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METHODOLOGICAL INVOLVEMENT IN TEACHING PRACTICE BACK TO PRINTED CONTENTS

*¹Rial-Costa, M. and ²Rial-Costa, S.

¹Innovation and Educational Technology Ph.D

²Therapeutic Pedagogy Predoctoral

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*Corresponding author:

Rial-Costa, M.

ABSTRACT

In the last ten years we have seen how in the teaching-learning processes, information and communication technologies (ICT) have taken on special relevance in the classroom. COVID and its consequences, among which the confinement of the entire educational population stood out, served to reinforce the need to make ICT the backbone of these educational processes, without which it would be impossible to guarantee a normality far from face-to-face insofar as to the transmission and teaching exercise. After the fears of new episodes of confinement, some teachers and countries in northern Europe have considered the need to not only reinforce face-to-face education, but also to return to the use of traditional materials and tools based on documents published on paper. This article will analyze how the implementation of technology-based educational methodologies has been carried out. In what we could have gone wrong both teachers and educational authorities and if, the adoption of traditional educational materials, can lead as a consequence, more than an evolution, a regression with what this can entail in the short and medium term both in schoolchildren and in students. graduates who begin a new stage, the labor one.

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INTRODUCTION

The teaching class is exposed to changes in its educational procedure. Some of them are conditioned by needs, as occurred during the school confinement due to COVID19, which led to 94% of the educational community being confined (UN, 2020). In said period it was necessary to adopt measures aimed at guaranteeing the normal flow of the teaching-learning processes, this time, away from all face-to-face, conditioned by the impossibility of some and countries to access the necessary resources to be able to maintain educational normality such and as shown in Table 1.

Contextualization: The urgency of the measure meant that the appropriate measures were not always adopted so that the transition from the situation preceding that of confinement, with the expected fluidity (García de Paz & Santana Bonilla, 2021), hence we could observe how, the resources, tools and procedures were disparate, not only at the state level, but also at the autonomous community level, at the local level and even different between schools belonging to the same municipality. To this we must add the type of center: public, private or concerted, which deepened, if possible, in the adoption of measures to be applied regarding the choice of tools and proceed in the absence of educational attendance. Table 2 shows the idiosyncrasies at the level of ownership of the centers attached to the Autonomous Community of Galicia (Spain), in which it can be verified that 1 out of every 4 centers is publicly owned while the other center is private (not being able to specify if this is arranged or not).

This situation brought with it that, on occasions, and due to the lack of resources (Rial Costa, 2020a), the local public administration came to the rescue, providing its own means and resources in order to maintain an apparent normality in terms of educational performance. that was to be carried out (Rial Costa, 2020b). Although initially, the study of this situation reported the need for the academic authorities to carry out the design and implementation of a tool that would facilitate the transmission between centers-teachers-families-students in both directions (Rial, 2020), it has been limited, solely and exclusively, to publicly owned centers, since private and subsidized centers had similar tools implemented in the centers they managed, which meant that they could carry out, with easier, the temporary transition of the PPEA before the abnormal situation that was to occur.

The new normality: Today, after the return to what the Government of Spain defined as the "new normality" (Government of Spain, 2020), something that happened after the return to face-to-face attendance in the classroom at the beginning of the 2020-2021 academic year, pursuing the recovery of all educational activities in the classroom. Table 3 shows the forecasts regarding the greater or lesser adequacy of the educational system used depending on the size of the group-classroom to which it is addressed. Galicia is an autonomous community in which basically two educational models can be differentiated, the rural and the urban, conditioned by the geographical area in which they are located. The first of these has as its main characteristics that it has classrooms that we can determine as normal, i.e., where the student-teacher ratio is close to that established

by educational legislation (18.9 in the case of Galicia and 20 in the case of Spain). . Consequently, it can be asserted based on the models included in Table 2 that the PPEA improve at the face-to-face level with ICT and combined hybrid (Face-to-Distance with ICT).

Analysis of the situation of the school confinement environment:

In order to determine how certain indicators of educational quality have varied, we have considered carrying out an analysis of the situation taking as its backbone the timing marked by the confinement by COVID19, analyzing the situation before, during and after the same.

Analysis of the situation prior to confinement: During the years prior to the school confinement due to COVID 19, it was observed how reading habits and the acquisition of printed material had decreased following the trend of previous years (Pingado Málaga, 2004), the decrease being more pronounced in mixed-type material, i.e., the one that combines physical printing with digital content: DVD book or book with access to digital web content. On the other hand, the consumption of digital material experiences a considerable increase, although we can consider it relative to the fact that we do not have data referring to the year 2017, as shown in Table 4. In this stage prior to confinement, schools had timidly introduced ICT as resources and tools that, at a methodological level, complemented the content that students handled through the use and observation of printed material, i.e., textbooks, with the advantages and disadvantages that it could have entailed (Molina Puche & Alfaro Romero, 2019). Some tools, used during school confinement, were in the stage prior to it, prohibited or limited on a specific basis for certain sporadic activities (Ricca, 2023). Their use was determined by communication and subsequent approval by the educational authorities (area educational inspectorate) and by the express authorization for their specific use by the parents (Organista-Sandoval, 2013).

Analysis of the situation during confinement: The school confinement caught both authorities, centers and families off guard. At no time was it possible to foresee the possibility of reaching an extreme situation such as the one experienced during the 2019-2020 school year. To the school confinement, the confinement of the entire population had to be added, which determined the need to put into practice urgent measures capable of minimizing the effects that this situation could cause without adopting them. Teleworking (Benavides & Silva-Peñaherrera, 2022), telatraining and confinement were the first, followed by measures of a prophylactic nature (Ministry of Health, 2021) whose purpose was to keep contagion cases under control, which were growing exponentially every day. , at the same time that deaths increased in the same proportion (Data coronavirus, s. f.). The particular Spanish educational idiosyncrasy (Rial Costa, et al., 2023), in which educational and health competencies are transferred to the ministries of the different autonomous governments, led to the adoption of disparate measures, albeit thanks to a Legislative pyramidal stratification, the Spanish government was able to establish some common minimums reluctantly adopted, considering a certain intrusiveness in the level of existing powers.

The lack of an educational platform (Oviedo Montaña, 2020), capable of supporting communication between authorities, centers and families in the case of Galicia, only deepened disagreements and complaints on the part of both teachers and families, hence that, in some city councils, they opted to adopt a collaborative role to facilitate the delivery and reception of tasks and their printing (despite the fact that they were sent electronically) (Caravantes López, et al., 2021). At the same time, it was possible to verify the existence of a technological imbalance (AEPD, 2020), not only at the territorial level, but also within the same municipality, something that coincides with other socioeconomic parameters such as GDP (Gross Domestic Product), the population growth, which reflects that more than 22% of Spanish municipalities are in a demographic situation that can be considered very serious, a figure that is close to 54% in provinces such as Soria, Cuenca and Teruel, provinces included in what has been known as "Empty Spain" (eEconomista.es & Europa Press, 2019), as shown in Figure 1.

The lack of access to computers, or the Internet (INE, 2023), and even the collapse of telecommunications networks (Otto, 2020), or blockade at the family level (since there are multiple accesses either due to educational needs or work needs) It led to having to bypass some restrictions in the use of technological tools, as in the case of the Smartphone. And it is that, as it happened with these devices, prior to the confinement, it was carried out during the Practicum of the Master of Education held at the Salesian College "A Merced" in Cambados during the 2018-2019 academic year, an essay in its use as a training tool, in which, despite initial reluctance, the introduction of said tools confirmed that they could be essential during confinement since not all families have a computer or tablet, but they do have phones of the latest generation (Rial, 2020c), which came to ratify the words of Trujillo (2020) who recognizes that "the educational community is the only one that can provide solutions to the situation experienced from each of the dimensions that make it up: sociopolitical , infrastructure/staff, organizational and pedagogical".

Analysis of the situation after confinement: The confinement ended, in Spain, after the publication of Royal Decree-Law 21/2020 of June 9, which repealed the state of alarm and the return to the classroom in the next 2020-2021 school year, observing a series of measures that prevent the return to the confinement situation and therefore to face-to-face in the PPEA at all school levels from 0 years to university studies. Initial studies, such as the one carried out by the World Bank (2021), alert that certain educational estimators, such as learning poverty, have skyrocketed, going from 53 schoolchildren in the stage prior to the confinement by COVID 19 to 63 after returning to the classroom. The return brought with it that during the 2020-2021 academic year, reinforcing the teaching presence in the classroom, which improved the student-teacher ratio, something that was not continued in the following courses, verifying a recession in indicators of educational improvement, both at status as global, national and even regional, something that the executive director of Unicef, Catherine Russel announced in March 2022 in a statement in which, from the institution she represents, they assert that: "when children do not cannot interact with their teachers and peers directly, their learning suffers. When they cannot interact with their teachers and classmates in any way, the loss can be permanent" in relation to the loss of school access due to the confinement experienced (Mazariegos, 2022). Some countries, such as Sweden, have verified that this decline in the reading comprehension of schoolchildren is caused by the oversizing, in terms of the use, of technological tools in substitution of the traditional ones on paper, either because they facilitate distraction and entertainment, instead of focusing and concentrating the students on their daily tasks, either because the contents have not been adapted as they should, largely due to the haste and short period of transition to the change of support, i.e., from paper to ICT. For some authors, the problem may also come hand in hand with the lack of training and adaptation to these new tools on the part of the teaching community, which has sown not only initial rejection, but malpractice in terms of their use and application (CC&P, 2018). But a bad adaptation of content may also be behind this problem, which has led to converting digital books into just that, a material that has put aside the paper support, to use the digital support without further ado (CNICE, 2014). The truth is that all these arguments have served for the Swedish educational authorities to consider a return to traditional tools, leaving aside a digital application of the contents, at least for now.

The short-term educational perspective: Although it is true that the countries that have clung to analyzing and pointing out as the cause of this qualitative decline in reading comprehension among schoolchildren reaffirm that it is motivated by adaptation to ICT content and that the solution involves a return to traditional tools, on paper, have not taken into account several factors, among which it is worth noting that, in recent years, the booksellers' union has observed a sharp drop in the acquisition of books and, therefore, in reading, attributing this trend to the appearance of new formats such as audio books, kindle, epub, PDF, etc. more economically affordable; and that the tendency to receive news through the written press was transferred to other systems and platforms such as social networks, largely due to

Table 1. Digital indicators at home during school confinement by COVID

Digital coverage		Home computer access		Internet access at home	
Developed countries	Underdeveloped countries	Developed countries	Underdeveloped countries	Developed countries	Underdeveloped countries
80-85%	50%	89%	50%	85,3%	46%

Table 2. Distribution of schools vs. ownership

Titularity	Public	Private
Total number of centers	1220	423
Percentage	74,25%	25,75%

Table 3. Adequacy of the system used based on the size of the group

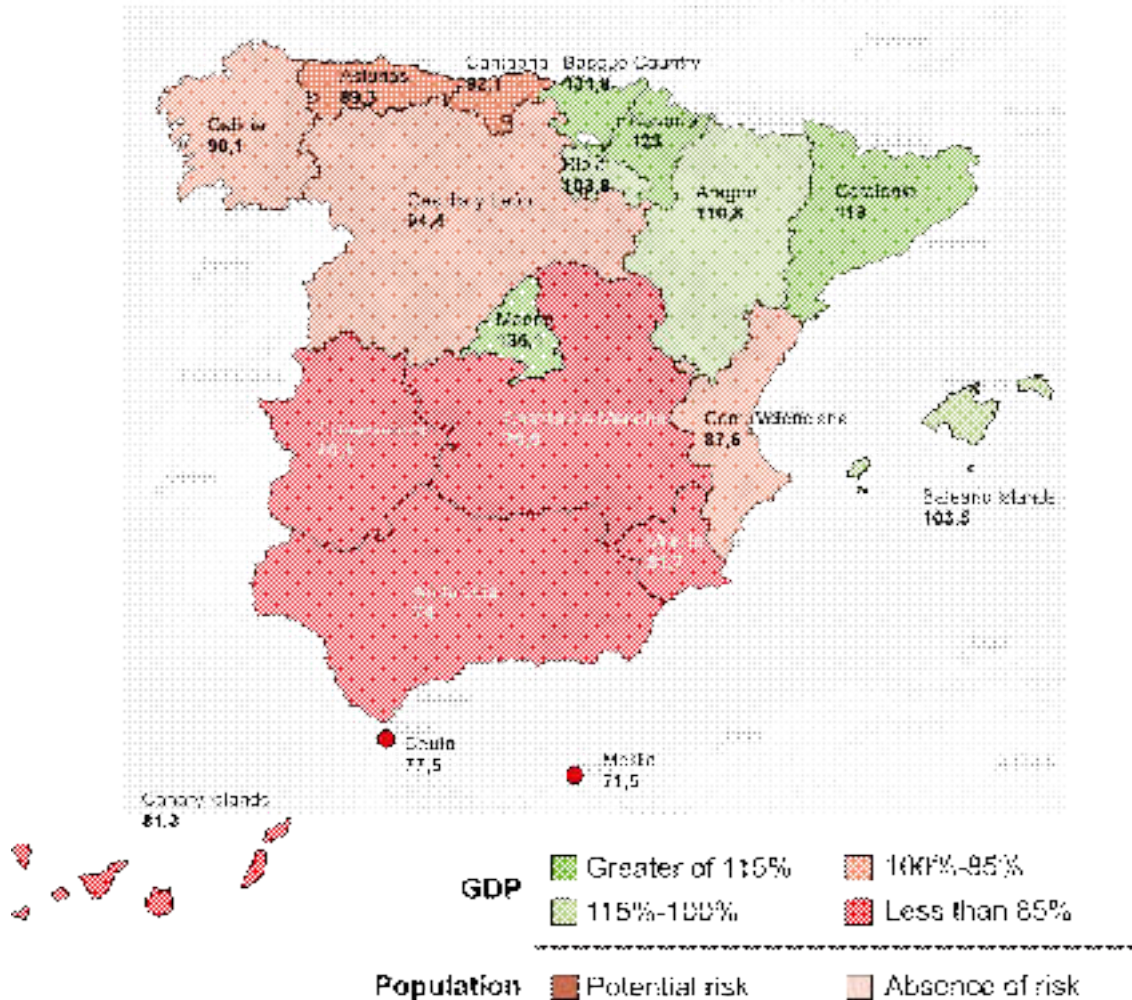
No. Students	Model			
	Face-to-face without ICT	Face-to-face with ICT	Combined hybrid	From distance 100%
<i>Few students</i>	=	+	=	=
<i>Regular classroom</i>	=	+	+	=
<i>Crowded classroom</i>	-	=	+	+
<i>Massive group</i>	-	-	-	+

Note: = Acceptable, - Worse, + Better. In grey, the type of standard classroom existing in the Autonomous Community of Galicia is selected. Source: Garcia Aretio, L. (2021)

Table 4. Reading habits and book acquisition

Format	Reading		Variation	Adquisition		Variation
	2017	2018		2017	2018	
Paper	40,3	38,7	-1,6	11,6	11,2	-4,4
Digital	0	6	+6	0	13,2	+13,2
Mix	19,4	17,2	-7,2	16,8	10	-6,8
% readers	65,94%			62,8%		-3,14%

Source: cambiandodetercero.wordpress.com (2019). Own elaboration (2023)



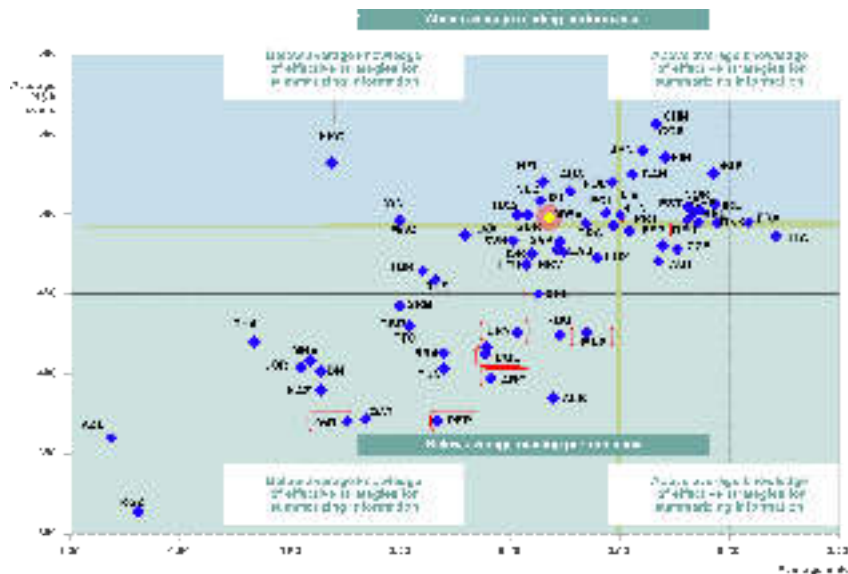
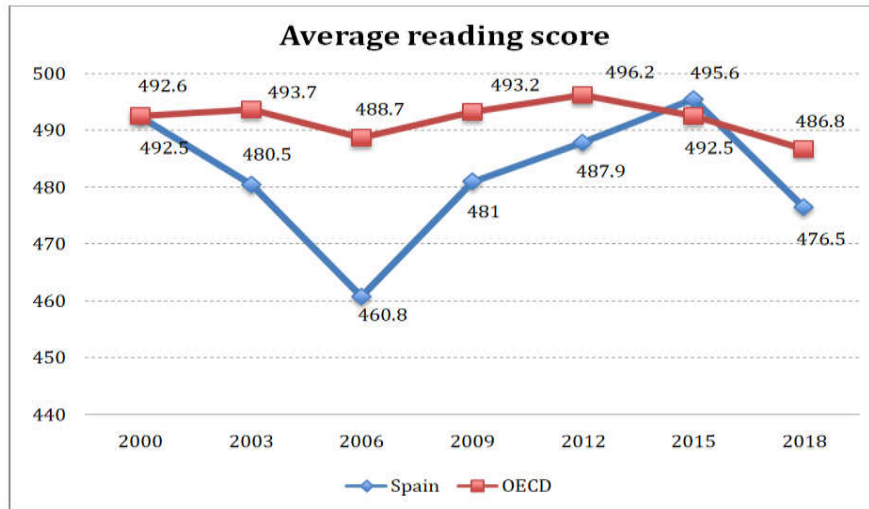
Note: Variation by communities between the years 2000 and 2018. Source: Source: INE (2019) and SSPA (2023). Own elaboration (2023)

Figure 1. Distribution of GDP vs. Population density in Spain

Table 5. Reading Habits and Book Purchase Barometer

Year	EXT	CAN	AND	CLM	MUR	GAL	CYL	CAT	BAL
2019	52,2%	57,1%	57,0%	58,7%	58,8%	50,6%	59,9%	60,0%	60,0%
2020	53,9%	58,3%	59,3%	59,6%	59,9%	61,6%	61,7%	61,9%	62,2%
Year	CVA	AST	ESP	ARA	LRJ	CAT	NAV	EUS	MAD
2019	61,5%	61,9%	62,0%	62,0%	63,0%	63,6%	65,2%	66,6%	72,8%
2020	63,0%	63,4%	64,0%	54,0%	65,0%	66,5%	66,5%	66,9%	73,8%

Source: Own elaboration based on data from the Ministry of Culture-Government of Spain (2020).



Note: The yellow diamond on an orange circle refers to the situation in Sweden.

Source: OECD (2023). Own elaboration.

Figure 3. Evidence-based reading comprehension

Table 6. List of centers affected by the Cumbre Vieja Volcano in La Palma

School	Educational level taught by the interviewee	Number of students in the educational center
CEIP Los Campitos	from 3rd to 6th of Primary Ed.	23
CEIP Todoque	From 1st to 6th grade of Primary Education	25
CEIP La Laguna	-Ed. Kindergarten and 1st, 2nd, 3rd and 4th grades of Primary Education -Ed. Children (4 and 5 years)	Before the eruption 166, then 5 remained
CEIP Las Manchas	From 1st to 6th grade of Primary Education	Before the eruption 12, then 5 remained
CEIP María Milagros Acosta García	-Infant Education (3, 4 and 5 years) -3rd and 4th of Primary Ed. -5th and 6th of Primary Ed.	56
CEIP Mariela Cáceres Pérez	-From 1st to 6th of Primary Education -Tutoring for 6th grade and all primary music -6th grade of Primary Education	16 classrooms with 15-20 students
CEO Juan XXIII	-6th grade of Primary Education -1st, 5th and 6th E.P. -Childhood Education	Line 1 center, within infant, primary and ESO courses

the possibility of participating through comments on them, and in contrast to electronic news systems such as news, which require affiliation and therefore the payment of a fee for reading the total content of the same. Coupled with this, it is necessary to take into account the restrictions imposed by organizations on search engines and digital press platforms that have a negative effect on the final consumer, the reader. In short, the reading panorama has diminished in terms of press consumption, with total indifference to whether it is written and/or digital, so situations of imitation are becoming less frequent. We must not forget that in early stages, the individual develops his learning by imitation, especially those students who have SEN (Special Educational Needs) or some type of ASD (Autism Spectrum Disorder) so, in the words of the team of experts in education of the VIU "A correct learning by imitation and observation is a good guarantee for the correct physical, psychological and verbal development of the students" (Experts in education, 2022), hence the need to resume this practice with total independence the degree of need of the child, either in the school and/or family environment.

Methodological deficiencies and their consequences: At this point, it is worth asking what could be happening? Or rather, what is failing at the school level? After the confinement due to COVID19, the acquisition of books and their reading increased in percentage terms, this increase being more evident in the northeastern regions of Spain (Basque Country, Navarra, Logroño, Aragón, Catalonia and Madrid), and to a lesser extent in the regions of southern Spain (Extremadura, Castilla la Mancha and Andalusia) as can be seen in Table 5.

The proposal to return to printed material as a solution: According to the 2018 PISA report, which analyzes the degree of reading proficiency among compulsory education students, it has been possible to verify a drop in school performance in terms of reading comprehension. Reading comprehension, also known as reading comprehension, is the ability that makes it possible to understand what is being read. The lack of it leads to not understanding what is read, hence its importance, since it conditions the acquisition of skills in other subjects that require it. Figure 2 shows the evolution of said indicator between the years 2000 and 2018, comparing it between Spain and the average of the OECD countries and observing that Spain is 10 points below the average of the 38 countries that make up the OECD, something that contrasts with the difference in the 2015 report in which Spain was 3 points above it. Figure 3 shows the degree of reading comprehension based on Evidence, confirming that Sweden is, in said report, in a situation that shows that schoolchildren are below. Average knowledge of effective strategies to summarize information, so That is why the alarm bells went off in the Swedish educational authorities because "there is something worse than not knowing how to read: not understanding what has been read and, for this reason, in Sweden they will exchange screens for books" (Pérez, 2023), something that has had an echo internationally among the educational community since in the words of the Minister of Education Lotta Edholm, there is a risk of "seeing a generation of functional illiterates in Sweden", choosing to give prominence to printed material thanks to promoting a return to its use in the classroom (Saints, 2023). This change of position contrasts with that of international organizations such as UNESCO (2020), which have argued that, after the school confinement due to COVID 19, we must consider the impulse given to the implementation and digitization of classrooms as interesting, stating that "the Technology in the classroom is here to stay.

Conditioning: Although this statement is made considering its advantages in higher education, it should not be ruled out that, to a greater or lesser extent, there are more advantages than disadvantages of its use in previous stages, especially if the case of new ones occurs again. situations of confinement, something that cannot be ruled out, considering to a lesser extent the situation of schoolchildren in La Palma confined after the eruption of the Tajogaite volcano in Cumbre Vieja (Castillo-Capote, 2022) shown in Table 6.

Taking into account everything described above, we have proposed to analyze what elements intervene in the drop in reading

comprehension among school children, if it has links with the adoption of the substitution of methodological tools in schools (ICT for paper). and if a return to the use of past methodological tools is feasible, a return to printed material.

Planted objective: The objective established as the main one, in the study that we are about to describe, is to determine if there is any link between the use of ICT and the regression in the reading comprehension of school children.

From the general objective, the following specific objectives emanate

- Determine if this situation improves after replacing ICT instead of the traditional paper format.
- Analyze the digital content to see if it meets what the school children need.
- Verify the dependence of the students on the paper format at the school level, despite the use of ICT.
- Determine the degree of reluctance of teachers, families and students to use ICT to replace the paper format.
- Establish the link between reading comprehension and the use of ICT as opposed to the use of the traditional paper format.

METHODOLOGY

To analyze the use of ICT tools in the school environment, if they have had a negative impact on the reading habit, if reading comprehension has worsened due to factors related to ICT (video, audio, etc.), if the use of printed material (books on paper) can be a solution capable of reversing the downward trend in reading comprehension, or if this situation is somewhat temporary due mainly to the transit between the use of one or another learning tool, it has been decided to study at the same time. ESO fourth year group (Compulsory Secondary Education)

Analysis of the sample of participants: The study carried out has been carried out on a sample made up of 40 students in the fourth year of ESO from a concerted educational center in the Autonomous Community of Galicia, to whom it has been proposed that they answer, after carrying out 6 sessions of use of Smartphone devices as a classroom tool (Organista et al., 2013) to an anonymous questionnaire consisting of 23 questions related to the practice, use and change of educational tools as well as verifying how they perceive these changes in the classroom and how they are perceived by their parents.

This questionnaire is divided into 4 blocks:

- Data related to the course and gender of the participating students
- ICT block - introduction, use, interaction and skills
- Contrast block - ICT vs. Contents in paper format
- Block of conclusions - Choice, reversal, valuation

Table 7. Variables V1 to V5 summary

	V1	V2	V3	V4	V5
Min	3.00	1.000	3.0	2.000	0.000
1st Qu	4.00	1.750	6.0	8.000	0.500
Median	4.00	2.000	7.0	9.000	1.000
Mean	4.35	2.125	6.7	9.125	1.739
3rd Qu	5.00	3.000	8.0	10.250	3.000
Max	6.00	4.000	8.0	14.000	7.000

Note: in blue the code used to obtain the summary of the variables after elimination of null values is shown (NA in R)

At the same time, data collection has been carried out on reading comprehension regarding the interpretation of each question by the students who have carried out the questionnaire, counting the total number of questions on each of the items. of the questionnaire, after which we proceeded to determine the aggregate variables V1, V2, V3, V4 and V5 respectively, which correspond to the approach of the hypotheses under study.

Table 7 shows the summary reported by RStudio for these variables. Based on the observations made, a statistical study has been designed in which the following hypotheses have been taken into account:

- H_0 -Academic results do not improve after replacing ICT instead of the traditional paper format.
- H_0 -Digital content does not meet what schoolchildren need.
- H_0 -Students do not get rid of the paper format at school level.
- H_0 -Teachers, families and students are not in favor of the use of ICT to replace the traditional paper format.
- H_0 -There is no link between reading comprehension and the use of ICT that motivates the replacement of the traditional paper format.

With which it is intended to provide answers to the questions that the educational community raises.

Statistical tests performed: The study has been approached by carrying out a series of statistical tests using the statistical software R and the IDE (Integrated Development Environment) RStudio (Rial Costa & Rial Costa, 2023), which have allowed determining the respective decisions on the proposed hypotheses, such as the normality test and the determination of the corresponding p-value for the hypotheses H (1), H (2), H (3) and H (4) respectively. To address the degree of reading comprehension among the schoolchildren participating in the study, we have considered determining this indicator from the equation:

$$G_{cl} = \#P - \#P$$

in which:

$$\#P = P_{participants} * items_{forms}$$

and being

$$\#I = \sum_{i=1}^{23} questions_i$$

From the application of said formula it can be deduced: that the maximum value that can be reached in terms of reading comprehension coincides with $\#P=23*40=920$ points, while $\#I=40$ points, so that the $G_{cl}=880$ points reflected in Table 8 that shows the evaluation scale of said indicator.

Reliability of statistical tests performed: The study has been addressed has been carried out, through a selective test of data collection, which is why a study of the degree of reliability of the same should be carried out, thus ruling out possible errors that may have been made in the design stage and that go beyond the data collection and analysis stage. To address this validation, the alpha-Cronbach statistic will be determined, which admits values in the range [0-1], with values close to 0 determining non-consistency and therefore unreliability of the test instrument used, while those close to 1 will indicate the opposite, the high reliability observed. In the case at hand, the sample of 40 individuals yields a value of 0.897, which is why, given its proximity to 0.9, we can affirm that the indicator reaffirms the high degree of reliability of the instrument used, as stated in the Table 9 and Table 10 respectively.

RESULTS

The analysis carried out on the data collected through the test, have provided the following results:

Results obtained on the proposed hypotheses: For each of the hypotheses proposed in this study, the results have been obtained on the indicators that determine the adoption either for the null hypothesis (H_0) or, on the contrary, the adoption of the alternative hypothesis (H_1). Figure 4 shows the distribution of data for variables V1 to V4 obtained by grouping the variables integrated into the impression collection document.

Thus, and for hypothesis 1: H_0 -Academic results do not improve after replacing ICT instead of the traditional paper format, it has been resolved to analyze the data obtained by performing the Shapiro-Wilk normality test, given that the school population analyzed does not exceed 50 individuals, yielding the values shown in Table 11. Given that the p-value is less than 0.05, observing H_0 is considered as the valid hypothesis, i.e, H_0 -Academic results do not improve after replacing ICT instead of the traditional paper format, which in the case that we occupies, reaffirms that the return to past methodological tools will not favor a recovery regarding the academic results achieved by the students.

For hypothesis 2.- H_0 -Digital content does not meet what schoolchildren need. The same type of statistical test has been carried out, analyzing the values obtained from the variable V2, obtained as a result of the sum of items 9 to 13 respectively and resulting in the values that can be seen in Table 12. It is observed how the p-value is much less than 0.05, which is why the test advises us to observe H_0 as the valid hypothesis, i.e, H_0 -Digital content does not conform to what schoolchildren need. So we see how the educational community is opposed to e-books, considering that they are just a mere transcription of content from paper format to ICT format, for which reason they demand stricter regulation of such digital content from public educational administrations, oriented towards content publishers.

For hypothesis 3.- H_0 -The student body does not detach from the paper format at the school level, the test considered for the previous hypotheses was applied, which yields the values that can be observed in Table 13. In this case, the p-value is also less than 0.05, which is why the test advises us to consider H_0 as the valid hypothesis, i.e, H_0 -Students do not follow the paper format at the school level. We see how, despite the fact that the use of ICT has been promoted, as opposed to the previous format on paper, schoolchildren usually require a combined use, since they print the contents to tackle tasks, study, etc. something that is reinforced thanks to the use that occurs in the ICT classroom and that is reflected in Figure 5.

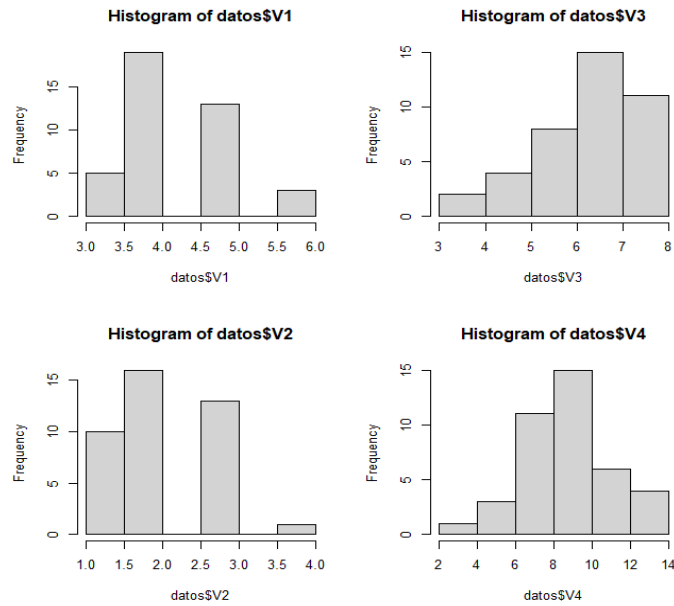
For hypothesis 4.- H_0 -Teachers, families and students are not in favor of the use of ICT to replace the traditional format on paper, analysis using the Shapiro-Wilk test has been considered, as in the previous cases analysed. to determine the normality of the data. Based on this test performed, the results can be seen in Table 14. In view of the result of the test, the p-value, in contrast to the previous cases, is also greater than 0.05, which is why we must consider the alternative hypothesis H_1 as the valid hypothesis, i.e, H_1 -Teachers, families and students are in favor of the use of ICT to replace the traditional format on paper. Thus, we can see how the use of ICT is seen favorably by each and every one of the actors involved in the training process, i.e., teachers-families-students, considering these tools, especially Smartphones, as shown in Figure 6, as key in the teaching-learning processes at the current moment in which we have to live and considering that they can facilitate a normalized educational transmission in the face of new episodes of distance training such as the one experienced by school confinement due to COVID 19.

For hypothesis 5.- H_0 : There is no link between reading comprehension and the use of ICT that motivates the replacement of the traditional paper format. After carrying out the study of the Shapiro-Wilk normality test, it is observed, as can be seen in Figure 7, that the distribution of the data of said hypothesis, made up of the variable V5, are grouped in the first intervals:

Given that the p-value is less than 0.05, observing H_0 is considered as the valid hypothesis, i.e, H_0 -There is no link between reading comprehension and the use of ICT that motivates the replacement of the traditional paper format, which in the The present case reaffirms the lack of link between reading comprehension and the use of ICT that motivates the replacement of the new tools used in learning by their traditional paper format. This leads us to consider that the extended problem of the significant decline in reading comprehension may be due to factors extrinsic to the school derived basically, on the one hand, from the lack of reading support at home and, on the other, from a change, a fashion or social trend regarding the use of

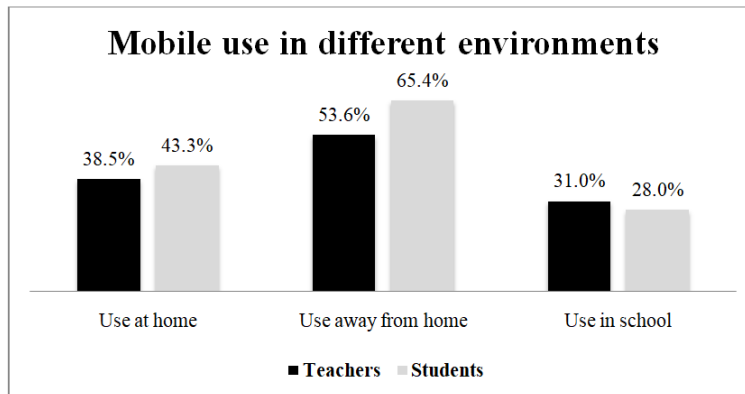
Table 8. Scale for evaluating the degree of reading comprehension

0	100	200	300	400	500	600	700	800	900	1000
								♦		



Source: Hernandez & Santana (2026). Own elaboration (2023)

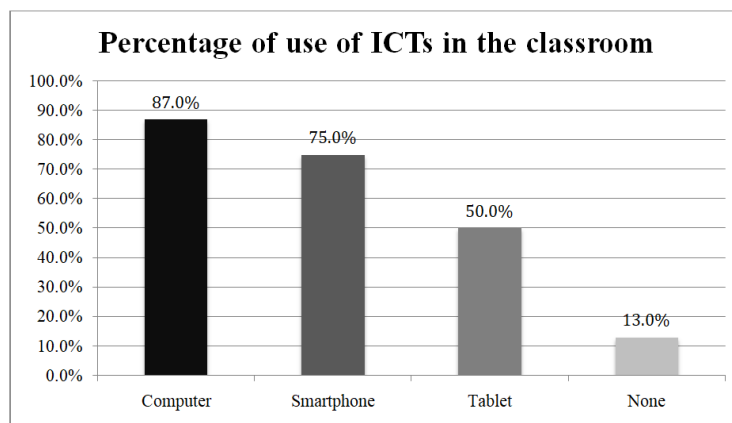
Figure 4. Histogram of the variables V1, V2, V3 and V4 obtained by arithmetic grouping



Note: Percentage of ICT use in the classroom.

Source: Own elaboration based on data from statista.com (2023)

Figure 5. Mobile use in different environments



Source: Own elaboration based on data from statista.com (2023)

Figure 6. Mobile use in different environments

Table 9. Summary of the processing of the Cases studied

		Number	%
Cases	Valid	40	100%
	Excluded*	0	0,0
	Total	40	100,00

Table 10. Reliability Analysis of the data collection instrument using Cronbach's Alpha

Cronbach's Alpha	Number of elements
0,897	40

Table 11. Result of application of the Shapiro-Wilk Test for V1

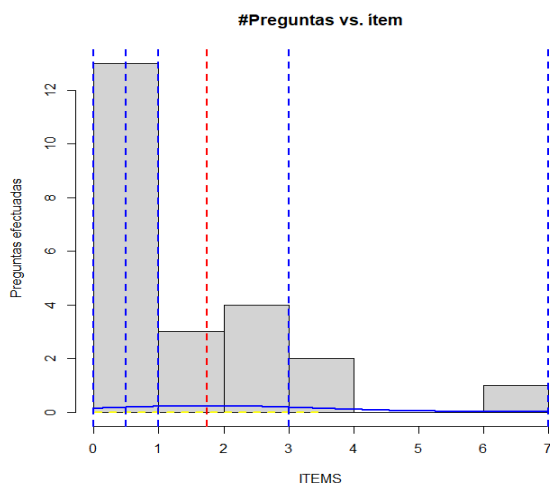
Shapiro-Wilk normality test	
$W = 0.86177$	$p\text{-value} = 0.000176$

Table 12. Result of application of the Shapiro-Wilk Test for V2

Shapiro-Wilk normality test	
$W = 0.84966$	$p\text{-value} = 8.825e-05$

Table 13. Result of application of the Shapiro-Wilk Test for V3

Shapiro-Wilk normality test	
$W = 0.86183$	$p\text{-value} = 0.0001766$



Note: The mean of the data is shown in red, the different quantiles in blue, and the interval in yellow. $[\mu - \sigma, \mu + \sigma]$, being $\mu = 1.73913$ y $\sigma = 1.737746$

Figure 7. Histogram of test reading comprehension cases

Table 15. Result of application of the Shapiro-Wilk Test for V5

Shapiro-Wilk normality test	
$W = 0.85209$	$p\text{-value} = 0.002969$

communication-information instruments, supported by new ways of transcribing the message-communication, far removed at all times from the rigor used in written documents such as newspapers and books and closer to the new communication channels used.

CONCLUSION

From the results obtained on each of the variables related to the hypotheses raised in the study presented in this article, it can be concluded that:

The study carried out clearly determines that ICTs are here to stay, in contrast to what some countries and academic authorities consider for the new 2023-2024 school year.

Regarding the second of the proposed hypotheses, the results obtained confirm what has already been stated in other articles that have addressed the same subject. The biggest complaint from both schoolchildren and teachers is that "Digital content does not meet what schoolchildren need". And it seems as if the transition from printed material to ICT material has been approached from the perspective of a mere format conversion, without delving into how the contents are presented and how they are enriched, perhaps to a large extent motivated by why said contents have been migrated to computers and that the software designed for their presentation does not combine elements such as viewing-reading-writing either independently or combined on the support that presents them. The indicators on the third of the proposed hypotheses lead us to consider the need for a transitory use of mixed models (ICT-paper) that derive, after a determined and limited period of time, in an exclusive use of ICT as sources of information, content and completion of tasks, motivated in part by the predisposition of schoolchildren to use printed material as reinforcement and support in daily school tasks. With regard to the fourth of the hypotheses "Teachers, families and students are favorable to the use of ICT instead of the traditional format on paper" we conclude that, after the school confinement due to COVID19, these actors, involved in the teaching processes - learning, reaffirm the need to use ICT, so present in said timing and that prevented the collapse of the educational system globally. In addition, they favor the introduction of these new tools considering that their cost is much lower in contrast to the expense that families must address at the beginning of every school year, hence their position regarding the change and use of ICT in replacement of books (printed material).

Finally, and with regard to the reading comprehension of schoolchildren, it has been observed in the analyzed sample that, despite using ICT devices on which teaching practice is carried out in all its dimensions: explanation, study and evaluation, the degree of reading comprehension of the participants is maintained at a very high level. Despite this, it would be convenient to carry out a new study a posteriori to determine if it has changed and if said variation is positive or if, on the contrary, it has had a negative impact on it, which would lead to analyzing the possible causes that favor this withdrawal. We conclude by indicating that it would be convenient to carry out new studies continued over time and in which the sample, and therefore the study population, was larger, which would allow intrinsic and extrinsic factors to be determined in the population and therefore promote actions that correct them at the same time that they do so on imbalances of the population itself.

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