

Families' perception of children's academic performance during the COVID-19 lockdown

Percepción de las familias sobre el desempeño escolar durante el confinamiento por COVID-19

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ABSTRACT

The COVID-19 pandemic forced many countries to impose a strict lockdown policy on citizens during a prolonged period of time, which led to changes in lifestyle habits. This unprecedented situation has given rise to numerous studies aimed at determining the effects of the changes brought about by this widespread lockdown. One of the important changes was the digitisation of education and, therefore, teaching, which caused a forced and abrupt immersion in distance learning. In this study, a quantitative methodology based on an ex post facto research design was used with the aim of analysing the impact of the COVID-19 lockdown on the academic performance of schoolchildren (aged 3-12 years). A total of 529 parents completed an ad hoc questionnaire on the impact of COVID-19 on their children's education in Spain. The results produced a robust model based on structural equations that explain 39.7% of the variance in academic performance at home. The family-school relationship was the variable with the greatest explanatory weight ($\beta = .505$; $p < .05$). In conclusion, the benefits derived from a strong relationship between families and schools, evidenced by the creation of cooperation and communication links, facilitate the management of shared educational challenges such as on-line education in times of crises.

RESUMEN

La situación generada por el obligado confinamiento a la sociedad por la COVID-19 ha llevado, en muchos países, a cambios en los hábitos de vida que han generado numerosos estudios para conocer los efectos de esta nueva situación social. Un importante cambio fue la digitalización del trabajo y, por ende, de la enseñanza, provocando la inmersión forzada en una educación escolar a distancia de una manera abrupta. Se realizó un estudio empleando metodología cuantitativa y basado en un diseño ex post facto, con el objetivo de analizar el impacto que ha tenido el confinamiento por COVID-19 en el desempeño de los escolares (de 3 a 12 años de edad). Un total de 529 participantes completaron el cuestionario CIEN (Cuestionario sobre el Impacto Educativo en la Infancia) sobre impacto educativo de la COVID-19 en sus hijas e hijos escolarizados en España. Los resultados arrojaron un modelo robusto basado en ecuaciones estructurales que explicó el 39,7% de la varianza en el desempeño escolar en casa, siendo la relación familia-escuela, la variable que reveló mayor peso explicativo ($\beta = .505$; $p < .05$). En conclusión, los beneficios derivados de una relación entre la familia y la escuela, patente en el establecimiento de lazos de comunicación y cooperación, facilitan el afrontamiento de retos educativos compartidos tales como la educación a distancia en tiempos de COVID-19.

KEYWORDS | PALABRAS CLAVE

Socio-emotional impact, family-school relationship, e-learning, academic performance, lockdown, COVID-19. Impacto socioemocional, relación familia-escuela, desempeño escolar, educación a distancia, confinamiento, COVID-19.

1. Introduction and state of the issue

In its initial stages, the COVID-19 pandemic, which has affected the entire planet, forced authorities to confine citizens to their homes or to “lockdown” society in an attempt to decelerate and contain the spread of the potentially lethal virus (Siqueira et al., 2020). During the lockdown, only those in professions deemed to be essential by the authorities (healthcare, food, emergency services, etc.) were allowed to work. Many companies and employees adapted to remote working or teleworking from home where possible. However, this was not the only change that families had to face. The interruption to the school agenda due to the COVID-19 pandemic brought with it a new format of unplanned online teaching and learning referred to as “emergency remote teaching” (Hodges et al., 2020). To ensure continuity and not disrupt the educational process (Muñoz-Moreno & Lluich-Molins, 2020), classroom learning was moved to the home and supported by families, in what has recently been termed as “home-based learning” (Zainuddin et al., 2020).

In this situation, existing and limited resources were used, including a preference for digital platforms, which put the well-known digital divide back in the spotlight. The digital divide has affected and continues to affect both families and teachers and ultimately generates inequitable educational contexts (Rodicio-García et al., 2020; García-Díaz, 2020). Mass school closures have increased educational inequalities and, in consequence, the risk of negative social, emotional and behavioural patterns (Drane et al., 2020). In many countries, children were stopped from attending school, which changed their habits and routines, their participation in extracurricular activities, and their interaction with social groups and peers, all of which disappeared overnight (Daniel, 2020). The lockdown situation led to a decrease in student’s academic motivation, especially in younger children, with no differences found in terms of gender or parents’ level of education (Zaccoletti et al., 2020).

The situation also limited children’s interaction with natural spaces, along with play and contact with their peers, which brought to the surface the negative consequences derived from a lack of outdoor activity and relationships (Jorquera-Rojas, 2019). In other words, children were deprived of the elements and conditions they needed for their full physical, social and emotional wellbeing (Cheng, 2020; López-Bueno et al., 2020). Balluerka-Lasa et al. (2020) argue that the most damaging consequences of the COVID-19 pandemic lockdown on the population’s physical and psychological wellbeing were the loss of habits and routines, as well as psychosocial stress. In a recent cross-cultural study (Orgilés et al., 2021), stress levels in schoolchildren and adolescents (aged 3-18 years) from Spain, Portugal and Italy were analysed to gauge how they were coping with the COVID-19 lockdown. Data was collected using a questionnaire answered by parents on possible symptoms of depression and/or anxiety they might have perceived in their children. The results of the total study sample revealed symptoms of depression in 19% of the children and anxiety in 38%. The data for Spain were particularly discouraging, with 56% of Spanish parents reporting symptoms of anxiety in their children.

Two major deficiencies were identified that may be the origin of the symptomatology suffered by children in lockdown: a) lack of contact and relationships with peers, and b) the change of learning environment. The education centre where learning is usually mediated by professional teachers was substituted by a screen or virtual modality, and learning had to be supported by families. This situation gave rise to inequalities in access to education, given that improvised “home-schooling” depends both on the accessibility to and mastery of digital technologies, and on the support that the family context can offer in terms of technical resources, academic level, and time (Sahlberg, 2020). It has been established that the act of physically going to school not only facilitates conceptual and procedural content learning, but also attitudinal learning, such as models of democratic participation, respect, empathy, etc. As a result, the school is recognised as a space for socialisation and citizen training (Manosalva, 2019). Schools are places where relationships between equals are paramount and necessary at an age when individuals are being formed, which is why education is considered a social institution (Jara-Parra & Jara-Parra, 2020). Interaction based on language, egalitarian dialogue, and imitation are the true foundations of educational transformation (Ordóñez-Sierra & Rodríguez-Gallego, 2016).

Given the need to strengthen the ties between families and schools, another point of interest is to explore parents’ perception on the relationship between educational contexts and implementing that same

context at home under the supervision of the family. The role of parents in supporting and assisting their children adequately must also be considered. This can be a very complex task, primarily due to a lack of knowledge of pedagogical strategies and contents (Vázquez-Soto et al., 2020). Studies show that the rapid transition from face-to-face education to distance learning is an arduous and difficult task for families to undertake, consequently, the effects and the perception of the change need to be studied. The literature indicates that families' difficulty in managing the change was positively related to stress levels, which were lower in higher self-efficacy and well-functioning families (Moscardino et al., 2021). In the same vein, support from schools to enhance parents' self-efficacy could be very beneficial, as could mentoring and supporting families who lack technological resources. Direct collaboration from schools can improve children's quality of life and their interest in educational activities (Elboj-Saso et al., 2021). In short, the family-school relationship is essential in the teaching-learning process, especially during the initial school years, whose role may have been accentuated by the pandemic situation.

In contrast, staying at home all day for the youngest children brought with it a new reality that generated the need to restructure school time in order to reschedule both leisure activities and homework (Szabo et al., 2020; Varela et al., 2021). The quality of supervised leisure time at home must also be taken into account: the type of games (analogue or digital), time spent watching TV, reading, doing household chores, or physical activities that could be practised at home. Broadly speaking, the COVID-19 lockdown in Spain has been a challenge at all levels, and especially for education (Álvarez-Zarzuelo, 2020; Cabrera, 2020). Consequently, it is essential to determine the impact that this period has had on minors in terms of the intended continuity of learning at home and how it is implemented, the family-school relationship, and the socio-emotional impact. The objectives and hypotheses of the study are explained below.

1.1. Objectives

The general objective of the study is to determine the impact of the COVID-19 lockdown on schoolchildren's academic performance. The following specific objectives emerge from this general overview:

- To study parents' perception of the impact of the COVID-19 lockdown on the family-school relationship, emotional impact, healthy and supervised leisure activities, social impact, and academic performance at home.
- To analyse the relationships between variables considered to be predictors or influencers of parents' perception of the impact of the COVID-19 lockdown on their children's academic performance at home.

1.2. Hypotheses

H1. The variables family-school relationship, emotional impact, healthy and supervised leisure activities, and social impact are predictors of parents' perception of the impact of the COVID-19 lockdown on their children's academic performance at home.

H2. A robust model based on Structural Equation Modelling (SEM) is optimal for identifying the interaction between predictor variables and the explanatory weight they exercise on parents' perception of the impact of the COVID-19 lockdown on their children's academic performance at home.

2. Material and methods

2.1. Participants

The sample consisted of 529 participants, parents of schoolchildren, selected using non-probabilistic purposive sampling. The mean age of the participants was $M=39.94$ years old and the standard deviation $SD=6.33$. Of the total sample, 465 were female ($M=39.44$; $SD=6.02$) and 64 males ($M=43.58$; $SD=6.15$). Of those surveyed, 67 participants were from a rural setting ($M=39.57$; $SD=5.64$), and 462 from an urban area ($M=39.99$; $SD=6.43$).

Although it is true that both parents are involved in the educational process of their children from the beginning of schooling, mothers show a higher level of involvement and make a greater effort to balance family and work time (Fernández-Freire et al., 2019); a fact that would justify the gender distribution of

the sample. The children of the participants were aged 3-12 years and were attending pre-school and primary schools in Spain.

2.2. Methods

An ad hoc questionnaire for data collection was designed and it was titled, Questionnaire on the Impact of Children's Education (CIEN for its initials in Spanish), in which 63 questions were asked on various topics. The questionnaire was distributed through the collaboration of the research team members and various organisations such as the Andalusian Association of Headteachers of Infant, Primary and Residential Schools (ASADIPRE for its initials in Spanish), the Andalusian Confederation of Parents of Pupils for Public Education Associations (CODAPA for its initials in Spanish), the Federation of Parents of Pupils of Subsidised Schools Associations (CONCAPA), the Scientific Culture and Innovation Unit (UCC + i) of various Andalusian public universities, education trade unions, subsidised school networks such as SAFA, and public and subsidised school management teams. This extensive network gave us access to families from different socio-cultural backgrounds. The aim of the CIEN questionnaire was to analyse the impact of the COVID-19 lockdown on children that were confined to their homes during the lockdown and the suspension of face-to-face teaching in five different dimensions:

- Emotional impact: understood as parents' perception of the feelings of nervousness, sadness, joy, fear, serenity and anger they observed in their children.
- Social impact: refers to parent's perception of their children's feelings of loneliness, the time spent with them, as well as boredom, the frequency of family tension situations, and the nostalgia directed at school, their friends, and non-cohabiting family members.
- Impact on leisure activities at home: understood as the hours spent on supervised leisure activities at home. Aspects such as traditional family play or digital play, which may be supervised or alone; reading; television; collaboration in household chores, and physical activity.
- Impact on educational activities (studying from home): refers to parent's perception of the educational instruction and material provided by the teaching team; adjusted and appropriate assignment of tasks; quality and relevant use and motivation to use online tools, and the importance of family support in the teaching-learning process.
- Impact on the family-school relationship: refers to the communication between teachers, families and other schoolchildren, as well as attendance to online classes, and the perception of mentoring and maintaining the pace of learning.

This assessment is based on parents' perception of their children's socio-emotional state, their leisure and educational activities, and their relationship with school while subject to the pandemic situation of lockdown. The questionnaire was validated by an expert panel consisting of a selection of professionals based on their trajectory in relation to the construct. The panel analysed the items to determine their relevance and representativeness and made suggestions to include items at their own discretion (Pedrosa et al., 2013). A pilot study was conducted with 400 participants to detect possible errors and redistribute the items if needed. Subsequently, exploratory factor analysis was performed to identify the factor structure, each factor representing one of the dimensions previously studied. Cronbach's alpha gave an internal consistency measure of $\alpha = .81$.

2.3. Procedure

The procedure performed in this study was developed using a quantitative methodology and an ex post facto design. An online questionnaire was disseminated during the period coinciding with the end of the COVID-19 lockdown and the period immediately after. Parents completed the untimed questionnaire individually via WhatsApp on their mobile devices. This required an Internet connection and a device, a smartphone, to complete it. Before the questionnaire was sent, informed consent was obtained from the participants to confirm that they were of legal age and agreed to participate, anonymously and voluntarily, in the study on the impact of lockdown on education. The data were stored directly in a database specifically designed and organised for that purpose.

2.4. Analysis and data processing

Responses were collected using a 5-point Likert-type scale from the lowest value (1: strongly disagree) to the highest value (5: strongly agree). To calculate the totals for each dimension, response scores were reversed to unify the direction of the evaluation. The social and emotional impact dimensions were calculated in a negative direction (reversing positive scales, e.g., those relating to joy and serenity), while other dimensions such as time spent on healthy and supervised leisure activities at home, impact on academic performance (home-schooling), and family-school relationship were calculated in a positive direction, i.e., the higher the score, the higher the satisfaction (in contrast to the social and emotional impact dimensions).

The data analysis was descriptive and inferential in order to respond to the research objectives and hypotheses. The data was analysed using the SPSS 24.0 statistical package to calculate the descriptive, correlational and stepwise multiple linear regression analyses, which produced the coefficients for the independent variables introduced in the model. The Durbin-Watson d statistic was used to test for autocorrelation in the residuals from the regression analysis and the EQS 6.2 package to represent the interaction between the variables. To this end, the robust maximum likelihood (RML) estimation method was used to calculate a series of indices to contrast the suitability of the proposed models based on their fit using Hu and Bentler's (1999) criteria, among them: the non-normed fit index (NNFI), the comparative fit index (CFI), the goodness-of-fit index (GFI), and the root mean square error of approximation (RMSEA); as well as the Satorra-Bentler scaled chi-square statistic (Satorra & Bentler, 2001).

3. Analysis and results

First, the descriptive statistics listed in Table 1 were calculated for the dimensions assessed by the CIEN questionnaire.

	Min	Max	M (SD)	Me
Emotional impact	6	30	15.72 (.22)	16
Social impact	7	35	21.63 (.20)	22
Healthy and supervised leisure activities at home	11	41	30.97 (.23)	30
Family-school relationship	11	40	27.20 (.29)	28
Educational activities and performance at home	13	55	38.40 (.32)	39

To obtain more information about the relationship between the variables studied, bivariate correlations were calculated using Spearman's correlation coefficient. The results are shown in Table 2.

	1.	2.	3.	4.	5.
Emotional impact	1				
Social impact	.519**	1			
Healthy and supervised leisure activities at home	-.022	-.091*	1		
Family-school relationship	-.174**	-.158**	.286**	1	
Educational activities and performance at home	-.282**	-.250**	.285	.584**	1

Note. * $(p < 0.05)$; ** $(p < 0.01)$.

The most significant correlation was obtained between parent's perception of educational activities and their children's academic performance at home, followed by the correlation between social and emotional impact. The latter correlation is to be expected, given that they are interdependent constructs that are separable in the analysis but coexist as a single psychological condition.

To test the first hypothesis (H1), a stepwise multiple linear regression analysis was performed, which produced four models (Table 3). The fourth model shows the highest explanatory power. Consequently, taking into account the adjusted R^2 values, 37.1% of the variance in the perception of educational activities and academic performance at home could be predicted by social impact, emotional impact, healthy leisure activities at home and the family-school relationship, thus the first hypothesis (H1) is accepted.

Table 3. Results of stepwise multiple linear regression analysis with four predictive models

Model	R	R ²	R ² adjusted	Change statistics				Durbin-Watson
				SE of the estimate	R2 change	F change	Sig. F change	
1	.569a	.324	.322	6.07	.324	252.05	.000	
2	.596b	.355	.353	5.94	.032	25.87	.000	
3	.608c	.370	.366	5.87	.014	12.06	.001	
4	.613d	.376	.371	5.85	.006	5.07	.025	1.85

Note. a) Predictor variables: (Constant), Family-school relationship; b) Predictor variables: (Constant), Family-school relationship, Emotional impact (negative); c) Predictor variables: (Constant), Family-school relationship, Emotional impact (negative), Healthy and supervised leisure activities; d) Predictor variables: (Constant), Family-school relationship, Emotional impact (negative), Healthy and supervised leisure activities, Social impact (negative). Dependent variable: Educational activities and performance at home.

It also shows that the t-value is associated with a probability of error of less than .05 ($p < .05$) for all four variables included in the predictive model. The null hypothesis was tested to ensure the regression coefficient was zero using the results of the t-test and its critical value.

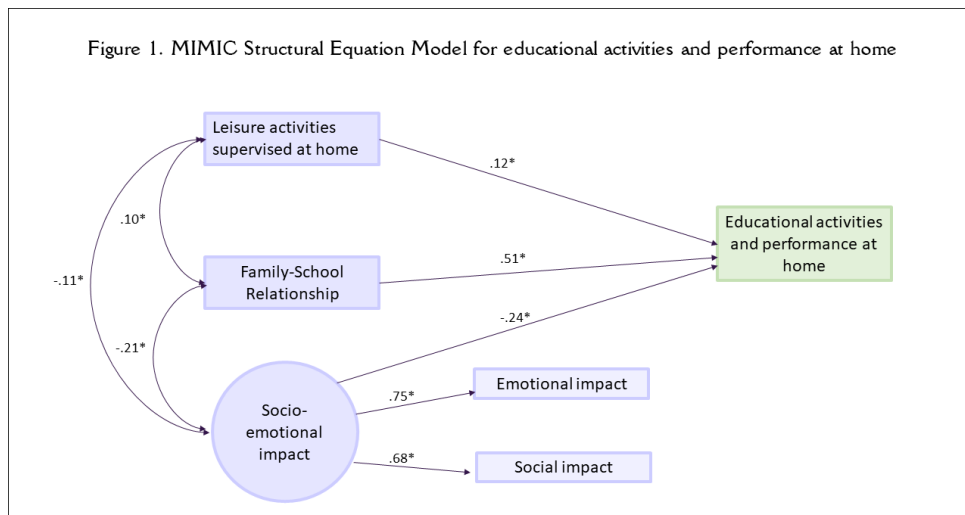
In turn, the standardised coefficients (Table 4) show the weight that each of the variables in the explanatory model has in relation to the explanation of the dependent variable: the family-school relationship ($\beta = .500$); the emotional impact on schoolchildren ($\beta = -.137$); the amount of time spent in healthy and supervised leisure activities ($\beta = .118$), and the social impact on children ($\beta = -.091$). All indices contributed favourably or incrementally to explaining the variability of scores on positive perception and satisfaction with academic performance at home.

Table 4. Stepwise multiple linear regression analysis coefficients

Model		Unstandardised coefficients		Standardised coefficients	t	Sig.	Collinearity statistics	
		B	SE	Beta			T	VIF
		4	(Constant)	24.85			2.156	
	Family-school relationship	.542	.040	.500	13.66	.000	.891	1.123
	Emotional impact (negative)	-.192	.057	-.137	-3.38	.001	.730	1.370
	Healthy and supervised activities at home	.164	.050	.118	3.24	.001	.907	1.103
	Social impact (negative)	-.143	.064	-.091	-2.25	.025	.733	1.365

Note. T: Tolerance; VIF: Variance Inflation Factor.

To validate the model, the Durbin-Watson d statistic was used to test for autocorrelation in the residuals. The result $d = 1.85$ (close to 2) confirms the absence of autocorrelation. Similarly, adequate values of Tolerance and VIF were also obtained, which confirms the absence of multicollinearity and the stability of the estimates.



In order to analyse the relationship between the dependent variable and, in particular, how the different independent predictor variables relate to one another, a structural equation model was calculated, which also supports the second hypothesis (H2). Due to the characteristics of the constructs analysed, a latent

variable was produced to consider the perceived socio-emotional impact, which can be inferred from the observed variables, social and emotional impact. The model also considered the covariance between the predictor variables of the model.

To assess the model's goodness-of-fit, Hu and Bentler's (1999) cut-off criteria were followed. The results of the indices, which are the most widely used (Ruiz et al., 2010), show the fit of the model: $\chi^2/SB=2.23$; $p=.13$, $CFI=.997$, $NNFI=.971$, $NFI=.995$, $RMSEA=.04$; $CI (.00-.13)$. The results show that the model used was optimal, given that 39.7% of the variance in the explanation of satisfaction with educational activities and performance at home was predicted, thus the second hypothesis (H2) is accepted. The relationship shows the importance of the variables included in the model, whose standardised regression coefficients reveal their influence on the dependent variable. The standardised coefficients for the different predictor variables were as follows: family-school relationship ($\beta=.505$; $p<.05$), amount of time spent in healthy and supervised leisure activities ($\beta=.121$; $p<.05$), and socio-emotional impact ($\beta=.121$; $p<.05$).

4. Discussion and conclusions

Traditionally, research has focused on the weight of parents' perceptions and expectations of children's academic performance, and especially their role in such essential educational aspects as early literacy. Results from longitudinal studies (Manfra, 2019) indicate that parental beliefs about academic performance in early childhood may be predictive of performance in higher education at university. Furthermore, family involvement and participation raise parents' expectations, positive perceptions of education and student performance (Froiland et al., 2013). The results of this study can be read positively on the basis of the inadvertent yet essential involvement of the family in educational activities during lockdown. They could also shed light on the general objective of the study by increasing the impact that the measures taken due to COVID-19 have had on schoolchildren's performance.

While it is true that the quality of parental involvement in schoolwork is more important than the number of activities they undertake, the family-school relationship can help to improve parental participation (Garbe et al., 2020). There is a positive relationship between communication and support from the school directed at the family with the aim of improving the quality of their participation, which is shown to be a key performance factor leading to improved student performance and wellbeing (Dettmers et al., 2019; Elboj-Saso, 2021). The results of the present study are in line with this, given that the family-school relationship is the variable that obtained the greatest weight in explaining parents' perceived academic performance of their children. In a previous study, Hampden-Thompson and Galindo (2017) argued that positive school-family relationships are a predictor of academic performance, and that this association is mediated by the degree of parent's satisfaction with school. Consequently, active and collaborative school-family relationships and high levels of school satisfaction stimulate the drive for academic success. Along the same lines and specifically in the case of the COVID-19 pandemic and the lockdown, a study performed in Germany by Steinmayr et al. (2020) showed that the frequency of family-teacher communication and relationship was associated with children's motivation and learning progress, and thus with their parent-perceived academic performance.

Furthermore, another impact of COVID-19 was to increase the amount of time children were spending at home, which parents had to structure to ensure their socio-emotional wellbeing (Balluerka-Lasa et al., 2020; Cheng, 2020; López-Bueno et al., 2020). In response to this demand, parents were willing to accept advice on how to manage the situation, echoing proposals for flexible activities that were proposed with the aim of favouring the prosocial development of children (Szabo et al., 2020; Varela et al., 2021). Owing to this, and other reasons, a study in Spain showed that children adapted positively to the changes, both in terms of routines, self-care, household chores, and their prosocial behaviour (Romero et al., 2020).

Although the values are low, in this study the predictor variables covary to reveal a relationship between negative socio-emotional impact and activities at home. In relation to this, the importance of parental practices that limit the socio-emotional impact and favour beneficial adaptation in crisis situations become particularly relevant (Lai et al., 2018). Social support for students is also provided by teachers as mentors in the educational context and as supervisors of students' pace of learning. Support from teachers facilitates

an optimal family-school relationship, which, in addition to providing parents with strategies, buffers the socio-emotional impact on schoolchildren (Manosalva, 2019; Ordóñez-Sierra & Rodríguez-Gallego, 2016; Jara-Parra & Jara-Parra, 2020; Lai et al., 2018). Similarly, and in line with the results obtained in this study, Romero et al. (2020) highlight that involving children in family activities helps them to adapt and reduces the emotional impact of lockdown.

The present study ratifies the results of the aforementioned literature by providing a new perspective. In other words, by highlighting the correlation between several variables, considered relevant in previous research, and their explanatory capacities on academic performance. In short, by accepting the initial hypotheses of the study. While the COVID-19 pandemic has challenged both families and schools, it has also highlighted the importance of educational contexts and the benefits of the collaboration between both parties in dealing with crisis situations. Although supervision and teaching activities were limited by resources and the need to train agents of education in digital competence across the board, the acknowledged pedagogical work of families and the restructuring of activities and times, considering not only academic learning but also shared leisure time, were key to children's socio-emotional adaptation. In short, although the family-school relationship was already considered important for positive progress and success at school, in view of the COVID-19 situation, the need to forge an alliance between different agents of education, based on effective communication and mentoring during the teaching-learning process of distance learning, has become clear. As a result, teachers face a new pedagogical challenge of creating active digital communication channels in order to be able to deal with future situations similar to that experienced during the COVID-19 health crisis.

One of the limitations of the study is that it does not analyse the situation and the implementation of distance learning from the teacher's perspective, especially as teachers are the principal agents in the teaching-learning process. Although this study focuses on the family context, comparing both perceptions may provide interesting data that could be used to implement interventions and assistance strategies. Having highlighted the collaboration between both contexts, i.e., the family-school relationship, as the principal factor in academic performance, a possible course of action could be to improve the interaction and communication competence skills of teaching staff with the aim of achieving teaching excellence (Guzón-Nestar & González-Alonso, 2019). As a future prospect, and in addition to including teachers, monitoring families and analysing perceptions of the pandemic situation once it has advanced could prove interesting.

Author Contribution

Idea, R.M.; Literature review (state of the art) N.S.E.A., R.M; Methodology N.S., R.M; Data analysis, E.A.; Results, E.A., N.S.; Discussion and conclusions, E.A.N.S., R.M; Writing (original draft), N.M., E.A.; Final revisions, N.S.E.A., R.M.; Project design and sponsorship, R.M., N.S.

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