the intervention groups (on-line and face-to face) and in the control group.
2. To analyse the extent to which the on-line and the face-to-face learning environments showed a different impact in the following aspects:
 - 2.1. Students' final text quality.
 - 2.2. Students' revision strategies of academic texts.
 - 2.3. Students' knowledge of specific discursive mechanisms characteristic of scientific papers in the field of psychology.
 - 2.4. Students' satisfaction with the intervention.
3. To analyse whether final text quality is related with the revision strategies displayed by students in both intervention groups.

The context of the intervention

In the eighth semester of their studies, Psychology students at the Ramon Llull University (Barcelona, Spain) have to write a brief dissertation explaining a research project they have carried out during the previous semester. The text needs to fulfil the requirements of an academic paper and this implies a real challenge for undergraduate students so weekly

meetings are organized where they can discuss their progress with a tutor. These meetings take place in groups of 12–15 students in what is called “*the seminar*”, a cross-sectional subject whose aim is, precisely, to help students write their end-of-studies research project and dissertation. Tutors usually focus on how and where they can search relevant databases and select readings and students also receive guidance in the process of identifying key concepts, author mapping and organizing information. Regarding writing, tutors have developed a system of guidance in order to guarantee students’ fulfilment of formal academic requirements (paragraph length, references or notes), text organisation (coherence, sections and logical flow of the information) and they also focus on interest and motivation (Hidi and Boscolo 2006). Despite this guidance, tutors have problems trying to help students make their voice visible in their texts, to establish a personal but justified point of view, to maintain a stance along the text and to progress in the argumentation without losing this stance.

In this context, we developed an intervention in which we combined students’ reflection and collaborative revisions in two learning environments: on-line and face-to-face. In both cases, the intervention was implemented in the ongoing weekly tutorial meetings, the content focusing on the characteristics of discursive mechanisms to maintain a stance (Hyland 2005), to dialogue with other voices (Castelló et al. 2010; Dysthe 2002) and to organize the information according to the expected characteristics of academic papers in the field of psychology (Swales 1990, 2004).

Method

Sample

The sample consisted in 58 Psychology students (83% female) originally grouped in four classes (seminars). Mean age of the participants was 24.8 years ($SD = 2.1$). Those students were randomly assigned into two conditions:

- Condition 1 (writing tutorial): 28 students distributed in two modalities, on-line (12 students) and face-to-face intervention (16 students).
- Condition 2 (control group): 30 students distributed in two groups with usual seminar and tutor individual guidance.

Since the intervention program designed to improve academic writing developed in two modalities (face-to-face and on-line), Condition 1 led us to analyse possible differences between those two modalities of intervention. Condition 2 acted as a control group with instruction, because although students did not participate in the newly designed intervention program, they benefited from the usual seminar tasks which were devoted to improve students’ academic writing, specially text structure and organisation. Table 1 summarizes in which conditions and modalities interventions are developed.

Procedure

A quasi-experimental design was used where the two conditions—and its modalities—were compared. Seminar groups were shaped on the basis of tutor expertise in the content of students’ dissertations. We did not modify this natural organization of groups, which were equivalent in their writing abilities and expertise in academic writing according to the assessment of previous semester seminar written academic assignments (condition 1:

Table 1 Objectives, instruments and data analysis corresponding different groups

Conditions	Modalities	Participants	Objectives	Instruments	Data analysis
Condition 1	On-line intervention	12	To analyse impact of the two modalities of intervention on:		
	Face-to-face Intervention	16	Text quality	Text assessment grid	Statistical analysis (SPSS)
			Students' revision strategies	Peers' suggestions of change Tutor's suggestions of changes Type and amount of revisions	Categories (atlas.ti) and statistical analysis (SPSS)
			Students' knowledge	Questionnaire	Statistical analysis (SPSS)
		Students' satisfaction with the intervention	Questionnaire and survey	Bottom up categories and statistical analysis (SPSS)	
			To analyse relationship between final text quality and revision strategies		Statistical analysis (SPSS)
Condition 2	Control	30	To compare texts quality with condition	Text assessment grid	Statistical analysis (SPSS)

mean = 8.0 (SD = .94); condition 2; mean = 8.3 (SD = .70); $t(40) = 1.07$; $p = .292$). The variables analysed were students' knowledge of discursive mechanisms of academic texts in the field of psychology, their satisfaction with the intervention, the revision strategies they applied and final text quality.

The on-line condition was supported by a Wiki and a forum in a Moodle learning environment. We chose this platform given its widespread use in the higher education community as well as because of its user-friendly characteristics, which we considered would help the participants to become acquainted with its functioning right away. Regarding the specific tools, the forum was used to allow communication and knowledge construction among the participants. Additionally, the wiki was thought of as a tool that would allow the comments of the peer as well as the writers' modification of the text stemming from such comments to be easily traceable.

In the face-to face modality, students' comments and revisions were included on written drafts during the seminar sessions. All students' drafts were collected and reproduced after each session.

Both modalities—the on-line and the face-to face one—developed during the second semester of the 2008–2009 academic year when students, after clarifying the focus of their paper, reading and elaborating the information of relevant sources, should write the final text of their dissertation. In both modalities—the on-line and the face-to face—two types of sessions were developed:

(a) *Sessions introducing students to the discursive mechanisms of academic texts in the field of psychology.* These sessions combined writing coach explanations, text analysis and guided discussions focusing on:

- The importance of organizing information in a specific way (Swales 1990, 2004).
- The importance of positioning oneself as an author (Hyland 2005; Nelson 2001, 2008).
- The importance of establishing a dialogue with other texts and authors (Dysthe 2002; Prior 2004).

At the end of this phase (involving two 2-h sessions each) students arrived at a consensus constructing a writing guideline which would allow them to revise their peers' texts.

(b) *Writing tutorial sessions.* In this phase, students worked in dyads revising their peers' texts with the help of the writing guidelines (elaborated in the former sessions). Before the tutorial sessions students read their peer's text and thought about suggestions to improve it, the tutorial session allowing them to share and discuss these suggestions. The tutor helped them to improve revision strategies and to use the guidelines, and offered his/her own suggestions about what required revision. This was done in two 2-h sessions.

Students in the control group (condition 2) benefit from the usual tutors' guidance which focused on: (a) text structure (coherence and cohesion), (b) text organisation (sections, logical flow of the information) and (c) clarity and precision (using appropriate and defined concepts—keywords-, short and clear sentences and avoiding redundant information). As for the sessions, the whole intervention was based on tutorial sessions where teachers met with each student individually in order to comment on their work, suggest improvements and guide the following writing phase. A minimum of three to six tutorial meetings were held with each student.

So, the differences between the two conditions (the experimental and the control one) focused on:

- (a) whether discursive strategies characteristic of academic texts in the field of psychology and designed to make students' voice visible were explicitly taught by means of in-class discussion and text analysis
- (b) whether students had the opportunity of internalizing the use of such strategies when revising and providing feedback to their peer's
- (c) whether students benefitted from the social scaffolding of the collaborative revision of their texts.

Instruments

Some specific instruments were developed to assess whether students had learned the main characteristics of academic texts after the writing tutorial sessions, their satisfaction with the intervention and final text quality.

Regarding the latter, we used an assessment grid including different dimensions to be evaluated following the analytical approaches in written text quality assessment (Breetvelt et al. 1994; Hayes 2000; Levy and Ransdell 1996). In accordance with the content developed in the writing tutorial, and based on previous literature, the items of this assessment grid were developed. A pilot grid was used with similar texts by three researchers and after discussing the appropriateness of each item and its contribution to

final text quality, the final version of the instrument was reached. Items finally accepted focused on the use of discursive mechanisms to establish and maintain a position, the correctness and use of citations and the clarity of textual structure and information organization. After the necessary training, three independent researchers assessed the final texts using this instrument and the index of agreement between them was up to 89%. Disagreements were analysed and discussed until a consensus was reached.

Factorial analysis of the instrument, the assessment grid (main components with Varimax rotation for SPSS), revealed two highly related components by Pearson correlation ($r = .857$; $p < .001$) explaining text quality (see Table 2). Taking into account the different activities regarding these factors we labeled these as text organisation (F1) and author's voice (F2).

The collected data on text quality were analysed looking for differences between the two intervention modalities as well as between the control versus the intervention conditions (using SPSS for Windows).

To assess students' knowledge of the characteristics of academic texts in the field of psychology and since no instrument is specifically devoted to assess the knowledge of this specific genre, we developed a questionnaire consisting of 12 items (see "Appendix 1") addressing the contents of the course, that is, the discursive mechanisms to make author's voice visible in texts ($\alpha = .75$). Partially following the recent proposal of Pittam et al. (2009), a five-point scale was developed in order to collect students' agreement (from 1 = completely disagree to 5 = completely agree) on different statements which frequently appeared in all groups when discussing the characteristics of the dissertations as scientific texts. From those items we created a global qualification of students' knowledge.

Table 2 Factorial analysis for text quality

Factor loading by main components with varimax rotation

Items	F1	F2
Clarity of author's voice & point of view		.861
Use of resources for handing, emphasizing		.783
Use of 1st person		.697
Consideration of audience	.653	
Use of resources to engage readers	.711	
Inclusion of others voices in text	.779	
Dialogue with referenced authors		.736
Correct use of citation	.805	
Sections clearly established	.838	
Logical connections between paragraphs	.801	
Paragraphs clearly established	.786	
Structure clearly established	.862	
Objectives clearly established	.728	
Thesis clearly established	.800	
Global coherence	.726	
Global quality	.798	
Alpha de Cronbach	.97	.87

(KMO = .910) (χ^2 Bartlett = 1,20.97; $p = .001$)

We also analysed the type of suggestions students and the tutor made when collaboratively revising the two successive versions of the final text. In this case, the three first authors of this paper transcribed and discussed all the suggestions in order to group them in categories which were fully revised until consensus was reached. Then three trained judges analysed the data regarding the suggested changes in texts using the categories, the ratio of agreement being of 98%. In those few cases in which there was no agreement, categorization was discussed until consensus was reached. The type and the amount of revisions suggested by peers and by the tutor were categorized and analysed (Atlas.ti software) distinguishing whether they were mostly suggested in the face-to face or in the on-line environment.

Finally, students' degree of satisfaction with the intervention and their engagement was assessed by a 10-item questionnaire and an open-ended survey (5 questions) that they answered at the end of the intervention (see "Appendix 2"). The items addressed the fulfilment of initial expectations, teaching and learning methodology, peers' revisions and tutors' guidance, overall satisfaction, perception of learning and a final item in the survey looking for students' perceptions about weaknesses and strengths of the course. Factorial analysis of the questionnaire items also revealed the existence of two factors (main components extraction with Varimax rotation for SPSS), namely satisfaction of expectations and satisfaction about learning (process and results), which can be observed in Table 3.

Students' answers to the open survey were analysed following the grounded theory rationale; first, the transcribed data were analysed with the Atlas.ti 5.0 software by three researchers, co-authors of this paper, in order to assign codes to the answers. Then codes were grouped in more inclusive categories which were discussed until consensus was reached. Finally, two other researchers assigned all students' answers to these categories. Percentage of agreement in this case was of 96%.

Results

As for the quality of written texts, descriptive results showed that all students in Condition 1 wrote better texts than students in Condition 2 (25.53 SD = 4.57 vs. SD = 12.87)

Table 3 Factorial analysis for course satisfaction

Factor loading by main components with varimax rotation		
Items	F1	F2
Course activities were adjusted to the expectations		.704
Methodology was adjusted to the expectations		.638
Peer-revision was adjusted to the expectations		.850
Tutor revision were useful and adjusted	.721	
Time devoted to course activities was adjusted	.657	
Course resources were useful	.719	
Length course is adjusted	.444	
Course knowledge is useful	.874	
General satisfaction	.842	
Course has changed my writing	.700	
Alpha de Cronbach	.85	.73

KMO = .699, χ^2 Bartlett = 125.97; $p = .001$

$t(58) = -12.150$; $p < .001$). Higher quality was displayed in both factors: text organisation (17.17 SD = 4.14 vs. 40.00 SD = 8.49) $t(58) = -13.164$; $p < .001$ and author's voice (8.37 SD = 1.90 vs. 15.93 SD = 4.98) $t(58) = -7.737$; $p < .001$). Nevertheless, no significant differences were found between the two modalities of intervention that is between face-to-face and on-line modalities.

Taking into account these descriptive results and regarding our first objective—to compare the quality of student's texts in the intervention and control group—differences were significant for text organisation, author's voice and for the overall quality score as displayed in Table 4.

The second objective was to analyse the extent to which on-line and face-to-face learning environments had a different impact on students' final text quality, students' revision strategies of academic texts, students' knowledge of discursive mechanisms of academic papers and students' satisfaction with the intervention. There was no difference in text quality between the on-line (53.50 SD = 11.81) and face-to-face (57.75 SD = 13.69) $t(28) = .861$ conditions (see Table 5).

When analysing students' revision strategies, we looked for the type of suggestions students and the tutor made when collaboratively revising the two successive versions of the final text. From students' and tutors' comments nine categories of suggested changes were found. Table 6 shows these categories distinguishing between the suggested actions (changes required in the text) and their function, that is, the aim of the suggested changes.

The total frequencies and percentages of these categories for both groups—hat working on-line and that working in a face-to-face environment—re displayed in Table 7 as well as the analysis of the differences between the first and the second revision percentages (Phi and Cramers' V). Percentages of both revisions show that the *need to support claims by introducing citations*, *enhance sentence clarity* as well as the requirements to *make author's stance more visible in text* were the most frequent functions of the suggested actions during text revision. It can also be observed that for most of the categories the percentage of suggestions was significantly higher in the second revision than in the first one, except in the case of *coherence between paragraphs and the need to support claims by introducing citations*. The reason for this increase may be threefold. Firstly, students may have used the first round of feedback as an opportunity to better internalize the dimensions they were asked to apply when providing their peers with suggestions to improve their texts. This internalization may have, in sum, allowed them to learn, which may have revolved in a more adjusted kind of revision, resulting in an increase of suggestions. Secondly, students may have felt more comfortable providing feedback to their peers once the first round of suggestions and peer-revision session was held. And finally, the more advanced stage in the development of students' text may have asked for a more thorough revision, thus involving a higher number of suggestions.

Table 4 Differences in text quality between conditions

	Control ($n = 30$)		Intervention ($n = 28$)		t	p	d
	M	SD	M	SD			
F1. Text organisation (12–60)	17.17	4.14	40.00	8.49	-13.164	.000	2.69
F2. Author's voice (4–20)	8.37	1.90	15.93	4.98	-7.737	.000	1.52
Text quality (16–80)	25.53	4.57	55.93	12.87	-12.150	.000	2.36

Table 5 Differences in text quality between intervention groups

	On-line (<i>n</i> = 12)		Face-to-face (<i>n</i> = 16)		<i>t</i>	<i>p</i>	<i>d</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>			
F1. Text organisation (12–60)	39.08	7.44	40.69	9.37	.488	.630	.17
F2. Author's voice (4–20)	14.42	4.81	17.06	4.95	1.417	.168	.53
Text Quality (16–80)	53.50	11.81	57.75	13.69	.861	.397	.31

Table 6 Categories of functions and actions of suggested revisions

Categories	Functions	Actions
1	Enhance clarity	Rewriting sentences
2	Enhance coherence between paragraphs	Introducing sentences, linking words...
3	Support claims by introducing citations	Introducing new citations Correct comment words to introduce author's words
4	Discourse structure clarification	Reorganizing information
5	Reader guidance/implication	Introducing sentences explaining what will be presented next Introducing linking words...
6	Objective clarification	Rewriting sentences connected with objectives Introducing new sentences making objectives explicit
7	Author's voice visibility (Hyland's 2005 'stance')	Using hedges Using boosters
8	Lexical precision	Substituting words
9	Orthographic accuracy	Correcting spelling

In order to assess the usefulness and efficacy of peer and tutor's revisions, we created a new variable calculating the received suggestions that students really took into consideration and implemented in their texts, producing the corresponding changes in the texts in both groups—the on-line and the face-to-face one. When doing this, we considered the

Table 7 Percentages of suggested revisions

Categories	First revision		Second revision		Phi	<i>p</i>
	Frequency	Percentage	Frequency	Percentage		
1 Enhance clarity	49	84.5	54	93.1	.259	.048
2 Enhance coherence between paragraphs	37	63.8	51	87.9	.051	.696
3 Support claims by introducing citations	55	94.8	56	96.6	.044	.737
4 Discourse structure clarification	39	67.2	52	89.9	.487	.000
5 Reader guidance/implication	36	62.1	45	77.6	.347	.008
6 Objective clarification	32	55.2	35	60.3	.758	.000
7 Author's stance visibility	54	93.1	44	75.9	.323	.014
8 Lexical precision	41	70.7	36	62.1	.590	.000
9 Orthographic accuracy	38	65.5	45	77.6	.567	.000

type and the amount of suggestions received in the first revision and we compared them with the changes that could be observed in text, once it had been revised by the author. This allowed us to obtain a ratio of the accepted changes. We did the same for the second revision and consequently we obtained two measures of the accepted changes. Means of these two measures were highly different (first = 1.94 SD = 3.34 and second = 8 SD = 2.71; $z = -4.12$ $p < .001$) making clear that students made more changes in the second revision (see Table 8).

As for the impact that both conditions—the on-line and the face-to-face condition—had in students' revisions (objective 2), it can be observed—as displayed in Table 9, that, even though in the first revision the suggested changes in the on-line condition were higher, in the second revision differences between the two conditions were not significant (*U*-Mann–Whitney). Suggestions for revision are higher in the second revision for both conditions.

Regarding students' knowledge about the characteristics of academic texts at the end of the intervention, they were no significant differences between the on-line and the face-to-face conditions (see Table 10).

As for differences regarding student satisfaction between the two intervention conditions, a global punctuation labeled global satisfaction was considered given that a positive significant correlation was found between the two factors ($r = .479$; $p = .011$). As displayed in Table 10, contrasts were not significant (*U*-Mann–Whitney). The on-line and face-to-face students' groups showed a similar satisfaction when they finished the intervention.

Qualitative analysis of students' answers about satisfaction revealed that both groups (on-line and face-to-face) positively assessed the following aspects:

- (a) *Receiving feedback both from their tutor and from their peers.* A 43% of students, in both conditions, expressed that the possibility of discussing their texts, especially with peers, and receiving feed-back was one of the most outstanding advantages of the intervention. This is a representative example of the comments included in this category: “*In my opinion, having a peer revise my text is very positive because you can have other points of view (S3B)*”.
- (b) *Managing emotional aspects of writing better.* Almost all students in the face-to-face condition (98%) explained that being able to discuss their writing problems and, at the same time, revising other classmates' texts helped them to reduce anxiety and to feel more confident with their final texts. They also recognised that in the face-to-face conditions they felt comfortable and could better regulate the emotional aspects related with receiving criticism of their texts. Students in the on-line condition did not comment on these emotional issues.
- (c) *Becoming aware of the resources which allow for their voice to become visible in their academic texts.* Students in both conditions (96%) commented on their increased knowledge regarding academic resources and mechanisms to make their voice visible and these comments showed a complex conception of elaborating ideas and positioning into a community as this example illustrates: “*Now I know some*

Table 8 Differences in usefulness and efficacy between 1st and 2nd revision (Wilcoxon test)

	1st revision ($n = 27$)		2nd revision ($n = 27$)		Z	p
	M	SD	M	SD		
Ratio of revisions	1.94	3.34	8.00	2.71	-4.12	.000

Table 9 Differences between 1st and 2nd revisions in both conditions

Revisions	On-line ($n = 11$)		Face-to-face ($n = 16$)		Z	p
	R	SR	R	SR		
	1st revision	17.75	213	11.00		
2nd revision	13.83	166	13.21	185	-2.24	.823

Table 10 Knowledge about the characteristics of academic texts and satisfaction between the two modalities of intervention

Knowledge about the characteristics of academic texts	On-line ($n = 11$)		Face-to-face ($n = 16$)		z	p
	R	SR	R	SR		
	Knowledge	14.40	144	12.94		

Course satisfaction	On-line ($n = 11$)		Face-to-face ($n = 16$)		z	p
	R	SR	R	SR		
	F1. Expectations	11.36	125	15.81		
F2. Learning	11.63	125	16.66	266	-1.609	.108
Global satisfaction	25.53	4.57	55.93	12.87	-12.150	.064

resources to write my own texts, I understood what it means to be there as an author (well, I am a student but I still can place my voice in a text). I also know the difference between positioning myself in an academic text and simply stating my opinions” (S3G).

- (d) *Becoming aware of the nature of academic writing and revising.* Some of students’ comments (63% in the face-to-face and 32% in the on-line condition) revealed them having realized that writing is a process and that one can become familiar and regulate this process in order to construct a text as an *artifact*. The following excerpt shows these conception clearly: “Writing the end-of-studies dissertation is a matter of doing and revising, it’s a kind of process and I have learned how to look at written texts more critically (even mine)” (S2J).

Nevertheless, there were some aspects that students negatively assessed, which related to:

- (a) *The amount of work that revision implies.* Some of our students (18% in face-to-face and 45% in the virtual condition) considered they had to invest an excessive amount of effort in writing their end-of-studies dissertation because of the successive revisions. They specially complained about “having to revise the peer’s text (S3F)” and also about “doing a lot of work only for the subject of the dissertation which [made it] difficult to succeed in other subjects (S4F)”.

- (b) *The fact that they had to revise other classmates' work.* Some of them in both conditions (18%) initially expected that the tutor would be the one providing them with feedback, and they did not feel expert enough to revise each others' texts.

Finally, when asked about what they would like if they had the opportunity to engage in a similar intervention again, students pointed out that they would appreciate having the combined support of the seminar tutor and their peers at their disposal in the following years (93%), as well as having more time to learn how to revise better and having writing tutorial support from the beginning of their university studies (78%). *"I think that we should start the course before in order to obtain better results"* (S2C).

Finally, our third objective was devoted to analyse whether final text quality is related with the revision strategies displayed by students. A cluster analysis was performed to explore whether revision variables can be related with text quality. Three different clusters were found, as displayed in Table 11, in which *global text quality*, *author's voice* and *text organisation* were related with the amount and type of revisions.

No significant differences were found among the two learning environments: face-to-face versus on-line (Chi square = 3.336; $p = .189$).

Discussion and conclusions

Our main aim was to explore the possibility to teach undergraduate students find their academic voice when writing a highly demanding academic text such as their end-of-studies dissertation by means of collaborative revision. Our results, differently to those reported by Helms-Park and Stapleton (2003), show that an instructional intervention focused on voice-related features had a significant positive impact on text quality. We consider that the social scaffolding of peer revision, which allowed students to comment on their discursive choices and reflect as authors in a community, may partially explain these results, which appear to be closer to those found by Aitchison and Lee (2006) or Maher et al. (2008).

Taking the analysed results into account, it seems possible to confirm that our students learnt to revise their peers' texts and that they were also able to introduce changes in their own texts, especially at the end of the intervention, thus benefiting from collaborative revision.

Both intervention groups showed improved text quality as compared to the control group, and better texts were related with higher rates of revision and more student' satisfaction with the intervention. Globally, these results are consistent with previous research on collaborative revision (Graham 2006; Lindblom-Ylänne and Pihlajamäki 2003; Roussey and Piolat 2005), no significant differences being found between the on-line and

Table 11 Cluster analysis

Variables (scales)	High quality ($n = 9$)	Medium quality ($n = 13$)	Low quality ($n = 4$)
Global text quality (16–80)	72	52	37
F1. Author's voice (4–20)	22	14	9
F1. Text organisation (12–60)	50	38	28
Revisions (0–10)	8.04	8.82	5.25

face-to-face conditions. These results may be due to the fact that our students usually worked in a blended environment, not in a fully on-line one, and even during the intervention they met regularly with their tutor and classmates in other subjects. Therefore, they may have had different opportunities to interact which could explain the slightly positive impact of the face-to-face condition. Nevertheless, the non-significant differences between on-line and face-to-face environments also indicate that either approach is equally useful.

Regardless of the (*on line* or *face to face*) context of the revision process, the categories deployed to measure final text quality grouped around two major factors: text organization (clear objectives, distinctive sections, paragraph connection) and visibility of authorial voice in the text (explicit positioning, use of boosters, dialogue with key authors in the field). Results show that students improved in both aspects, which supports the need to help undergraduate students organise their ideas in a more academic and complex way as previous research has also pointed out (Hyland 2005; Roussey and Piolat 2005; Swales 2004). However, these results also show that it is possible for students to learn how to appropriately use discursive mechanisms so as to construct their own academic authorship (Castelló et al. 2010; Dysthe 2002). This latter aspect has received much less attention from research, but taking into account our results it could be a promising way to reduce the difficulties experienced by students when writing academic texts. This could be attained by enhancing students' awareness of the resources which allow for their voice to become visible in their academic texts, which could also have some incidence in related problems such as plagiarism, anxiety and withdrawal (Aitchison and Lee 2006; Maher et al. 2008).

Regarding the way in which students revised their own texts and those of their peers, our results show that they took both factors into account, that is, they revised issues regarding text organization but also those aspects related with authorial voice expression. More specifically, two of the three aspects that appeared most frequently during the revision processes (*need to support claims by introducing citations* and *requirements to make author's voice more visible in text*) are directly related with authorial positioning both in the text and in the academic community. Such aspects have also been related with authorial identity by editors of academic journals according to the results obtained in the study by Matsuda and Tardy (2007). It can also be observed that for most of the categories the percentage of suggestions was higher in the second revision than in the first one, except in the case of *lexical precision*. Therefore, students seem to have progressively incorporated more revision strategies when after having been allowed the possibility to practice and to comment on those aspects which may need some adjustment. This is also in accordance with the results obtained by Lindblom-Ylänne and Pihlajamäki (2003), despite the fact that in their study commented on the content of the text and not on the discursive aspects linked to authorial voice.

On the other hand, students' satisfaction appears to be high and similar in both conditions. The items we used to assess their satisfaction grouped in the statistical analysis in two factors: satisfaction regarding expectation fulfilment and satisfaction regarding learning. Both factors appear to be intrinsically related with the maintenance of motivation in academic writing (Hidi and Boscolo 2006). Despite the fact that, as in the case of Lindblom-Ylänne and Pihlajamäki's (2003) study, our students appeared slightly reluctant to comment on their drafts with their peers and somewhat skeptical towards the quality of their peers' revisions, their comments at the end of the intervention show that they discovered both strategies to be useful, realising the relevance of joined reflection on the writing process.

We also acknowledge that the study has some limitations. Given that we worked with natural class groups, the equivalence of the groups in writing this specific genre could not be ensured at the beginning of the intervention, although we had many informal inputs about similar difficulties in both groups that are also supported by research in similar contexts (Solé et al. 2005). At the same time, the study is limited in generic and disciplinary scope as we have focused on writing the end-of-studies dissertation with undergraduate psychology students. It is also known that results from a small sample in a situated context cannot easily be translated to other contexts and samples, but the existence of an academic writing context in which voice plays an important role suggests, as some researchers (Matsuda and Tardy 2007) have pointed out, that voice can be an element of academic writing that justifies further research and discussion.

Further research could take forward the analysis of more specific text revision characteristics as well as students' conceptions related to authorial identity, or could focus on specific genres and groups such as graduate students, or those suspected or accused of plagiarism in order to develop and evaluate interventions to promote student academic authorial voice.

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Appendix 1

See Table 12.

Table 12 Questionnaire to collect students' knowledge of the characteristics of academic texts

1	I believe that in an academic text, it is important to make your own viewpoint visible	1	2	3	4	5
2	When I am writing academic texts, I never make direct questions to the reader	1	2	3	4	5
3	I think that when we use other authors' ideas, we must cite them	1	2	3	4	5
4	In an academic text comments and clarifications are not necessary because people who read the work already master the subject	1	2	3	4	5
5	When I write I think it is important to use expressions to qualify what I say	1	2	3	4	5
6	In an academic text, I use citations only when I am defining concepts	1	2	3	4	5
7	In an academic text I do not use expressions that show my viewpoint (fortunately, preferably,...	1	2	3	4	5
8	I use expressions that guide reading (first, then,...) because I believe that they guide the understanding of readers.	1	2	3	4	5
9	In an academic text, only indirect citations should be used	1	2	3	4	5
10	A good resource for writing is to use the first person plural ("we") so that the reader has a greater implication in the text	1	2	3	4	5
11	When citing in academic texts, the author's name is the only data required	1	2	3	4	5
12	The academic texts, do not should have written in the first person	1	2	3	4	5

Appendix 2

See Table 13.

Table 13 Questionnaire and survey to collect students' satisfaction with the intervention

1	In general, what we have done in the course was adjusted to my initial expectations	1	2	3	4	5
1b	Which were your initial expectations regarding the writing course? Has the development of the course adjusted to those expectations? Please provide reasons for your answer					
2	The methodology was appropriate	1	2	3	4	5
2b	Please provide reasons for your answer					
3	Support and guidance offered by the classmates have covered my needs	1	2	3	4	5
3b	Please provide reasons for your answer					
4	Assistance and guidance offered by the tutor have covered my needs	1	2	3	4	5
4b	Please provide reasons for your answer					
5	The time that I was allowed to work on the suggested activities was appropriate	1	2	3	4	5
6	The resources provided in the writing workshop have been useful	1	2	3	4	5
7	I think that the writing workshop should be introduced earlier, at the start of the project	1	2	3	4	5
8	The writing workshop has provided me with specific knowledge and update	1	2	3	4	5
9	Overall, I am satisfied with the learning achieved	1	2	3	4	5
10	I think I've changed my way of writing thanks to the course activities	1	2	3	4	5
11	From your viewpoint, which are the strengths of the course? And the weaknesses?					

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