Estudios de lingüística inglesa aplicada

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COMPARING THE BENEFITS OF A METACOGNITIVE READING STRATEGY INSTRUCTION PROGRAMME BETWEEN CLIL AND EFL PRIMARY SCHOOL STUDENTS

COMPARACIÓN DE LOS BENEFICIOS DE UN ENTRENAMIENTO ESTRATÉGICO-METACOGNITIVO ENTRE ALUMNADO AICLE E ILE DE EDUCACIÓN PRIMARIA

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Strategy instruction is a fundamental part of the language learning curriculum. Several studies (Wenden & Rubin, 1987; O'Malley & Chamot, 1990; Chamot & O'Malley, 1994; Cohen & Macaro, 2007; Chamot, 2008; Cohen, 2011, among others) have shown that the use of learning strategies produces a positive effect on learners' achievement, although the field has not been without controversy (Rees-Miller, 1993; Dörnyei y Skehan, 2003; Dörnyei, 2005; Manchón, 2008; Macaro, 2006, 2007, 2010). Thus, the

aim of this study is to investigate the effects of a metacognitive reading strategy training in two educational contexts, CLIL and EFL, and reflect on how learners can benefit from this learning approach. Participants (N = 145) came from six intact classes from two different schools in Santander, Cantabria, a community in the north of Spain. One of the schools followed a CLIL methodology and the other did not. The experimental groups in both schools underwent a seven-week metacognitive reading training programme developed by the research team, following the model proposed by Macaro (2001) that focuses on metacognitive awareness. Control groups continued with regular classes. Pre-tests and post-tests were carried out for both control and experimental groups.

As hypothesized, results indicate that those students (CLIL and EFL) that followed the strategic training obtained better scores on the metacognitive reading task than their control groups, but with no significant differences between both educational approaches (CLIL and EFL) even though the experimental CLIL group outperform the experimental EFL group. This leads us to the conclusion that this type of training is effective in both educational contexts and highlights the importance of the metacognitive teaching approach to improve reading comprehension in second language classes.

Key words: *CLIL, metacognitive training, primary education*

La instrucción estratégica es una parte fundamental del currículo de lenguas extranjeras. Varios estudios (Wenden & Rubin, 1987; O'Malley & Chamot, 1990; Chamot & O'Malley, 1994; Cohen & Macaro, 2007; Chamot, 2008; Cohen, 2011, entre otros) han demostrado que el uso de las estrategias de aprendizaje produce un efecto positivo en el éxito de los hablantes aunque este campo no ha estado exento de controversia (Rees-Miller, 1993; Dörnyei y Skehan, 2003; Dörnyei, 2005; Manchón, 2008; Macaro, 2006, 2007, 2010). Este estudio investiga el efecto de un entrenamiento estratégico de lectura en inglés en dos contextos educativos: AICLE (Aprendizaje integrado de contenido y lengua) e ILE (Inglés lengua extranjera) y reflexiona sobre cómo los aprendices de lenguas pueden beneficiarse de esta aproximación didáctica. Los participantes (N = 145) provienen de seis clases de dos colegios de Santander, Cantabria, una comunidad del norte de España. Una de los colegios seguía una

metodología AICLE y, el otro, no. Los grupos experimentales en ambos colegios siguieron un entrenamiento metacognitivo de estrategias de lectura diseñado siguiendo el modelo de Macaro (2001) que se centra en la conciencia metacognitiva. Los grupos controles continuaron con las clases normales. Todos los grupos realizaron pre-tests y post-tests.

Los resultados demuestran que aquellos alumnos (AICLE e ILE) que siguieron el entrenamiento estratégico obtuvieron mejores resultados en la prueba metacognitva. Sin embargo, aunque el grupo experimental AICLE superó al grupo experimental ILE, no se encontraron diferencias significativas entre ellos lo que nos lleva a concluir que este tipo de entrenamiento es efectivo en ambos contextos educativos y resalta la importancia de la aproximación metacognitiva para la mejora de la comprensión lectora en la clase de lenguas extranjeras.

Palabras clave: *AICLE, entrenamiento metacognitivo, educación primaria*

1. Introduction

Language learning strategies defined by Griffiths (2013) as "activities consciously chosen by learners for the purpose of regulating their own learning" (p. 15) are regarded as highly important in successful language learning. In recent decades, research has shown the connection between strategies and an improvement in language skills (Chamot, 2008; Cohen, 2011; Macaro 2006). The aim of this paper is to examine whether strategy training instruction, centred in reading, could benefit Content and Language Integrated Learning (CLIL) and English as a Foreign Language (EFL) students in primary education in the same way.

The article is divided as follows: the starting point focuses on the importance of reading in Primary Education, reinforced by the Common European Framework of Reference for Language and the PISA Framework as a strategic element in the learning process (Garipova & Nicolás Román, 2016). The next part focuses on the differences between CLIL and EFL as teaching approaches, and the final part of the theoretical framework deals with research in reading as a second language. Then, the research questions and hypothesis are presented as well as the results, discussion and conclusions.

2. The importance of reading in primary education

Reading skills and reading literacy are a necessary tool for successful language learning, especially in an important educational stage as primary education. As the Pisa Framework (OECD, 2016) indicates: "achievement in reading literacy is not only a foundation for achievement in other subjects within the educational system, but also a prerequisite for successful participation in most areas of adult life" (p. 5). Researchers as Roohani, Hashemian and Asiabani (2016), Mokhatari and Sheorey (2002) and Pressley and Afferbach (1995) have highlighted the importance of training language learners to be strategic readers. That is why teachers need to help students be aware of the strategies available and show students how to select, implement and evaluate strategy use.

Moreover, we are considering two educational contexts (CLIL and EFL) in which reading has different roles. As Ruiz de Zarobe (2011) explains, there are differences in reading procedures in CLIL and EFL: while foreign language students read texts to learn the language, CLIL students read in order to acquire knowledge in the foreign language. Therefore, we assume that CLIL students need to develop more mature reading skills. Wolff (2005) highlights the importance reading has for CLIL students by stating that "reading and reading skills are regarded as highly important in the CLIL classroom. Most acquisitional processes are related to reading comprehension: learners work with documents and other sources in order to acquire knowledge in the content subject" (pp. 16-17). Garipova and Nicolás Román (2016) explain that although reading strategies are important in all learning contexts, they become decisive under the CLIL approaches. In that sense, Hellekjær (1996) states that CLIL students are accustomed to using and training their reading skills.

3. Reading strategy instruction research

Over the past three decades, research on learning strategies in Second Language Acquisition (SLA) has established itself as an important area within the Applied Linguistics field (Hu, 2016). Several research studies (Koda, 2004; Pressley, 2006) have shown the benefits of strategy instruction for L2 learning. However, the field of strategies has also faced criticism

and debate (Rees-Miller, 1993; Dörnyei & Skehan, 2003; Dörnyei, 2005; Macaro, 2006, 2007, 2010; Manchón, 2008) concerning issues such as lack of agreement in definition and categorization of strategies, lack of a theoretical framework, the teachability of strategies or different approaches to research methodology and data analysis (Dmitrenko, 2017). All in all, despite the criticism, the field of strategy research is very much alive as the publications of current status of research (Chamot 2005, 2011; Griffiths, 2013; Hu, 2016) and the 2014 publication of a special issue in the international journal of Applied Linguistics, 'System', demonstrate.

Focusing specifically on reading strategy training, Pressley (2006) explains that students are not likely to learn comprehensive reading strategies unconsciously. On the contrary, they need strategy training to help them solve comprehension problems and improve their reading ability. A meta-analysis of L2 reading strategy training conducted by Taylor, Steven and Asher (2006) summarized the positive effects of interventions involving L2 reading strategy instruction. As previous studies have shown (Anderson, 1991; Sheory & Mokhatari, 2001; Phatiki, 2003; Zenotz, 2012, among others) there is a positive correlation between reading strategy instruction and reading performance. However, it is difficult to generalize due to the fact that previous studies present many differences in contextual variables such as age, language background, instruments and measures (Ruiz de Zarobe and Zenotz, 2014).

In a similar vein, new teaching practices require students to be aware of their own comprehension processes (Carrell, Gajdusek and Wise, 1998). This is known as metacognitive awareness or metacognitive knowledge and it "involves both knowledge of the cognitive processes and the capacity to monitor, regulate, and orchestrate these processes" (Vandergrift and Tafaghodtari, 2010, p. 473). This aspect is regarded as crucial in the learning process. Some studies have shown that metacognitive awareness is as important as the content knowledge itself (Nelson, 1996; Sternberg, 1998). Even in primary education, it is important that education is based on helping learners to become aware of their learning processes. As Tarrant and Holt (2016) explain, metacognition in the primary classroom involves placing emphasis on the many different learning processes and making them more explicit for the learner.

Focusing on reading comprehension, different investigations have demonstrated the positive relation between metacognitive awareness and L2 reading comprehension (Kusiak, 2001; Zhang, 2001; Salataci and Akyel, 2002; Malcom, 2009; Zenotz, 2012; Ruiz de Zarobe and Zenotz 2014, 2015). Iwai (2011) summarizes previous studies that focus on the effectiveness of teaching metacognitive reading strategies in EFL/ESL and concludes by saying that:

> Studies illustrate its positive influence (…). Learning what strategies are, how to use them, when and where to use particular strategies and, the importance of evaluating their use is, therefore, key to the development of reading comprehension for students whose first language is not English. (p. 156).

However, very little research is available on training that implements awareness raising, especially with school-aged participants. In the words of Macaro (2001), "there have been a few interventions into general strategic behaviour, particularly in trying to raise metacognitive awareness" (p. 294).

If we consider research in reading strategies within the CLIL context, Garipova and Nicolás Román (2016) claim that the relationship between CLIL and reading has been scarcely explored. Although some studies have focused on reading comprehension (Admiral, Westhoff and de Bot, 2006; Hellekjær, 2006), very few have dealt with metacognitive training. Against this backdrop, the studies conducted by Ruiz de Zarobe and Zenotz (2014, 2015) analysed reading strategy instruction in plurilingual contexts in the Basque Country. These studies showed a positive effect of strategy instruction in CLIL classes as well as a relationship between language learners' reading strategy use and reading comprehension. Our aim in the present study is to move forward in this research in order to analyse the effect of the reading intervention in two different contexts: CLIL and EFL, where there are virtually no studies, which makes this paper innovative for the field.

4. Research questions and hypothesis

The present study aims to investigate the effect of a metacognitive reading strategy intervention in primary school children, comparing two educational settings: CLIL and EFL. In order to do so, two research questions are presented:

The first research question deals with the effectiveness of the metacognitive strategic intervention regardless of the context:

1. Do students (CLIL and EFL) benefit from metacognitive reading strategy training? If so, in what ways?

Based on the evidence presented in previous sections, our hypothesis maintains that students (CLIL and EFL) exposed to the training programme will outperform the control groups.

The second research question deals with the possible differences between the two experimental groups (CLIL and EFL):

2. If the reading strategy intervention is effective, do CLIL students benefit more from it than EFL learners?

Because of the differences in reading procedures between CLIL and EFL students (Ruiz de Zarobe, 2011; Wolff, 2005; Garipova & Nicolás Román, 2016; Hellekjaer, 1996), we hypothesize that students in CLIL contexts may acquire and manage strategies differently from EFL learner.

5. Methodology

5.1. Participants

Participants, who formed part of a longitudinal project, belonged to two schools from Santander (Cantabria), a community in the north of Spain. One of the schools (henceforth the CLIL school) followed the Programme for Bilingual Education implemented by the Cantabrian Government in which English is the language of instruction in regular subjects (Cantabrian Government, 2013). This programme aims to favour the development of

the communicative competence through the strengthening of the foreign language and its use as medium of instruction in non-linguistic subjects. The pedagogical principles are the use of CLIL methodologies and Information and Communication Technologies (ICT) to promote real communication skills.

In these CLIL schools, exposure to English in regular subjects begins at the end of pre-primary education with two hours of CLIL classes and one hour of EFL and it increases throughout primary education. In particular, these students in the 5th year of primary education had three hours per week of science in English, one hour per week of arts and crafts in English and three hours per week of EFL. The second school (henceforth the EFL school) had three hours per week of English as a regular subject (see Table 2). The total exposure to English when they finish Grade 5 of Primary Education is 1,047 hours for the CLIL school and 721.5 hours for the EFL school. As can be seen, the amount of English exposure in the CLIL school is considerably higher than in the EFL school.

The cohort consisted of six intact classes of around 25 students each (N = 145). For each school, two classes were randomly assigned to the experimental group and one to the control group. Therefore, we had one experimental and one control group in each educational context (EFL and CLIL). Table 1 summarizes information about participants, as well as experimental and control groups. Regarding gender, 43% of the participants were boys and 57% girls. The mean age was 10.2 years old at the moment of the pre-test.

		N	%
CLIL school	Experimental	49	33.7
	Control	23	15.9
ELF school	Experimental	52	35.9
	Control	21	14.5
	TOTAL	145	100

Table 1. Descriptive statistics of the sample.

	Programme for Bilingual Education (CLIL school) Hours per week	Regular programmes (EFL school) Hours per week
Pre-primary	1 hour EFL 2 hours CLIL	1 hour EFL
Primary Years 1 and 2	2.5 hours EFL 2 CLIL	2.5 hours EFL
Primary Years 3 and 4	3 hours EFL 2 hours CLIL	3 hours EFL
Primary Year 5	3 hours EFL 3 hours CLIL	3 hours EFL
TOTAL	1,047 hours	721.5 hours

Table 2. Total hours of exposure to English from pre-primary to Grade 5 of primary education.

5.2. Procedure

The study uses a pre-test-post-test design. Data was collected during the academic year 2014-2015. Pre-tests took place at the beginning of February and post-tests during the last week of April and the first week of May, 2015. The training programme occurred between those dates for the experimental groups. A delayed post-test was carried out six months after the end of the treatment to study the long-term effects of the training. For this, we have followed Macaro (2010) who, when outlining the characteristics of effective strategy instruction, recommends post-tests after a period of withdrawal from the training in order to evaluate its effectiveness. Table 3 illustrates the design and procedure of our study.

Pre-test January 2015	7 Training sessions February–April 2015	Immediate Post-test May 2015	Delayed Post-test January 2016

CLIL school	Experimental group (n=49)	
	Control group (n=23)	
EFL school	Experimental group (n=52)	
	Control group (n=21)	

Table 3. Experimental design.

5.3. Instruments

The training programme was developed by the researchers based on the model proposed by Macaro (2001, 2006), O'Malley and Chamot (1990) or Oxford (1990) which promotes initial awareness raising, practice, scaffolding and evaluation. The reading strategies can be found on Table 4. They were task-based learning strategies according to Chamot (2001)'s taxonomy (see also, Ruiz de Zarobe, this issue).

Strategy instruction
Strategy 1: Activate previous knowledge
Strategy 2: Predict what the text is about
Strategy 3: Observe the text structure
Strategy 4: Observe text type
Strategy 5: Guess from the context

Table 4. Reading strategies.

All materials for the training, based on the topics covered in the science class, were developed by the research team. Strategy instruction followed a similar sequence of events for each of the seven training sessions. The training started with the researcher raising student awareness. In order to do so, she explained the strategy explicitly. This explanation included a practical demonstration of the effectiveness of the strategy, when and how it should be used, etc. During the second stage, participants worked

on different tasks to practice the strategy and understand its effectiveness. These tasks, designed to be carried out individually, in pairs or in groups, were partially based on the science materials the CLIL groups were studying. The tasks were designed so that participants initially applied the strategies with scaffolded support and then, gradual removal of the scaffolding under the supervision of the researcher. Finally, the researcher provided feedback and participants filled in a "learning diary" to complete the metacognitive part of the training.

Strategies were worked on one by one during the first stages of the training and then combined to make instruction more effective (Wharton-McDonald & Swiger, 2009). Macaro (2001)'s model also advocates for the combination of strategies to increase the effectiveness of the training. The instruction was carried out by one of the researchers during EFL classes (for both CLIL and EFL experimental groups). Control groups in both contexts continued with regular classes with no specific reference to strategy instruction.

To measure the effectiveness of the training and specifically to assess learners' reading strategies, we developed a metacognitive reading test, which was used together with other instruments for data collection. The metacognitive reading test followed Carrell, Pharis and Liberto (1989) and consisted of 25 open-ended questions concerning the reading strategies worked on during the training. The test was divided into two parts: the first twelve questions concerned pre-reading/fast reading and involved strategies such as activating previous knowledge or observing the text structure. Students had to answer this part without looking at the test and with a time limit. The second part consisted of thirteen questions that the students answered whilst looking at the test. Other instruments such as a language background questionnaire, motivation questionnaire or language level tests were also used to gather data but are not considered in this study.

5.4. Results

Research question 1: Do students (CLIL and EFL) benefit from metacognitive reading training? If so, in what ways?

For our first research question which analysed the effectiveness of the metacognitive reading treatment, we hypothesized that the experimental groups (CLIL and EFL) would outperform control groups (CLIL and EFL) in the post-test immediately following the metacognitive reading test.

In order to examine this hypothesis, a one-way analysis of covariance (ANCOVA) was conducted, using the Social Package for Social Sciences (SPSS) to determine a statistically significant difference between groups in the immediate metacognitive reading post-test. The independent variable group included four levels: CLIL experimental, CLIL control, EFL experimental and EFL control. The dependent variable was the score for the metacognitive reading immediate post-test. In order to control for any initial differences in the participants' reading abilities, the metacognitive reading pre-test score was used as a covariate in the analysis.

To interpret F tests for the different groups meaningfully, we determined whether any statistical assumptions underlying the use of ANCOVA were violated in the dataset. An examination of Levene's test (Larson-Hall, 2010) of equality of error variance demonstrated that the data had homogeneity of variance; therefore, the error of variance of the score for the metacognitive reading test was equal across groups ($F = 0.14$; $p = 0.93$). Table 5 shows means and standard deviations in the immediate metacognitive reading post-test for the adjusted scores. The adjusted means are the estimated marginal means that have been adjusted for the covariate. As can be seen in Table 6, there was a significant difference between groups $F(1, 3) = 86$, $p < 0$. The Eta Squared value of .64 indicates a moderate effect (Cohen, 1998).

Group	Unadjusted		Adjusted		N
	M	*SD*	*M*	*SE*	
CLIL experimental	18.3	4.2	17.8	.48	49
CLIL control	7.5	3.9	8.5	.71	23
EFL experimental	17.1	4.5	17.1	.46	52
EFL control	6.8	4.3	6.8	.73	21
Total	14.5	6.5	12.6	.31	145

Table 5. Means and standard deviation in the metacognitive reading immediate post-test.

Source	Type III sum of squares	df	Mean Square	F	Sig	Eta squared
Intersection	2319.7	1	2319.7	204.4	.000	.6
Reading pre-test	978.6	1	978.6	86.2	.000	.39
Group	2928	3	976	85.9	.000	.65
Error	1589.2	140	11.3			

Table 6. Reading success in the immediate post-test with the pre-test as a covariate.

Follow-up tests were conducted to evaluate pairwise differences among the adjusted means for the score on the metacognitive reading post-test. The results, summarized in Table 7, show that CLIL experimental students (M = 17.8) significantly outperformed CLIL control (M = 8.5; *p* = 0) and EFL control (M = 6.8; *p* = 0) groups in the immediate reading post-test.

At the same time, EFL experimental participants (M = 17.1) did significantly better than the CLIL control (*p* = 0) and EFL control (*p* = 0) groups in the metacognitive reading post-test. No significant differences were found between control groups (*p* = 0.9). This shows significant differences between experimental and control groups in both educational contexts, CLIL and EFL, and no differences between control groups in the metacognitive reading post-test. In other words, both experimental groups from CLIL and EFL contexts outperformed the control groups.

(I) Group Group	(J)	Mean difference (I-J)	Standard error	Sig.	95% Confidence Interval of the Difference	
					Lower	Upper
CLIL experimental	CLIL Control	9.307[*]	.868	.000	7.591	11.023
	EFL experimental	.735	.673	.277	-.596	2.066
	EFL control	11.074[*]	.880	.000	9.334	12.814

CLIL Control	CLIL experimental	-9.307*	.868	.000	-11.023	-7.591
	EFL experimental	-8.572*	.851	.000	-10.254	-6.890
	EFL control	1.767	1.023	.086	-.256	3.790
EFL experimental	CLIL experimental	-.735	.673	.277	-2.066	.596
	EFL experimental	8.572*	.851	.000	6.890	10.254
	EFL control	10.339*	.871	.000	8.617	12.061
EFL control	CLIL experimental	-11.074*	.880	.000	-12.814	-9.334
	CLIL control	-1.767	1.023	.086	-3.790	.256
	EFL experimental	-10.339*	.871	.000	-12.061	-8.617

$*p < .05$.

Table 7. Pairwise Comparisons

Differences between the experimental groups (CLIL and EFL) are considered in the next research question in which we examine whether the training is more effective under CLIL approaches.

Research Question 2: If the reading strategy intervention is effective, do CLIL students benefit more from it than EFL learners?

Focusing on our second research question, we hypothesized that CLIL experimental students would outperform EFL experimental students because of their exposure to CLIL methodologies. The estimated marginal mean for the CLIL experimental group was 17.8 and the mean for the EFL experimental group was 17.1, as can be seen in Figure 1. However, this difference was not significant ($p = 0.3$), as Table 7 shows. This suggests that the training is effective regardless of the educational context.
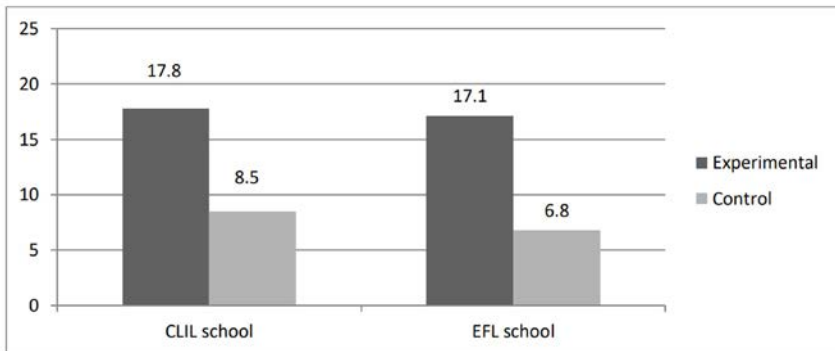
Figure 1: Adjusted means for CLIL and EFL groups on the metacognitive post-test.

Summing up, our first hypothesis concerning the effectiveness of the training was confirmed suggesting that the training works for both experimental groups (CLIL and EFL). However, although the CLIL experimental group (M = 17.8) outperformed the EFL experimental group (M = 17.1), this difference was not significant ($p = 0.277$). It seems that belonging to a CLIL or EFL context is not a decisive factor for the effectiveness of the training. Nevertheless, these results highlight the effectiveness of the procedure in both learning contexts and the benefits that learners may gain from this type of teaching approach.

6. Discussion and conclusion

The purpose of the study was to investigate the effectiveness of a metacognitive reading strategy intervention for primary school students (CLIL and EFL). For this, four groups of students were selected (a CLIL experimental, a CLIL control, an EFL experimental and an EFL control group) and a metacognitive reading strategy training was provided for the two experimental groups. Our results indicate that the reading instruction had a significant impact on both the CLIL and EFL experimental groups when compared to the control groups. However, whilst the experimental CLIL outperformed the EFL experimental group, those differences were

not significant, indicating that the training was effective in both contexts regardless of exposure to the CLIL approach.

In general, the results of the pedagogical approach studied are reliable and promising for the teaching of L2 reading in different learning contexts: CLIL and EFL. It seems that strategy use is a powerful tool in second language classrooms not only to improve learners' reading competence, but also to help them become better, more independent learners able to monitor their own learning process. In sum, our results provide support for the body of evidence that has confirmed the effectiveness of reading training in EFL (Anderson, 1991; Phatiki, 2003; Zenotz, 2012) and the research that has demonstrated the importance of the metacognitive approach (Kusiak, 2001; Salataci & Akyel, 2002; Dhieb-Henia, 2003; Ramírez Verdugo, 2004; Roohani et al., 2016).

Future research will focus on triangulating the effectiveness of this intervention with other variables, which include reading comprehension, motivation, strategies used, and last but not least, qualitative data also gathered during the study. Furthermore, the examination of longitudinal results will help us evaluate the long-term effects of this type of training and whether or not there are differences between the learning contexts longitudinally, particularly since there is so little research available on how learners benefit from these approaches over time. The evaluation of these results will enable us to understand better how students can benefit from this type of training and will provide further insights into its effectiveness. All in all, future research should focus on examining the relevance of metacognitive instruction when teaching second language skills.

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