Effect of a programme to enhance proficiency in linguistic competence in Secondary Education

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Abstract

The present article aims to evaluate the effects of a program to enhance proficiency in linguistic competence in verbal aptitude, inductive reasoning, academic performance, self-efficiency in linguistic intelligence and linguistic competence. For this aim, a quasi-experimental study of repeated measures with control group was designed. 204 participants were taken from second year students of secondary education (51.47% are women) with a mean age of 12.48 years ($SD = 1.48$). Results confirm that the program stimulated a significant improvement in language skills, academic performance, linguistic intelligence self-efficacy, as well as linguistic competence, among the experimental groups.

Key words: competence in linguistic communication, language centre project, assessment, academic performance.

Resumen

El presente artículo tiene como finalidad evaluar los efectos de un programa para la mejora de la competencia en comunicación lingüística en las variables aptitud verbal, razonamiento inductivo, rendimiento académico, autoeficacia en inteligencia lingüística y competencia lingüística. Se utiliza un diseño cuasi-experimental de medidas repetidas con grupo control. Los participantes son 204 estudiantes de 2º curso de ESO (51.47% son mujeres) con una media de edad de 12.48 años ($DT = 1.48$). Los resultados confirman que el programa estimuló en los grupos experimentales una mejora significativa en la aptitud verbal, en el rendimiento académico, en la autoeficacia en inteligencia lingüística, así como, en la competencia lingüística.

Palabras clave: competencia en comunicación lingüística, proyecto lingüístico de centro, evaluación, rendimiento académico.

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Introduction

Communicative competence is defined as the result of communicating within the realm of specific social practices. It involves a command of different competences such as language (use of grammar), sociolinguistic (knowledge and use of social interaction rules), pragmatism (understanding of inferences and functional features of language) and psycholinguistic (e.g., motivation and affective conditioning: Pilleux, 2001). Therefore, a comprehensive development of language proficiency requires developing a *knowledge* of the linguistic component, *know how* regarding the pragmatic-discursive component, *knowing of how to be* in the socio-cultural component, *abilities* in the strategic component that enables the individual to overcome the difficulties arising during the act of communication, and the *desire to do* in the personal component, which implicates the individual's attitudes and motivation (Bermúdez & González, 2011).

In education and for its teaching, there are at least two fundamental consequences of the multidimensional nature of communicative competency. The first is that developing this competence requires didactic interventions that demonstrate how the theory of grammar is applied to communication, as well as other strategies to cover each of its components. Secondly, it requires a transversal approach as its relationship to communication implies that it inevitably affects the development of all other competences and even, the learning process itself.

Education strategies based on the communication of a language derive from the first of these consequences for teaching. These strategies were initiated in the 60s, as proposed by Candlin, Widdowson or Richterich (Galera & Galera, 2000; Roberts, 2004) and they have dominated educational models in recent years. The second issue has given rise to interdisciplinary approaches to language didactics based on the theoretical hypothesis that improving competence in communication will lead to improvements in all other competences, and therefore, in the overall academic performance of students (Jiménez, 2010; Jorba, Gómez, & Prat, 2000).

The pedagogical model that best reflects the two features of linguistic competency is the Language Centre Project (LCP), a cross-sectional and interdisciplinary strategy established in English speaking countries in the 70s in association with several innovative education movements (Corson, 1990, 1999; Gómez, 2013; May, 1997). This was a model that was first implemented in Spain in the 90s, particularly in multilingual contexts (García & Torralba, 1996). The approach adopted is based on the idea that language is a communication system that requires developing the skills needed for understanding, talking, reading and writing, and the fact that these skills need to be practised in all possible communicative situations in which language is used, not only in the context of a subject dedicated to its metalinguistic study (Pérez & Zayas, 2007). The main objective is to improve the students´ communication skills, whether in a second language (L2) or in their native language (L1). In this study we will use this second model as the basis to assess whether an educational intervention inspired on the LCP can improve a students' native language competency and if, as the theoretical models predicts, this improvement contributes to their overall academic achievement.

The majority of research studies in this field, both on L2 (e.g. Cantero & Aarli, 2012; González, 2004; Pérez & Serna, 1997; Trujillo, 2010) or the native tongue (Gómez & Arcos, 2007, 2013; Trujillo & Rubio, 2014), propose interventions designed from a purely theoretical point of view and they employ innovative approaches. However, they lack an implementation and evaluation process to validate their efficacy.

In this regard, little evaluative research has been carried out, both from a quantitative and qualitative point of view, which could serve to document the impact of these programmes, and thereby inform decision making processes. There are some studies that measure certain parameters of linguistic competency, such as improvements in the L2 interaction index after implementation of bilingual projects (Cantero, 2014), or the differences in proficiency in different language components between immigrant and native students (Navarro & Huguet, 2007; Navarro, Huguet, & Sansó, 2014; Navarro, Huguet, Sansó, & Chireac, 2012), although none have evaluated the effects of a LCP type intervention. Our study intends to redress this deficit by designing an interdisciplinary intervention to enhance language competence that will include an inherit systematic and rigorous appraisal process to measure the predicted impact on communication and, according to the working hypothesis, in other competencies as well as on the overall academic performance, consistent with the interdisciplinary nature of linguistic communication.

In this context, the main objective of the study was to experimentally assess the effects of a language competency enhancement programme on different variables in secondary education students (corresponding to different components of competency, such as *knowledge*, *knowhow*, *be able to do* and *want to do*): verbal aptitude, inductive reasoning, academic performance, self-efficacy in linguistic intelligence, and linguistic competency *per se*. We formulated four hypotheses, regarding potential outcomes: H1, the language competency enhancement programme significantly improves the verbal aptitude of participants relative to the controls, although it does not improve inductive reasoning; H2, the programme significantly improves academic performance of the participants compared to the controls; H3, the programme produces a significant improvement in self-efficiency in linguistic intelligence of participants relative to the controls; H4, the participants in the language competency enhancement programme significantly improve their performance in the linguistic competency diagnostic test compared to the controls.

Method

Participants

The total sample was made up of 204 students in their second year of secondary education. From this sample, 97 individuals (47.55%) were assigned to the control group and 107 (52.45%) to the experimental arm. The age range of the participants was between 12 and 14 years of age ($M = 12.48$, $SD = 1.48$), and the differences in age in the two groups conditions were not significant, $\chi2 = 1.23$, $p > .05$. From the total sample, 22.5% were 12 years old, 47.7% 13 and 29.8% 14 years old. The gender distribution was 99 (48.53%) male and 105 (51.47%) female.

The sample was taken from students in two year groups at four different secondary schools located in rural areas and with similar socio-economic indices. In each centre one class-group was randomly assigned to the experimental condition and the other to the control. The sample was selected by randomized cluster sampling from a list of centres in Toledo and based on their socio-economic characteristics.

Instruments

Dependent variables were measured by applying four validated assessment tools before and after implementation of the independent variable (the language competency enhancement programme). Two additional dependent variables were also measured: academic performance and the result of the language competency diagnostic test.

Verbal aptitude was assessed with the updated BADyG-M (Spanish acronym for Battery of General and Differential Aptitudes: Yuste, Martínez, & Galve, 2005). This battery is comprised of 6 main tests and 3 complementary ones (*verbal analogies; number series; figure matrices; sentence completion; numerical problems; fitting pieces; oral storytelling memory (OSM); orthographic visual memory; and discrimination of differences*). In the present study *verbal analogy* (VAN) and sentence completion (SCO) tests were used, which make up the *verbal factor* (VFA). In addition, complementary tests of *OSM* and *orthographic visual memory* (OVM) were also used. In order to calculate the compound reliability (CR) and average variance extracted (AVE), a confirmatory factorial analysis of the study data was performed using the maximum likelihood method for parameter estimation. The results demonstrate a high reliability (CR = .91), and the average variance extracted was higher than 0.50 (AVE = 57.85%), implying a high proportion of the variance is accounted for by the construct. Cronbach´s alpha was also calculated for the study´s tests, resulting in the following consistency indices (Cronbach alpha: VAN, α = .79; SCO, α = .82; VFA, α = .81; OSM, α = .74; OVM, α = .79. In addition, the McDonald´s omega reliability coefficient for the factor VFA was .78.

Inductive reasoning (IRS) was assessed by means of the "*Reasoning*" factor R from the Primary Mental Abilities battery of tests (PMA: Thurstone & Thurstone, 1941). The reasoning scale in the PMA battery evaluates the ability to solve logic problems, to predict and plan ahead. The PMA battery involves a 30 item test implemented over 6 minutes, and it is considered to be a good indicator of inductive reasoning (Hertzog & Bleckley, 2001; Sánchez-Ruiz, Hernández-Torrano, Pérez-González, Batey, & Petrides, 2011). The PMA-R can be used as an approximate measure of overall cognitive capacity, as reported in previously (Colom, Flores-Mendoza, & Rebollo, 2003; Sánchez-Ruiz et al., 2011). Regarding CR and AVE, the results of the confirmatory factorial analysis using the method of maximum likelihood revealed a high CR = .89 and an AVE above .50 (52.51%). Cronbach´s alpha for this tool was .87 and the McDonald´s reliability omega was .82.

In addition, a grade point average of academic performance (GPA) was also recorded. The GPA is calculated as a weighted measure of each student´s grades in proportion to the number of hours each subject is taught. This variable is measured before and after the test, comparing the grades in the first and third term reports, respectively. On the other hand, two partial indicators of academic performance were also recorded: the grades for the subjects *Spanish language and literature* (SLG) and *social sciences* (SSG), likewise using the first term grades as the pre-test measure and the grades from the third term as the post-test results. These grades are taken from the students reports and they are graded on a scale from 1 to 10.

Another tool used was the *Multiple Intelligences Self-efficacy Inventory* Revised *(MISEI-R*: Pérez & Beltramino, 2001), a test that is comprised of 8 sub-scales, each of which represents one of the intelligences proposed by Gardner (1999). In this study only the *linguistic intelligence* subscale was used (IML), which consists of 5 items and that

includes academic activities related to communication competency (e.g. "Analysing literary works"). In this test, the subject's evaluate their perceived level of confidence to successfully carry out each activity using a 10 point Likert scale, going from *I cannot carry out this activity* (1) to *I am absolutely confident I can carry out this activity successfully* (10). In terms of CR and AVE, the results obtained in the confirmatory factorial analysis using the method of maximum likelihood revealed a high CR = .92 and an AVE above .50 (55.48%) for this test. The Cronbach´s alpha for this tool was .82 and the McDonald's reliability omega .79.

Alternatively, an *ad hoc* test was designed for this study (LCT) to assess *linguistic communication competence* (LCC) and it was based on a diagnostic evaluation test carried out by the Education Department of the Castilla-La Mancha regional government. The test includes 10 tasks based on oral and written comprehension and expression. The results are classed into six levels of achievement: very low (level 1), low (level 2), intermediate (level 3-4), high (level 5) and outstanding (level 6). The standards used to determine the levels of achievement are the appraisal score set for language competency, after a applying the factors of correction included in the application and manual correction by the education team. The test shows evidence of convergent validity for overall academic performance ($r = .38$, $p < .01$), and for the grades obtained in Spanish language and literature ($r = .52, p < .01$). In terms of the CR and AVE values, the confirmatory factorial analysis using the method of maximum likelihood indicate that the results obtained in this study are associated with a low CR = .69 and an AVE above .50 (50.13%). The Cronbach´s alpha for this tool is .67 and the McDonald´s reliability omega is .72.

Procedure

The study followed a quasi-experimental design of repeated measures with a control group. The independent variable was the intervention programme, while the dependent variables were verbal aptitude, inductive reasoning, academic performance, self-efficiency in linguistic intelligence, and performance in the diagnostic linguistic competence test.

With respect to the procedure followed, the first step was to send a letter to the heads of different schools in Toledo explaining the project and requesting their collaboration. Once the centres accepted, permission was requested from the respective school boards and once this permission was granted, the programme was then explained to the centres. Following this, an informative letter was sent to all participant student families that included a request for their informed consent. When the consent from the families had been received, the experimental and control participants were evaluated using the pre-test assessment tools. In addition, the academic results of the participating students and the results from the linguistic competency diagnostic team were requested from the academic boards at each centre. Subsequently, the intervention program was carried out on 4 experimental groups (over 12 x 55 minute sessions), while 4 control groups underwent the programme in the following academic year within the framework of the literacy plan at each centre. Following the intervention, measurements were obtained during the post-test phase using the same pre-test tools in both the experimental and control groups.

This study fully complies with the ethical requirements established for human research (informed consent and the right to information, data protection, confidentiality and non-discrimination).

Language competency enhancement programme

The language competency enhancement programme was designed around several interventions (see annex): (1) specific interventions from the language and literature department imparted in 15 sessions; (2) 16 sessions of interdisciplinary interventions; (3) 7 sessions of complementary and extra-curricular interventions. All these interventions are coordinated by the Academic Board and the Department of Spanish Language and Literature, under the supervision from the Department of Academic Guidance at each of the participating centres. The contents of each of the sessions included in the different blocks, were developed on the basis of distinct proposals reported in studies with similar approaches to this one (e.g. Gómez & Arcos, 2007; Trujillo, 2010).

The implementation of the programme with a group implies that three variables that make up the intervention's methodological framework must be considered (Garaigordobil & Martínez-Valderrey, 2014). Inter-session consistency requires performing one intervention session each week. These sessions were carried out during school time and they each lasted around 50 minutes. The programme was designed to run over six months, coinciding with the second and third school terms. Didactical consistency, according to the methodological guidelines, must be adhered to by the teachers implementing the programme, and this involves: (1) providing an appropriate classroom environment so that all students can hear and take part in the dynamic; (2) establishing basic rules of behaviour, including respect for both the speaker and their audience; (3) limiting the length of the student's interventions; (4) encouraging the oral participation of all the students during the entire lesson, with particular attention to those with specific special educational needs; (5) immediately endorsing the speaker. Finally, sessions should follow a consistent structure and each session should include the following previously established phases: (1) the teacher's explanation; (2) individual work or work in sub-groups; (3) group discussion; and (4) conclusions.

Some of the techniques employed in the different sessions should be highlighted, such as: dramatizations, individual reflection, group dynamics, group reflections (group debates prompted by questions, film- or disco-forum), brainstorming, and training in problem solving or cognitive restructuring. Alternatively, following the recommendations presented previously (Gómez & Arcos, 2007), the activities offered during the sessions should cover different text and media sources, including radio and television programmes (sports reports, news and documentaries), audio-visual formats (videos, multimedia material and short films), lectures (scientific, institutional and political), talks and conferences hosted by the centre, spoken publicity slots, songs, literary and social texts (minutes, contracts, reports or instruction manuals).

Data analysis

To identify potential differences between the experimental and control variables studied, a multivariate analysis of variance (MANOVA) was initially applied to all the pre-test scores obtained. Subsequently, the means and standard deviations were

calculated, and tested using an analysis of variance (ANOVA) in order to reveal any disparity between the experimental and control groups.

After ascertaining homogeneity between the two study groups *a priori*, the significance of the changes observed between the experimental and control group was tested using a MANOVA. This was followed by a descriptive analysis (means and standard deviations) and a covariance analysis (ANCOVAs) for each of the variables in both groups. The effect size was calculated using Cohen´s d (also included in Table 1: effect size, η2), applying Cohen´s recommendations (1988) to interpret the effect size with the following thresholds: a small effect < 0.50; moderate 0.50-0.79; large ≥ 0.80.

Results

Immediate effects of the intervention programme: pre-test vs post-test changes between the experimental and control groups

The results of the pre-test MANOVA failed to reveal any statistically significant differences between the two groups prior to the intervention: Wilk's Lambda Λ = 0.902, F (10,186) = 1.225, p = .283, with a small effect size (η2 = 0.098; r = .12). Furthermore, the results of the ANOVA showed no significant differences between the experimental and control groups for any of the variables, demonstrating the homogeneity of the sample (Table 1). Nevertheless, the mean scores for the control group of students in the BADyG-M were higher than those of the experimental group in terms of the VFA, VAN and SCO, while students from the experimental group scored higher in the complementary BADyG tests, both OSM and OVM. Regarding academic performance, the experimental group had higher mean grades in SLG and SSG, while the control group presented a higher mean GPA. Finally, the students from the control group scored higher in terms of SLI and LCC.

When the effects produced by the programme were assessed, the post-test vs. pre-test MANCOVA comparison revealed significant differences between these two conditions: Wilk's Lambda Λ = 0.574, F (10,186) = 6.868, p = .000, with a moderate effect size (η2 = 0.426; r = .39). The post-test ANCOVAs confirmed a significant increase in the VFA, VAN and SCO scores among the students in the experimental group compared to the control students. The GPA and SLG scores were also significantly higher in the experimental group. Finally, the students in the experimental group had significantly higher IML and LCC scores (see Table 1).

A small effect size was associated with the results obtained for the verbal aptitude variables: VFA (d = 0.06); VAN (d = 0.08) and; SCO (d = 0.06). Moreover, a small effect size was also observed in the variables of academic performance, both in the specific SLG (d = 0.24) and in the overall GPA (d = 0.20). Finally, a small effect size was also confirmed for LCC (d = 0.44), while a moderate effect size was observed for IML (d = 0.53).

Furthermore, when the means of all the variables were compared, the improvements in the experimental group observed were greater than those in the control group. The specific positive increments in the VFA and IML were particularly noteworthy in the experimental group. Therefore, these results show that the experimental group made better progress than the control group in all the variables measured.

Table 1

Means and Standard Deviations of the Study Variables in the Experimental and Control group in pre-test phase and the Pre/Post Test Differences

| Variables | Pre-test | | | | | | Post-test | | | | | |
| | Experimental | Control | | | | | Experimental | Control | | | | |
	Mean (DT)	*Mean (DT)*	F (1,203)	*p*	η²	*d*	*Mean (DT)*	*Mean (DT)*	F (1,203)	*p*	η²	*d*
BADyG-M												
VFA	35.07 (11.96)	35.93 (10.78)	.284	.595	.001	0.07	1.18 (10.94)	-.31 (10.74)	13.388	.000	.062	0.06
VAN	17.49 (6.54)	18.00 (6.12)	.322	.571	.002	0.08	1.14 (6.22)	.11 (5.88)	23.750	.000	.106	0.08
SCO	17.58 (6.24)	17.93 (5.70)	.172	.679	.001	0.06	.35 (5.73)	-.37 (5.93)	7.106	.008	.034	0.06
BADyG-M (PC)												
OSM	19.49 (6.47)	18.33 (6.49)	1.645	.201	.008	0.22	.07 (6.37)	-.17 (6.34)	1.435	.232	.007	0.22
OVM	21.31 (6.24)	22.67 (5.94)	2.535	.113	.012	0.22	.18 (6.00)	-.23 (6.02)	2.411	.122	.012	0.16
PMA-R												
IRS	12.65 (5.83)	12.62 (5.62)	.316	.575	.002	0.01	.04 (5.23)	-.05 (5.73)	.878	.350	.006	0.02
AP												
SLG	5.69 (2.14)	5.31 (2.15)	2.044	.154	.008	0.18	.05 (2.11)	-.09 (2.20)	5.495	.020	.020	0.24
SSG	6.12 (2.04)	5.82 (2.15)	1.477	.225	.005	0.14	.01 (2.00)	-.05 (1.98)	1.383	.241	.005	0.18
GPA	5.01 (2.23)	5.08 (1.82)	.070	.792	.000	0.03	.65 (1.85)	.22 (1.67)	10.285	.002	.037	0.20
MISEI												
SLI	5.57 (2.31)	6.04 (2.26)	2.766	.097	.010	0.20	.82 (2.02)	-.65 (1.72)	96.464	.000	.265	0.53
LCT												
LCC	3.43 (1.18)	3.55 (1.22)	.693	.406	.003	0.10	.76 (1.15)	.12 (1.21)	20.991	.000	.073	0.44

Note. BADyG-M: Spanish acronym for Battery of General and Differential Aptitudes; VFA: Verbal factor; VAN: Verbal analogies; SCO: Sentence completion; BADyG-M (PC): Spanish acronym for Battery of General and Differential Aptitudes. Complementary tests: OSM, Oral storytelling memory; OVM: Orthographic visual memory; PMA-R: Primary Mental abilities – Reasoning Factor; IRS: Inductive reasoning; AP: Academic performance; SLG: Spanish Language Grade; SSG: Social Sciences Grade; GPA: overall academic performance; MISEI: Multiple Intelligences Self-Efficacy Inventory; SLI: Self-efficacy on linguistic intelligence; LCT: Linguistic competency test; CCL: Linguistic communication competence.

Discussion

The main aim of this study was to assess the effects of a previously described language competency enhancement programme on the variables of verbal aptitude, inductive reasoning, academic performance, linguistic intelligence self-efficacy and linguistic competency using tools of *maximum performance and typical performance.* The results confirm that the intervention stimulated: (1) a significant increase in verbal aptitude –VFA-, both in terms of VAN and SCO; (2) a significant improvement in the overall academic performance –GPA- and in SLG; (3) a significant increase in the IML; and, (4) a significant improvement in CCL.

Taken together, these results ratify the programme's efficacy. Hypothesis 1 was confirmed by the improvements in the VFA, both in terms of reasoning and verbal comprehension (VAN), and in terms of recognising vocabulary and situations where previous knowledge is required (SCO). However, no significant improvements were evident in IRS, in OSM, the latter measuring the short term ability to remember data from a story that has just been told, or in OVM, which measures long term memory of the correct spellings of words. One explanation for these results can be found in the hierarchical model of intelligence proposed by Cattell, Horn and Carroll (Schneider & McGrew, 2012). Among the 10 main intellectual abilities in stratum II, this model includes the crystallised intelligence that was assessed in the present study via the Verbal factor in the BADyG-M, fluid intelligence assessed via the PMA-R, short term memory assessed through the complementary test OSM from BADyG-M, and long term memory measured with the complementary OVM test from BADyG-M. The first of these features is related to the ability of an individual to use language, information and concepts in the context of a particular culture. The present intervention programme is successful in this area due to the improvement in language competency it produces. By contrast, no improvement in fluid intelligence is observed. This is the ability of an individual to handle abstractions, rules, generalisations and logical relationships, as well as the individual's short term memory capacity, where information is retained for short periods of time, and their long term memory reflecting their ability to store and consolidate information after a moderate time lapse. Indeed, the reason these attributes were not improved is that this educational intervention is not aimed at developing these intellectual capacities.

Hypothesis 2, was partially confirmed, as the experimental subjects experienced a significant improvement in the GPA and in one of the partial measures of academic performance, the SLG relative to the controls. However, the grades in Social Sciences did not improve. The improvement in the GPA may reflect the cross-sectional nature of linguistic communication competency. Language is a crucial tool in the development of other competencies, and it is involved in accessing content from the different areas in the curriculum, optimising the processes of teaching and learning at all levels, as well as the assessment process (Alexander, 2005; Jiménez, 2010; Mercer, 2000; Pérez & Zayas, 2007). Therefore, improvements in language must entail improvements in the communication capacity of the individual and consequently, the overall learning process will improve and this will be reflected in better academic results. The subject most reliant on linguistic communication competency in our study was Spanish language and literature, which is why the improvement in this subject is the most significant.

Likewise, hypothesis 3 was fully confirmed as there is a significant improvement in the IML of participants in the experimental group relative to those in the control

group. These results are consistent with earlier studies that show self-efficacy can be "taught" through educational interventions (Lucas & Carbonero, 1999; Orejudo, Fernández-Turrado, & Briz, 2012). In addition, these results provide evidence of the potential importance of self-efficacy as a motivational variable implicated in academic performance (Miñano & Castejón, 2011; Rosário et al., 2009; Zimmerman, Bandura, & Martínez-Pons, 1992).

Finally, Hypothesis 4 was also fully confirmed by the significant improvement in the post-test diagnostic test results (LCT) of the experimental group compared to the controls. These results were expected, given that the language competency enhancement programme focuses explicitly on skills like spelling, reading compression and fluency, which form the basis of this diagnostic test. Essentially, continuous training in the skills being used as a diagnostic variable resulted in a predictable improvement in those skills.

Nevertheless, despite these promising results, we must point out some limitations to this study. First, the sample was taken from a rural socioeconomic context and therefore, care must be taken when extrapolating these results to the general population. Future assessments of the programme should be carried out on larger sample with a more varied socioeconomic background. In addition, it would be advisable to introduce a more detailed analysis of the socioeconomic and cultural index of the cohort. This index should be composed of a series of elements related to the family's socioeconomic background (e.g. PISA, 2013) that were omitted in the present study. It would also be beneficial to carry out a follow up assessment (approximately one year after the end of the intervention programme) in order to analyse the persistence of the effects of the programme. The population sample is also too small to be able to generalize the results to the general population, which is why we suggest performing future assessments of the programme on a larger sample from a wider range of backgrounds. We recommend, this study could be replicated on different samples in order to analyse the general validity of the results (external validation). Furthermore, in order to comply with scientific research ethical standards, permission from the Research Ethics Committee from the corresponding institution should have been requested. Finally, some of the tasks included in the test for LCT need to be optimised in order to improve their reliability and validity.

In terms of future research, an assessment of the impact of the language competency enhancement programme on further variables could be of interest, such as the adaptation to school or psychosocial adjustment. It would also be interesting to analyse the programmes effect in each individual centre, which might make it possible to differentiate the effects on individual variables. It would also be appropriate to include complementary data collecting methods, such as discourse analysis, which would facilitate a more direct observation of the social and communicative aspects of linguistic communicative competency.

In summary, the present study shows that language communicative competency can be enhanced by implementing a solidly grounded interdisciplinary programme, with an in-built and rigorous assessment of the potential outcomes. This is the contextual setting of our proposal, involving an efficient interventional tool that has been experimentally validated.

References

Alexander, R. (2005). *Towards dialogic teaching: rethinking classrooom talk*. York: Dialogos.

Bermúdez, L., & González, L. (2011). La competencia comunicativa: elemento clave en las organizaciones. *Quórum Académico, 8*(15), 95-110.

Cantero, V. (2014). La mejora de la competencia lingüística desde la interacción comunicativa: una propuesta para la enseñanza bilingüe. *Didáctica. Lengua y Literatura, 26,* 81-104.

Cantero, V., & Aarli, G. (2012). El proyecto lingüístico de centro y el currículo integrado de lenguas: dos instrumentos pedagógicos indispensables en la educación bilingüe. *Didáctica (Lengua y Literatura), 24,* 107-135.

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Hillsdale, NJ: Lawrence Earlbaum Associates.

Colom, R., Flores-Mendoza, C., & Rebollo, I. (2003). Working memory and intelligence. *Personality and Individual Differences, 34,* 33-39. doi: 10.1016/S0191-8869(02)00023-5

Corson, D. (1990). *Language policy across the curriculum*. Clevedon: Multilingual Matters.

Corson, D. (1999). *Language policy in schools: A resource for teachers and administrators*. Londres: Lawrence Erlbaum Associates.

Galera, F., & Galera, M. I. (2000). El enfoque comunicativo e interactivo de la didáctica de la lengua. *Tabanque, 15,* 209-222.

Garaigordobil, M., & Martínez-Valderrey, V. (2014). Efecto del Cyberprogram 2.0 sobre la reducción de la victimización y la mejora de la competencia social en la adolescencia. *Revista de Psicodidáctica*, *19*(2), 289-305. doi:10.1387/RevPsicodidact.10239

García, I., & Torralba, M. D. (1996). El projecte lingüístic a l'ensenyament obligatori. *Articles, 8,* 7-14.

Gardner, H. (1999). *Intelligence reframed. Multiple intelligences for the 21st. Century*. Nueva York: Basic Books.

Gómez, A. (2013). El aprendizaje integrado de la lengua española y los contenidos de áreas no lingüísticas en los proyectos lingüísticos de centro. *Porta Linguarum, 20,* 103-115.

Gómez, A., & Arcos, D. (2007). Plan de mejora de la competencia lingüística. Elaboración del proyecto lingüístico de centro. *Avances en Supervisión Educativa. Revista de la Asociación de Inspectores de Educación de España, 7,* 1-16.

Gómez, A., & Arcos, D. (2013). El proyecto lingüístico de centro: Un enfoque comunicativo e interdisciplinar. *Aula de Secundaria, 5,* 15-19.

González, X. A. (2004). El proyecto lingüístico de centro. Un instrumento de planificación del plurilingüismo educativo. In Á. Huguet-Canalis & J. L. Navarro-Sierra (Eds.), *Las lenguas en la escuela* (pp. 81-92). Huesca: Gobierno de Aragón.

Hertzog, C., & Bleckley, M. K. (2001). Age differences in the structure of intelligence: Influences of information processing speed. *Intelligence, 29,* 191-217. doi: 10.1016/S0160-2896(00)00050-7

Jiménez, R. (2010). La competencia en comunicación lingüística en los currículos de las materias no lingüísticas de la Educación Secundaria. In A. de Gracia, R. Jiménez,

M. J. Rodrigo, M. F. Romero, & A. Salvador (Eds.), *Consideraciones sobre Didáctica de la Lengua y la Literatura. Reflexiones para la Práctica Docente* (pp. 49-84). Madrid: Visión.

Jorba, J., Gómez, I., & Prat, A. (2000). *Hablar y escribir para aprender. Uso de la lengua en situación de enseñanza-aprendizaje desde las áreas curriculares.* Barcelona: Síntesis.

Lucas, S., & Carbonero, M. Á. (1999). Desarrollo del autoconocimiento y autoeficacia a través de un programa de orientación profesional en Educación Secundaria. *Revista de Psicodidáctica, 8,* 89-100.

May, S. (1997). School language policies. In R. Wodak & D. Corson (Eds.), *Encyclopedia of language and education. Language policy and political issues in education* (Vol. 1, pp. 229-240). Dordrecht: Kluwer.

Mercer, N. (2000). *Words and minds: How we use language to think together.* London: Routlege.

Miñano, P., & Castejón, J. L. (2011). Variables cognitivas y motivacionales en el rendimiento académico en Lengua y Matemáticas: un modelo estructural. *Revista de Psicodidáctica, 16*(2), 203-230. doi: 10.1387/RevPsicodidact.930

Navarro, J. L., & Huguet, Á. (2007). Competencia lingüística del alumnado inmigrante en un contexto bilingüe. *SUMMA Psicológica, 4*(2), 57-68. doi: 10.18774/summa-vol4.num2-197

Navarro, J. L., Huguet, Á., Sansó, C., & Chireac, S. M. (2012). Acerca de la competencia lingüística del alumnado de origen inmigrante en la Educación Secundaria en Cataluña. El papel del tiempo de estancia y la lengua familiar. *Anales de Psicología, 28*(2)*,* 457-464. doi: 10.6018/analesps.28.2.148841

Navarro, J. L., Huguet, Á., & Sansó, C. (2014). Competencias lingüísticas y alumnado inmigrante en Cataluña. El caso del colectivo de origen hispanohablante. *Educación XXI, 17*(2), 361-382. doi: 10.5944/educxx1.17.1.11495

Orejudo, S., Fernández-Turrado, T., & Briz, E. (2012). Resultados de un programa para reducir el miedo y aumentar la autoeficacia para hablar en público en estudiantes universitarios de primer año. *Estudios sobre Educación, 22,* 199-217.

Pérez, E., & Beltramino, C. (2001). Desarrollo y validación de un Inventario de Autoeficacia para Inteligencias Múltiples. *Revista Iberoamericana de Diagnóstico y Evaluación Psicológica*, *12*(2), 134-147.

Pérez, C., & Serna, M. (1997). El proyecto lingüístico en centros escolares gallegos. De la diglosia al bilingüismo. *Textos de Didáctica de la Lengua y la Literatura, 13,* 25-35.

Pérez, P., & Zayas, F. (2007). *Competencia en comunicación lingüística.* Madrid: Alianza editorial.

Pilleux, M. (2001). Competencia comunicativa y análisis del discurso. *Estudios Filológicos, 36,* 143-152. doi: 10.4067/S0071-17132001003600010

PISA (2013). *Programa para la evaluación internacional de los alumnos. Informe español.* Madrid: Ministerio de Educación, Cultura y Deporte.

Roberts, J. T. (2004). The communicative approach to language teaching: The King is dead! Long live the King! *International Journal of English Studies, 4*(1), 1-37.

Rosário, P., Mourão, R., Baldaque, M., Nunes, T., Núñez, J. C., González-Pienda, J. A.,… Valle, A. (2009). Tareas para casa, autorregulación del aprendizaje y rendimiento en matemáticas. *Revista de Psicodidáctica, 14*(2), 179-192.

Sánchez-Ruiz, M. J., Hernández-Torrano, D., Pérez González, J. C., Batey, M., & Petrides, K. V. (2011). The relationship between trait emotional intelligence and creativity across subject domains. *Motivation and Emotion, 35*(4), 461-473.

Schneider, W. J., & McGrew, K. (2012). *The Cattel-Horn-Carroll model of intelligence.* In D. Flanagan & P. Harrison (Eds.), *Contemporary intellectual assessment: Teories, test and issues* (pp. 99-144). New York: Guilford.

Thurstone, L. L., & Thurstone, T. G. (1941). *Factorial studies of intelligence*. Chicago: University of Chicago Press.

Trujillo, F. (2010). La competencia en comunicación lingüística como proyecto de centro: retos, posibilidades y ejemplificaciones. *Lenguaje y Textos, 32,* 25-40.

Trujillo, F., & Rubio, R. (2014). El PLC como respuesta sistémica al reto de la competencia comunicativa en entornos comunicativos formales: propuesta de análisis de casos. *Lenguaje y Textos, 39,* 29-38.

Yuste, C., Martínez, R., & Galve, J. L. (2005). *Batería de Aptitudes Diferenciales y Generales BADyG-M*. Madrid: CEPE.

Zimmerman, B. J., Bandura, A., & Martinez-Pons, M. (1992). Self-motivation for academic attainment: The role of self-efficacy beliefs and personal goal setting. *American Educational Research Journal, 29,* 663-676. doi: 10.3102/00028312029003663

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Annex
Outline of the interventions included in the linguistic communication competency enhancement programme

1. Interventions specific to the Languages and Literature Department.
    1.1. Reading of texts
        1.1.1. Creative reading techniques.
        1.1.2. Mandatory reading.
        1.1.3. Encouragement to participate in reading workshops.
        1.1.4. Activities of literary linguistic reflection.
    1.2. Reading fluency.
        1.2.1. Tests of reading speed.
        1.2.2. Basic and specific techniques.
    1.3. Written and oral comprehension of texts.
        1.3.1. Cinematographic criticism group.
        1.3.2. Film forum.
    1.4. Oral and written expression.
        1.4.1. Creative writing workshop.
        1.4.2. Activities around "*Videobuk*".
2. Interdisciplinary activities.
    2.1. Improvement of basic abilities.
        2.1.1. Inclusion in all departments of evaluation criteria to improve oral and written comprehension, and oral and written expression, through appropriate tasks in each subject.
    2.2. Reading plan and encouragement in the use of the library.
        2.2.1. Carrying out research studies in different fields and subjects.
        2.2.2. Promotion of the use of the school library.
    2.3. Revision of the centre´s documents related to the programme to prioritise the inclusion of linguistic communicative competency.
3. Complementary and extracurricular interventions.
    3.1. Love letter competition.
    3.2. Encounters with young people´s authors.
    3.3. Short story and comic competition.
    3.4. Literary excursion along "El Quijote" trail.
    3.5. Group to encourage reading among parents.