Improved understanding of meanings of modal verbs in Legal English and increased motivation through Computer Assisted Language Learning

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Abstract

This research explores the impact of Computer Assisted Language Learning (CALL) on the understanding of meanings of modal verbs in Legal English (MMVLE) and the level of motivation in an English for Specific Purposes (ESP) course. The hypothesis is that the understanding of the mmvle and the level of motivation will be increased if esp students are allowed to choose call as a preferred learning environment. Based on a quasi-experiment, the control group received instruction in a conventional classroom (CC) (face-to-face instruction, white board and paper-based material) and the experimental group received instruction in a call environment (combination of face-to-face and online instruction, web-facilitated). Following the principles of a repeated measures research design, the participants' understanding of the MMVLE was measured in four subsequent instances. The detailed quantitative and qualitative error analysis shows that the CALL group outperformed the CC group. The analysis of the participants' answers to the additional questionnaire completed at the beginning and at the end of the experiment as well as the group discussion after the experiment confirmed that call positively affected the participants' motivation toward the subject matter.

Keywords: Computer Assisted Language Learning (CALL), Legal English, modal verbs, understanding, motivation.

Resumen

Mejora de la comprensión de los significados de los verbos modales en inglés legal y aumento de la motivación por medio del Aprendizaje de Lenguas Asistido por Ordenador

Este artículo analiza el impacto del Aprendizaje de Lenguas Asistido por Ordenador (alao) en la comprensión de los significados de los verbos modales en inglés legal y en el nivel de motivación en un curso de inglés para fines específicos. La hipótesis es que la comprensión de los significados de los verbos modales en inglés legal mejorará y el grado de motivación de los estudiantes de inglés para fines específicos será mayor si estos pueden escoger el Aprendizaje de Lenguas Asistido por Ordenador como medio de aprendizaje preferido. Con base en un cuasi-experimento, el grupo de control recibió instrucción en una clase convencional (instrucción presencial, pizarra y materiales en papel), mientras que el grupo experimental recibió instrucción en un entorno alao (combinación de instrucción presencial y a distancia, por internet). Siguiendo los principios de un diseño de investigación de medidas repetidas, se midió la comprensión de los significados de los verbos modales en inglés legal en cuatro ejemplos. Gracias a un análisis cuantitativo y cualitativo de errores, se evidenció que el grupo de alao obtuvo mejores resultados que el grupo que recibió instrucción en una clase convencional. Por otra parte, los estudiantes respondieron a un cuestionario adicional al principio y al final del experimento, y también tuvo lugar una discusión de grupo tras el experimento, lo cual permitió confirmar que el alao tuvo un efecto positivo en la motivación de los participantes ante el objeto de estudio de este trabajo.

Palabras clave: Aprendizaje de Lenguas Asistido por Ordenador (alao), inglés legal, verbos modales, comprensión, motivación.

1. Introduction

Language learners may show different levels of motivation depending on the overall learning environment they are exposed to, including approaches, instruction designs, techniques, strategies and styles that can be implemented in the teaching and learning (Guilloteaux, 2013). The overall learning process should help learners realize on their own why and how much they should learn. In other words, learners should be allowed to participate both in the learning process and the decisions regarding the environment, the approach to learning, type and mode of instruction, styles and strategies, etc. (Ryan & Deci, 2000; Slembrouck, 2000; Dörnyei, Henry & Muir, 2016). An important factor influencing motivation with a potentially significant impact on learning and its outcomes is that of choice, because choice improves attitudes to learning, activity levels, enthusiasm, etc. (Brown, 2007).

Within all the different elements that go into English for Specific Purposes (ESP), the importance of grammar has been re-acknowledged and confirmed

(Belcher, 2006; Ibrahim, 2010; Johnson & Lyddon, 2016), as have the positive pedagogical implications of Computer-Assisted Language Learning (CALL) in ESP (Belcher, Johns & Paltridge, 2011; Paltridge & Starfield, 2013; Walker et al., 2014; Felices Lago, 2016; Bonsignori, 2018). The problem of motivation has also been a frequent topic in recent research regarding ESP both in conventional and in CALL classrooms (Brown, 2007; Vaičiūnienė & Užpalienė, 2010; İlin, Kutlu & Kutluay, 2013; González Ardeo, 2016; Schug & Le Cor, 2017). However, the specific impact of CALL on motivation and grammar learning lacks demonstration, testing and measuring during a real learning process in the context of ESP. Only a few studies have attempted testing the advantages of CALL and its impact on motivation in real classroom conditions (Sullivan & Pratt, 1996; Martens, Gulikers & Bastiaens, 2004; Rezvani & Ketabi, 2011; Tafazoli, Nosratzadeh & Hosseini, 2014; Wang, 2015; Felices Lago, 2016).

These have mostly shown a positive impact. For instance, Stockwell (2013) reminds us that students' engagement with technology boosts learner motivation because of the novelty effect, Beauvois (1994) reports that French learners perceived several benefits from computer-assisted classroom discussions and Jogan, Heredia and Aguilera (2001) state that the computer-based interaction between US college students of Spanish and Chilean students of English proved highly motivational. The present research explores whether the understanding of the meanings of modal verbs in Legal English (MMVLE) and the level of learner motivation will be enhanced if the students are given the choice to receive grammar instruction in a CALL environment.

1.1. Motivation and the factor of choice

A positive impact on the learners' motivation may be achieved by allowing the individual a certain level of autonomy with respect to the decision-making process (Brown, 2007). In the context of ESP, learner motivation is of crucial importance because ESP instruction is based on a learner-centred approach, i.e. it is characterised by a "commitment to the goal of providing language instruction that addresses students' own specific purposes" (Belcher, 2009: 2). Since ESP syllabuses are oriented towards specialisations the students have chosen, the expected outcome is that "a specific range of vocabulary and a streamlined version of the grammar, all placed within ostensibly appropriate discourse" will ensure language proficiency in the chosen profession (Brown, 2007: 159). If a particular ESP syllabus is based

on needs, it is likely to be motivating for learners, who see the obvious relevance of what they are studying (Basturkmen, 2014) which is why they should be encouraged to reach goals of achievement through their own self-motivated efforts (Guilloteaux, 2013). This may be accomplished by implementing styles and strategies based on the ESP learners' needs, providing learner autonomy and motivating the students to make individual choices and decisions regarding not only the goals they have set as part of the learning process but also the learning environment, the methodologies and activities implemented in the process (Slembrouck, 2000).

Motivation within a language learning process, ESP being one of them, could be increased if students were offered the possibility to choose a preferred learning environment in which they might acquire and internalize specific knowledge predicted by their ESP syllabus, thus achieving better learning (Sifakis, 2003). A possible choice might be to receive instruction in a learning environment designed for a particular ESP course based on CALL, which would provide recognisable and measurable benefits, such as more individuality and autonomy, faster feedback, self-correction and error management skills, challenging and motivating content, etc. (Walker et al., 2014).

1.2. The need for grammar instruction in ESP

Investigations in ESP should continue to develop the convergence between research, teaching and learning (Belcher, Johns & Paltridge, 2011; Paltridge & Starfield, 2013). In this context, grammar has been recognised as a very important micro skill and several arguments for teaching grammar within ESP can be listed (Belcher, 2006; Ibrahim, 2010; Basturkmen, 2014; Johnson & Lyddon, 2016). Research related to languages for specific purposes, ESP included, has confirmed that learners need information on vocabulary, grammar and stylistic characteristics and that they have to be in "command of the ways in which the grammar of the language works to perform specific functions in specific contexts" (Bloor & Bloor, 1986: 21-22).

The re-established interest in grammar instruction in ESP teaching research initiated explorations of grammar instruction based on CALL as well (İlin, Kutlu & Kutluay, 2013; Tafazoli, Nosratzadeh & Hosseini, 2014; Sokolova, Golovacheva & Cheernaya, 2015; Curado Fuentes, 2017). İlin, Kutlu and Kutluay (2013) explored the effect of using videos in an ESP class and concluded that students were highly motivated to participate in the class and

to use the material outside the classroom. Sokolova, Golovacheva and Chernaya (2015) found that the e-learning ESP course offered real-life communicative situations, thus providing an opportunity for the use of the acquired knowledge in professional and everyday language contexts. Tafazoli, Nosratzadeh and Hosseini (2014) compared paper-based and computer-mediated corrective feedback on grammatical accuracy in ESP courses and concluded that the latter proved significantly more influential as it enhanced grammatical accuracy among the participants. A more recent study (Curado Fuentes, 2017) explored the impact of integrating data-driven language learning (DDL) on the learning of English tenses in an ESP context. The results indicated better performance in the experimental group who extracted and analysed concordances regarding grammatical points, such as perfect and simple tenses, active and passive voice from specific texts and registers. Based on the research presented, CALL unequivocally influences the understanding of grammar in a positive way.

1.3. The importance of modal verbs

Modality appears as a linguistic feature generated by different linguistic phenomena whereby modal verbs play a specific role (Downing & Locke, 2006). Two main types of modality are usually distinguished: epistemic and deontic. The former implies the speaker's believes that a proposition is true in terms of certainty, probability or possibility whereas the latter suggests the speaker's imposing of obligations or granting permissions so as to intervene in the speech event (Downing & Locke, 2006).

In the context of ESP, the use of modal verbs is of crucial importance as they reflect nuances of meanings related to a specific intention or aim within a particular professional context. Vassileva (2001) compared the use of modal verbs in academic writing in Bulgarian and English and concluded that "Bulgarians learn to write by relying on previously written texts (academic writing, in this case) thus following some well-established standards and logical steps" (2001: 100). The main problem Bulgarian native speakers seem to face when writing in English for academic purposes is that the standards "seem to be so deeply ingrained in the writers' cognitive schemata that it turns out to be extremely difficult to overcome them irrespective of the degree of command of the foreign language" (2001: 100). Yang, Zheng and Ge (2015) investigated how native speaker medical research article writers use epistemic modality in their articles. The research showed that they "tend to use low or median value epistemic modal

expressions […] and epistemic modal expressions with implicitly subjective/objective or explicitly objective orientations" (2015: 9). Thus, they "persuade readers mostly through a tentative and objective presentation of their claims" (2015: 9).

In Legal English "modality is a central feature of prescriptive legal discourse" (Williams, 2007: 84). Given the specific need to express obligation or prohibition, or to grant permission or authorization, legal texts rely mainly on deontic modality (2007: 83). For instance, research has been devoted to the specific use of certain modal verbs in Legal English, such as the use of the modal *shall* which relates to both the future and the deontic meaning of *must* (Garzone, 2001). In a cross-cultural study, Bondi and Diani (2010) explored the deontic values of modal verbs by comparing English and Italian contracts whereby their conclusions indicate a rather prominent use of modals referring to permission and prohibition in both languages. However, the most relevant finding shows a heavy concentration of the deontic modal *shall* (It. *dovere*) in both languages which may be attributed to the fact that contracts signify mandatory rules. The solution to the problem of teaching the meanings of modal verbs both in ESP and in LE according to the above-mentioned authors is to relate the particular modal to the communicative context.

1.4. Research questions

ESP learners should be allowed to participate in the learning process not only as learners but also as decision makers who make individual choices and decisions regarding the learning process (Slembrouck, 2000). Therefore, an important factor to consider is that of choice because the provision of choice is empowering (Brown, 2007). This research explores whether the students' understanding of the meanings of modal verbs in legal English (MMVLE) and their level of motivation will be enhanced if they are given the choice to receive instruction in a CALL environment. The MMVLE were taught to two groups of students, one in a CALL environment (CALL) (a combination of face-to-face and online instruction, web-facilitated) and one based on a conventional classroom (CC) (face-to-face instruction, whiteboard and paper-based material). Two research questions were addressed:

Research question 1: What is the difference in the understanding of the meanings of modal verbs used in LE acquired through grammar instruction provided in a CALL environment and a conventional classroom?

Research question 2: Is there a difference in the level of motivation between the two groups of participants?

2. Method

2.1. Participants

A total of 50 out of 63 third-year university students taking a three-semester LE course (Table 1) were treated in a quasi-experiment during the last semester of the course, i.e. sixth semester of their studies. The LE course is obligatory within a four-year English language curriculum (anticipated C1 level according to the Common European Framework of Reference for Languages). All the participants were native in Serbian and had attended obligatory contemporary English language courses (8 classes per week, 3 semesters) based on different teaching approaches before taking the LE course. They had not been exposed to any form of CALL before the experiment.

	CALL	CC
Male	14	14
Female	11	11
Total	25	25
Average age	21	
Previous English instruction	12 years	
Average use of the computer for LE purposes	every day	

Table 1. The sample.

The participants first completed an anonymous questionnaire providing general data and how frequently they used the computer for their LE studies (Table 1). The students were then asked to choose a preferred learning environment for the purpose of the study: a) CALL or b) the conventional classroom (CC) (each was fully explained to them). The students were told they could receive language instruction a) based on a combination of face-to-face instruction and online activities conducted in the computer classroom at the faculty or b) based only on face-to-face instruction and paper-based activities in the classroom they usually had their classes in at the faculty. Based on the questionnaire, 25 students opted for CALL who all participated in the research. A total of 38 chose the CC out of which 25 were randomly chosen to participate in the experiment. The remaining 13

students did not participate in the experiment. Thus two groups were formed: 1) the control group in the CC and 2) the experimental group in the CALL environment in the computer classroom.

The LE syllabus contains a mid-term test and a final exam during each semester of the course, a considerable portion of which is designed as a grammar-proficiency test, English modal verbs in LE included. In order to ensure reliability, a grammar-proficiency pretest on the MMVLE was conducted prior to the experiment following the structure and form of the grammar-proficiency test taken as part of the final exams at the end of the previous semesters. The results from both the pretest and the test from the final exam taken in the second semester of the LE course were correlated thereby yielding a statistically significant coefficient (r = +0.79).

After that, the participants completed a questionnaire regarding their attitudes to studying modal verbs (details will be provided in Section 3.2).

2.2. The instruction model

The experiment relied on the *Presentation-Practice-Production* instruction model also known as the *Three Ps* or PPP because it is a mixture of teaching approaches identified as the mainstream EFL teaching style (Cook, 2013) and a dominant instruction model in computer-assisted language learning (Jarvis, 2015). The presentation stage has the characteristics of Situational Language Teaching, the practice stage those of behaviourism and the production stage those of Communicative Language Teaching which are all relevant to the ESP context (Brown, 2007; Belcher, 2009; Basturkmen, 2014). Based on PPP, a particular grammatical item is presented, described and explained, practised within an adequate and illustrative communicative context and tested to ensure accurate and autonomous production focused on meaning and aimed at real communicative content. The model was considered adequate as it could easily be adapted to the objectives and the outcomes of the LE course as well as to the specific learning environments in both the CC and the CALL groups, thus ensuring equal conditions in both groups with respect to the instruction model.

Various techniques may be used for the purpose of teaching grammar, such as problem-solving, explanations, timelines, drills, written practice, pair work, role plays, etc. (Basturkmen, 2014; Paltridge & Starfield, 2013; Đorđević, 2016, 2017). For the purpose of teaching grammar based on PPP in CALL, activities can be designed by means of open-source authoring tools. In order

not to exceed the scope of this research, only the three tools used in the experiment are mentioned here (Đorđević, 2015):

1) Hot Potatoes is a suite of six applications enabling the creation of interactive exercises (multiple-choice, short-answer, jumbled-sentence, crossword, matching/ordering and gap-fill). Such activities provide ESP learners with a broader communicative context within which they can identify, practice and understand specific grammar points (Paltridge & Starfield, 2013).

2) Dvolver Moviemaker is a Web 2.0 tool by means of which cartoons can be created as these are convenient for the purpose of illustrating grammatical items through dialogues related to real situations within any profession (Brown, 2007).

3) PBworks is a real-time collaborative editing system enabling the creation of workspaces that provide individual yet easy access to exercises and tasks. In CALL a workspace is a virtual classroom where content is shared, instruction and feedback are provided, tasks are accessed and completed, and student work is monitored and evaluated.

2.3. Materials, procedure and instruments

The language instructor who worked with the participants in their LE course prepared and conducted lectures, tests and exams, prepared the material used for the purpose of this experiment and conducted, controlled and monitored the experiment in both groups. The content of the material as well as the specific type, form and suitability of instruction are based on 23 years of the instructor's EFL and ESP teaching experience.

The instructor relied on the coursebook (Krois-Lindner, 2011) envisaged in the syllabus as the main resource which provides relevant tasks, exercises and activities. To maintain the same conditions for both groups, the exact same exercises were prepared by means of the authoring tools mentioned above which the participants in the CALL group accessed via PBworks and completed online.

The syllabus predicts four grammar units focusing on the MMVLE in both written and spoken language (e.g. injunctions, declarations, statements, etc.). The review of the literature (see Section 1.3) led to the conclusion that the

separate MMVLE as well as types of modals, semi-modals and modal idioms may be divided in eight groups of meanings: possibility/ probability (*can, could, may, might, can't, must*), ability (*can, could, be able to*), permission (*can, could, may, might, be allowed to*), prohibition (*must not, be not allowed to*), advice/ recommendation/ expectation (*should, ought to*), obligation (*must, have to*), necessity (*need, have to*) and absence of obligation or necessity (*don't have to, need not, needn't have*). These groups of meanings are also predicted by the LE syllabus the participants are expected to master which is why they were presented, practised and produced in both the CALL and the CC group in four sessions, each comparing one pair of meanings: 1. possibility/probability and ability, 2. permission and prohibition, 3. advice/recommendation/ expectation and obligation and 4. necessity and absence of obligation or necessity.

The procedure consisted of four 90-minute grammar sessions and four measures, one following each session. Each pair of modal verbs was presented and practised based on various exercises and tasks. Feedback in the CC group was provided directly by the instructor whereas in the CALL group feedback was integrated as an option provided in the Hot Potatoes suite used for the online activities. The CC group worked with the textbook while the material used in the CALL group was online and accessed via the workspace PBworks.

2.4. Assessment procedure

Grammar is best tested by means of discrete-item tests, i.e. individual components of the learner's knowledge are tested within a specific context (Basturkmen, 2014; Paltridge & Starfield, 2013). The same activities used for the presentation and the practice of grammar items can be used for the production and testing. In the present research, the MMVLE were tested based on tasks, such as fill in the gaps, choose the correct answer, match the correct forms, etc.

The participants' understanding of the MMVLE was measured in a total of four instances per group based on one test taken at the end of each production stage. Each of the four tests focused on a specific pair of the MMVLE previously covered in the session (see Section 2.3). Paper-based tests were prepared for the CC group whereas identical online tests were prepared for the CALL group. In both groups, the participants had to work with 10 sentences per test. In each test, in five sentences the participants were

expected to choose the correct modal from among four provided choices and in five sentences they were expected to identify the correct meaning, all put in a LE context. Both groups were given paper-based answer sheets for each test so that they had to circle (a), (b), (c) or (d) for the sentences in the tests depending on the answer they believed was correct.

The assessment and analysis of the participants' understanding of the MMVLE followed a clear pattern. First, each participant's answer sheet was assigned a code (CALL1, CALL2, etc. as opposed to CC1, CC2, etc.) and values were assigned to each pair of MMVLE covered in the sessions. Eventually, 40 sentences were tested during the experiment (10 for each pair of meanings). A sentence was considered incorrect in case of a completely unacceptable modal verb, modal meaning or tense (see Section 3.1).

3. Results and discussion

3.1. RQ1: Understanding the meanings of modal verbs in LE

The most relevant result in this research is related to the total number of correct answers in the tests taken at the end of each production stage in both groups (Table 2).

	Group	Mean	Standard deviation	Standard error mean
Total No. of correct answers	CALL	14.08	5.377	1.075
	CC	10.80	3.342	.668

Table 2. Group statistics based on the total number of correct answers in all four tests in both groups.

The group statistics shows a higher mean value in the CALL group as opposed to the CC group (14.08 > 10.80). The additional independent samples test confirms that the difference is statistically significant (t = 2.591) (Table 3)[1].

	Levene's test for equality of variances		t-test for equality of means
	t	df	Sig. (2-tailed)
	Lower	Upper	Lower
Total No. of correct answers	2.591	48	.013

Table 3. Independent samples test based on the total number of correct answers in both groups.

Given that the Cohen's d effect size is considered an appropriate way to measure effect, it was used here to compare the means between the two groups for each meaning. The additional analysis (Table 4) indicates that the effect size was large (0.814) for meaning one (possibility/probability and ability), very small (0.025) for meaning two (permission and prohibition), very large (1.00) for meaning three (advice/recommendation/expectation and obligation) and medium (0.561) for meaning four (necessity and absence of obligation or necessity). The results confirm that the instruction in the CALL environment has a better effect on the understanding of MMVLE than the instruction in the CC environment.

		Paired Differences			
		Mean	Std. deviation	t	Cohen's d
Pair 1	Meaning one – CALL/CC	-1.180	2.256	-3.699	0.814
Pair 2	Meaning two – CALL/CC	-.020	.869	-.163	0.025
Pair 3	Meaning three – CALL/CC	-1.660	1.757	-6.682	1.00
Pair 4	Meaning four – CALL/CC	-1.780	3.160	-2820	0.561

Table 4. Cohen's d effect size statistics.

With the aim to arrive at more relevant findings considering the participants' understanding of the MMVLE, an additional error analysis was performed as this is considered a reliable process of determining the incidence, nature, causes and consequences of unsuccessful language (James, 2013; Richards, 2015). Two additional analyses were performed investigating: 1) the nature and causes of errors and 2) the incidence of errors.

3.1.1. The nature and causes of errors

The analysis of the participants' tests showed that the most common errors in both groups could be referred back to the participants' failure to distinguish between the meanings of MMVLE presented and practised in the first session (possibility/ probability and ability) and the third session (advice/ recommendation/ expectation and obligation). Since the tests were discussed with the participants later, the reasons for the errors could be identified.

For example, in sentence (4)

> (4) The case against Jones and Co._____ on the stipulation that they 'unreasonably withhold their consent' because there is little evidence to confirm it. Claiming they don't like the client would ruin the case.
> (a) can't be based
> (b) will not be based
> (c) wouldn't be based
> (d) might not be based

most participants did not recognise a) as the correct answer although they had been presented with *can't* as meaning absence of possibility/probability. In the discussion, they all confirmed they automatically eliminated a) because they normally used the modal *can* with the meaning of ability and they did not consider absence of possibility/probability a possible choice. The participants seemed to have failed to internalise the recently presented meaning of the modal *can* in the context of LE because their previous knowledge of *can* as used in general English had interfered.

In example (8)

> (8) The procedure has been dragging on for months. All the statements *must have been taken* by now and the final decision should be made any time soon.
> (a) prohibition
> (b) permission
> (c) probability
> (d) recommendation

most participants opted for d). They stated they believed the meaning to be similar to the Serbian meaning of *mora*. The literal translation of the Serbian *mora* into English is *must*, but the meaning in Serbian may be both obligation and recommendation in an urgent matter in any context. The participants said they perceived the second meaning in Serbian to be the one expressed in the English example. When told that the tense should have helped them opt for c), the participants admitted they did not realise the sentence was in the past tense. The error may be referred back to the negative transfer from the participants' native language to the foreign language whereby the failure to recognise the meaning in the context of LE should not be neglected.

With respect to the third session, the most representative example was as follows:

(33) You are aware you _____ launch a new workplace safety initiative, concentrating on drug and alcohol abuse because you bear the responsibility for the safety of others. Reassigning the workers in question to jobs that are less safety-sensitive won't be enough.
(a) must
(b) will have to
(c) may
(d) need

The participants did not observe the urgency of the point expressed in the sentence under b). They stated they had problems to distinguish between externally and internally imposed obligation (*must* vs. *have to*). When asked if they did not understand this difference in LE only or in the context of general English as well, they replied they were not certain. A possible explanation may be that this difference does not exist in Serbian which leads to the conclusion that additional context in the target language with reference to LE should be provided when teaching this difference.

In example (37)

(37) Every notice of the meeting of the shareholders *shall state* the place, date and hour:
(a) prohibition
(b) permission
(c) probability
(d) recommendation

the participants did not realize that the verb *shall* when used in legal documents indicates obligation beside the meaning of expressing promise or making a declaration. When reminded of these meanings, the participants stated they did not understand the use of the verb *shall* in LE as they knew it as a verb used to express future tense in the first person singular and plural. In this case, negative interference of previous knowledge may again be recognised.

Given that the nature of errors did not provide relevant information considering the level of understanding of modal verbs, an additional analysis of the incidence of errors was performed.

3.1.2. The incidence of errors

It was assumed that if a participant had made two errors with the same pair of meanings, i.e. repeated the same error twice, that participant cannot have

understood the difference in the meanings. These errors were treated as repeated errors within one pair of meanings and the analysis of the tests completed at the end of each production stage showed that most participants (68%) repeated the same error twice per one pair of meanings. An additional cross tabulation between the two groups was performed focusing on the number of repeated errors made by each participant regarding one pair of meanings (Table 5)[2].

Repeated errors	No. of participants per group	
	CC	CALL
0	2	5
	8.0%	20.0%
2	5	7
	20.0%	28.0%
4	3	5
	12.0%	20.0%
6	8	6
	32.0%	24.0%
8	2	2
	8.0%	8.0%
10	5	0
	20.0%	.0%
Total	25	25
	100.0%	100.0%

Table 5. Cross tabulation of the number of participants with repeated errors in each group.

The comparison of the number of repeated errors per pair of meanings showed that the CALL group outperformed the CC group, thus confirming that understanding of the MMVLE was better in the CALL group. For instance, more repeated errors per participant occurred in the CC group than in the CALL group with 6 repeated errors (8 participants or 32.00% as opposed to 6 participants or 24% each). In comparison to that, a total of 5 participants (20%) in the CALL group did not repeat any error at all as opposed to only 2 participants (8%) in the CC group. More importantly, no participant from the CALL group made more than 8 errors by repeating the same error twice whereas in the CC group a total 5 of participants (20.00%) each made 10 such errors.

3.2. RQ2: Level of motivation between the two groups of participants

The second research question was focused on determining whether the choice provided to the participants regarding the preferred learning environment in the LE course would have a significant impact on the

participants' motivation, i.e. whether CALL would motivate the participants to work harder when studying modal verbs. Given the limitations of a quasi-experiment focusing both on learning a specific grammar item and motivation, the aim of this research was not to profile or scale the participants' motivation regarding language learning, but rather to determine if CALL could have a positive impact on the participants' motivation in the context of understanding the MMVLE so that no elaborate questionnaire was planned.

Instead, a questionnaire with five multiple choice close-ended questions was administered prior to the experiment and then one more time after it had been completed. The questions were meant to provide a general conclusion regarding the participants' attitude to the learning environment in the LE context they were involved in and their motivation to study more in the future (Masgoret & Gardner, 2003) (Table 6). An important fact to mention is that question number 5 was *Do you like learning about modal verbs?* in the questionnaire completed before the experiment whereas it was *Would you like to learn more about modal verbs*? in the questionnaire completed after the experiment.

Questions	Answers
1. How important do you think modal verbs are?	a) Not at all b) A little bit c) Very important
2. Do you believe modal verbs have any practical value?	a) No b) Only to some extent c) Yes
3. Do you think that a specific teaching approach may affect your language performance?	a) Yes b) For some units, yes c) No d) I'm not sure
4. What learning environment do you prefer more?	a) Computer Assisted Language Learning b) Conventional classroom c) A little bit of both d) I'm not sure
(Before the research) 5. Do you like learning about modal verbs?	a) No b) Just a little bit more c) Yes
(After the research) 5. Would you like to learn more about modal verbs?	a) No b) A little bit c) Yes

Table 6. Questionnaire completed before and after the research.

Since a detailed analysis of all responses would exceed the scope of this article, only the most relevant results shall be presented here (Table 7).

		Before		After	
		CC	CALL	CC	CALL
Modal verbs are important		31.0%	32.0%	35.0%	54.0%
Modal verbs have practical value		22.0%	20.0%	23.0%	41.0%
Teaching approach may affect language performance		48.0%	45.0%	49.0%	86.0%
Preferred learning environment	CALL	12.0%	57.0%	12.0%	78.0%
	CC	46.0%	2.0%	29.0%	0%
	Both	42.0%	41.0%	59.0%	22.0%
Like learning about modal verbs		12.0%	12.0%		
Would like to learn more about modal verbs				18.0%	69.0%

Table 7. Comparison between relevant responses before and after the research.

Before the experiment 31.0% of the participants in the CC group and 32.0% in the CALL group believed that modal verbs were important whereas after the experiment 54.0% of the participants in the CALL group believed so as opposed to 35.0% in the CC group. This indicates a significant change in attitude in the CALL group. In addition, an important change in attitude could be noticed regarding the question about the practical value of modal verbs in the CALL group, i.e. the positive attitude increased from 20.0% to 41.0% as opposed to the slight increase in the CC group (from 22.0% to 23.0%).

A noticeable increase regarding the learners' positive attitude to instruction in the CALL group could be noticed regarding the question whether a teaching approach may affect language performance (from 45.0% to 86.0%). Another relevant finding refers to the preferred learning environment. Before the experiment, a total of 46.0% of the participants in the CC group stated that they preferred the conventional learning environment whereas after the experiment only 29.0% said the same. Unlike that, the number of participants in the CALL group who opted for CALL before the experiment changed from 57.0% to 78.0% after the experiment.

Before the experiment, 12.0% of the participants in both groups stated they liked to learn about modal verbs. The responses to the question posed at the end of the experiment whether the participants would like to learn more about modal verbs in the future showed only a small increase in the CC group (18.0%) as opposed to the CALL group (49.0%).

As has been mentioned earlier (Section 3.1.1), a group discussion was conducted with the participants after the experiment so that additional

insight was gained regarding their motivation. The participants' explanations support the conclusion that choosing a preferred learning environment can enhance both motivation and understanding. For instance, all the 25 participants from the CALL group were very enthusiastic about the learning environment they had been exposed to. They said they did not expect that learning about MMVLE would be easier in CALL. In particular, 18 participants stated they did not expect modal verbs to be so interesting and a total of 15 participants pointed out they understood the differences between some MMVLE. In comparison to that, a total of 22 participants from the CC group said they did not like the learning environment they had been exposed to and 19 of them stated they regretted not opting for CALL. When asked why they had chosen the CC, all of them agreed they believed it to be a safer choice as they had already been used to it. A total of 16 participants stated they would accept the opportunity to try CALL in the future.

4. Pedagogical implications for improving grammar understanding and motivation in ESP

Studies that have presented implications related to the understanding of specific language learning content, motivation and CALL indicate a variety of different results as follows: a) increased curiosity but no considerable learning outcomes (Martens, Gulikers & Bastiaens, 2004), b) a rather insignificant impact on the level of achievement and motivation (Rezvani & Ketabi, 2011), c) slightly better learning outcomes and more positive attitudes to the learning environment (Tafazoli, Nosratzadeh & Hosseini, 2014) and d) significantly better learning outcomes and increased motivation (Wang, 2015).

The present research indicated a better understanding of the MMVLE in a CALL environment in comparison to the CC (Sokolova, Golovacheva & Chernaya, 2015; Tafazoli, Nosratzadeh and Hosseini, 2014; Curado Fuentes, 2017) after students had been allowed to choose CALL as a preferred learning environment (Brown, 2007; Guilloteaux, 2013; Dörnyei, Henry & Muir, 2016). Therefore, CALL should be implemented more in ESP while institutions of education providing ESP language instruction should, within their possibilities to realise such change, consider involving their students in the decision-making process regarding the learning environment, the type and mode of instruction, the styles and strategies, etc. Such integration of

students in the learning process would affect the outcomes of the teaching and learning process as it would enhance learners' activity level, enthusiasm, engagement, etc. (Slembrouck, 2000).

The participants' responses in the questionnaire and their comments in the discussion after the experiment confirm that being allowed to choose CALL as a preferred learning environment in a LE course can motivate learners to work harder because they realise the benefits and the advantages of the learning process (Brown, 2007; Slembrouck, 2000; Guilloteaux & Dörnyei, 2008). Given that the questionnaire and the subsequent discussion were limited only to three aspects of motivation, i.e. interest, perceived competence and usefulness (Ryan & Deci, 2000), more extensive studies will have to be conducted to identify different profiles of motivation as well as determine the relation between motivation and the specific value of CALL, opportunities in CALL as a learning environment, benefits from feedback and peer assessment, collaboration, etc. In addition, the relations of motivation, attitudes and orientations to achievement in ESP language learning should be investigated (Masgoret & Gardner, 2003) and deeper insight is needed regarding instruments measuring, profiling and scaling motivation (Ryan & Deci, 2000).

The present research also showed that the nature and the causes of the errors the participants made is a result of their failure to internalise new MMVLE and allocate them to the LE context. Such result may be referred back to the negative interference of previously mastered knowledge (Richards, 2015) or to the negative transfer from the participants' native language to the foreign English language, a problem extensively researched and confirmed as crucial in the process of learning a new language (Gass, 1988). These two issues should be given more consideration both in research and in practice. Particular attention should be directed at enhancing the understanding of the meanings of modal verbs in an ESP context and comparisons of the differences between grammar units in both the native and the foreign language should be included during presentation and practice helping the students understand the nuances between the meanings. In addition, self-assessment and peer assessment should be included to encourage students to analyse mistakes.

5. Concluding remark

The paper contributes to the understanding of the impact of CALL in a LE course. Unfortunately, the limited size of the quasi-experiment and the fact that only 50 participants were included in the research make it impossible to draw generalizable conclusions from the data obtained. Nevertheless, the results confirm the initial hypothesis that CALL positively affected LE learners' motivation and their understanding of MMVLE. The study described how CALL as a preferred learning environment may impact motivation and the understanding of the MMVLE as a significant grammar unit in a LE course. However, the scope of the present research could not provide conclusions regarding the actual implementation of an ESP language learning process that would include ESP students as active participants in decision-making and allow them to choose a preferred learning environment. To conclude, more extensive research is needed to obtain further data to corroborate the results of this study, to examine how this choice could be put in practice as well as to explore the possibilities, means and infrastructure that institutions of education will need to face the challenge of empowering ESP students to participate in the ESP language learning process both as students and decision-makers.

Acknowledgements

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NOTES

[1] Given that the primary objective of this research was to explore the differences in achievement in two groups, the application of T tests was considered most relevant as they are used to verify how significant the differences between groups are. Independent samples test in SPSS generate a Levene's test for equality of variances as part of the output which is why it is included in the data presentation.

[2] Since frequencies only summarize information about one variable, the cross tabulation was used in this research to generate information about the bivariate relationships regarding the number of repeated errors within each examined group.