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IMPACT ON STUDENT LEARNING

HABILIDADES SOCIOEMOCIONALES Y PRÁCTICAS  
PEDAGÓGICAS EN MAESTROS DE EDUCACIÓN BÁSICA:  
IMPACTO EN EL APRENDIZAJE DE LOS ESTUDIANTES

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## **SOCIOEMOTIONAL SKILLS AND PEDAGOGICAL PRACTICES IN ELEMENTARY EDUCATION TEACHERS: IMPACT ON STUDENT LEARNING**

## **HABILIDADES SOCIOEMOCIONALES Y PRÁCTICAS PEDAGÓGICAS EN MAESTROS DE EDUCACIÓN BÁSICA: IMPACTO EN EL APRENDIZAJE DE LOS ESTUDIANTES**

### **ABSTRACT**

Although there are studies focused on teachers' socioemotional skills, they lack information related to emotional well-being, teacher mediation, and student learning. Therefore, this study sought to determine how socioemotional skills influence distress, teaching practices, and student learning outcomes during the COVID-19 pandemic. Initially, 1,447 elementary school teachers in Mexico participated, and in a second phase, 377 teachers. It was found that socioemotional skills were at a moderate or acceptable level in both phases, with no significant changes. Distress levels were low, and it was found that higher levels of socioemotional skill development were associated with higher levels of socio-formative teaching practices oriented toward sustainable development and greater achievement of learning outcomes. It was concluded that during the COVID-19 pandemic, there was no impact on teachers' socioemotional well-being, and having a high level of socioemotional skills was associated with better academic performance among students.

**Keywords:** distress, socioemotional skills, pedagogical practices, socio-training, COVID-19 pandemic

### **RESUMEN**

A pesar de que existen estudios enfocados en las habilidades socioemocionales en los docentes, estos carecen de información relacionada con el bienestar emocional, la mediación docente y el aprendizaje de los alumnos. Por ello, este estudio buscó determinar cómo influyen las habilidades socioemocionales en el estrés, las prácticas pedagógicas y los resultados de aprendizaje en los estudiantes durante el período de pandemia por COVID-19. En un primer momento participaron 1,447 docentes de educación básica de México y en un segundo momento 377 docentes. Se encontró que las habilidades socioemocionales tuvieron un nivel medio o aceptable en los dos momentos, sin cambios significativos. El estrés fue bajo y se halló que, a mayor nivel de desarrollo de las habilidades socioemocionales, hubo un mayor nivel de las prácticas pedagógicas socioformativas orientadas al desarrollo sostenible y un mayor logro de los resultados de aprendizaje. Se concluyó que durante la pandemia por COVID-19 no hubo afectación en el bienestar socioemocional de los docentes y tener un buen grado de habilidades socioemocionales se asoció con un mejor desempeño académico en los estudiantes.

**Palabras clave:** estrés, habilidades socioemocionales, prácticas pedagógicas, socioformación, pandemia por COVID-19

## 1. INTRODUCTION

Around the world, education underwent an unexpected shift following the COVID-19 pandemic, as students transitioned from an in-person model to an emergency distance learning environment. It is important to note that, in many cases, there was insufficient preparation for this (König et al., 2020; Moawad, 2020; Reyes & Quiróz, 2020), affecting more than 90% of the world's student population (Chandra, 2020). The school closures affected students, administrators, and teachers, as they led to unexpected changes and were implemented without adequate access to technology. In Mexico, the government failed to provide the necessary information, communication, knowledge, and learning technologies (Alcalá, 2020). In this case, many schools did not adopt digital technology (Gobierno de México, 2025).

This led to changes in lifestyle and teaching methods (Aperribai et al., 2020). In this context, the pandemic is considered a stressful event, and the work of teaching was among the most affected due to the adaptation process (Cortés Rojas, 2021; Vargas Rubilar & Oros, 2021). Consequently, it is expected to be associated with poorer emotional well-being among teachers and students. In this regard, emotional distress consists of a negative emotional state or distress that people feel or experience in the face of certain events, and is characterized by harmful or unpleasant pressure in people's daily lives (Hans Selye, 1974). In this regard, several studies have been conducted on distress during the pandemic (Ozamiz-Etxebarria et al., 2020).

One study found that women were more than 30% likely to experience distress, while those with higher levels of education were less likely to do so; however, students reported lower levels of distress compared to working adults (March et al., 2021). Another study found that teachers lacked experience with online teaching. As a result, elementary and secondary school teachers were the most affected by a lack of preparation and technological skills (Yi et al., 2021). Finally, it was found that teachers' stress levels were high, especially during online conferences (Qurat-UI-ain, 2021). Despite these studies, the following aspects remain unclear: 1) The extent to which elementary school teachers in Mexico's public schools have been affected; 2) The factors associated with emotional distress among teachers; and 3) The impact of teachers' emotional distress on student learning outcomes.

## 2. METHOD OF RESEARCH

A longitudinal study was conducted during the COVID-19 pandemic, with two assessment points for participants: The first assessment took place as part of the *Aprende en Casa I* program (Government of Mexico, 2020a; Government of Mexico, 2020b). This program was designed to provide emergency distance learning to elementary and middle school students in Mexican public schools, administered by the Ministry of Public Education (SEP). The second assessment took place during the *Aprende en Casa II* program (Government of Mexico, 2020c). This included more structured television programs with a greater amount of information for teachers, students, and

parents. The interval between the two assessments was three months, and it was conducted to determine possible changes resulting from the implementation of new strategies by the SEP.

In the first phase, 1,447 elementary and secondary school teachers from public schools in Mexico participated. In the second phase, a subsample of 377 teachers was selected, and the same instruments were administered to them to determine possible changes in the variables under study. The instrument collected the sociodemographic characteristics of the sample and the subsample (Table 1). Participants had an average age of between 44 and 45 years in both samples; the majority were women (more than 85%), and those with bachelor's and master's degrees were the most common. Most work at the elementary school level. Very few hold a doctoral or postdoctoral degree. The sampling was non-probabilistic (convenience sampling), and participants were invited to participate via email and a form on *Google Forms*.

**Table 1**  
*Sociodemographic data on the participants*

Sociodemographic data	First application	Second application
Men	14.63%	11.46%
Women	85.37%	88.54%
Average age (standard deviation)	44.10 ± 15.14	45.53 ± 8.13
Upper secondary education	1.23%	0.50%
Bachelor's degree or completed teacher training (Normal School)	56.61%	54.45%
Specialization	4.05%	4.58%
Master's degree	37.08%	36.64%
Doctorate	4.67%	3.81%
Postdoctoral studies	0.34%	0%

## 2.1. Research instruments

### 2.1.1. Distress Index Questionnaire

This instrument measures the emotional impact of COVID-19 on individuals; it was developed and validated for the Chinese population (Qiu et al., 2020). The original validation assesses four factors: *negative mood*; *changes*

*in behavior and cognitive abilities; fatigue and hyperactivity; and somatization.* This instrument was adapted in Peru by Pedraz-Petrozzi et al. (2021). The instrument consists of 24 items on a five-point Likert scale ranging from *Never* to *Always*. The confirmatory factor analysis in this study confirmed the need to remove two items (9 and 11).

In this regard, the items with a factor loading greater than .45 were retained. Furthermore, the factor structure of the four factors assessed was confirmed: negative mood (items 1 through 5); *changes in behavior and cognitive abilities* (items 6 through 8, 10, and 12); *fatigue and hyperreactivity* (items 13–17 and 20–21); and *somatization* (items 18–19 and 22–24). The model fit was good (Hair et al., 2014):  $X^2/df = 2.85$ ; GFI = .991; RMSAE = .036, RMR = .044; CFI = .992; NFI = .988; TLI = .991. The average extracted variance was .613 and the composite reliability was .971, which is excellent.

### 2.1.2. Social-Emotional Skills Checklist (SE-9)

This instrument was developed by Tobón (2020) and measures nine social-emotional skills grouped into three factors (Table 2).

**Table 2**  
*Skills assessed by the rubric SE-9*

Factor	Skills	Items
Called "relationships with oneself"	Self-awareness, self-regulation, self-esteem	1 al 3
Focused on contextual relationships	Self-motivation, collaboration, social awareness, and empathy	4 al 6
Focused on addressing problems	Resilience, perseverance, decision-making, and autonomy	7 al 9

Each skill is measured using a five-level performance rubric ranging from *Very Low* to *Very High*, in accordance with the socio-formative taxonomy. Confirmatory factor analysis indicated that the items had a factor loading greater than .56 and the model fit was good (Hair et al., 2014):  $X^2/df = 2.57$ ; GFI = .996; RMSAE = .033, RMR = .035; CFI = .996; NFI = .993; TLI = .993. The mean extracted variance was .365. Both the reliability measured by Cronbach's alpha (0.880) and the composite reliability (.837) were adequate.

### **2.1.3. Scale of COVID-19 Prevention Practices**

This instrument was developed by the CIFE Institute in Mexico and measures two aspects: *perceptions of COVID-19* and *actions taken in the event of a possible infection*. It consists of 11 items that are rated on a scale from one to five, ranging from negative to positive. Based on confirmatory factor analysis, four items were eliminated because they had a factor loading of less than 0.40. The two identified factors were verified, and the goodness of fit was good (Hair et al., 2014):  $X^2/df = 2.39$ ; GFI = .993; RMSAE = .031, RMR = .038; CFI = .982; NFI = .969; TLI = .972. The mean extracted variance was .365. Reliability measured by Cronbach's alpha was 0.880 and composite reliability was .837, which are good values.

### **2.1.4. Teacher Mediation Scale for Hybrid Settings**

This scale was developed by the CIFE Institute in Mexico and measures learning activities in both face-to-face and online settings, taking socio-formation into account. It consists of a single factor with 11 items rated on a 1-to-5 scale ranging from negative to positive. Confirmatory factor analysis identified the single factor, and two items were removed because they had factor loadings below .40. The model fit was good (Hair et al., 2014):  $X^2/df = 2.14$ ; GFI = .995; RMSAE = .028; RMR = .038; CFI = .993; NFI = .987; TLI = .991. The mean extracted variance was .265. Reliability measured by Cronbach's alpha was 0.754 and composite reliability was .761, which are acceptable values.

### **2.1.5. Questionnaire on sociodemographic factors and learning outcomes**

This questionnaire was developed by the CIFE Institute in Mexico and collects the following information from teachers: gender, age, highest level of education attained, educational level at which they work, type of school where they work, marital status, teaching position, years of teaching experience, years of experience in their current position, and the city or municipality where they live. In addition, it identifies and organizes students' academic information, such as achievement of learning outcomes, academic performance, and dropout rates.

## **2.2. Statistical analysis**

The statistical analysis for this study was conducted in four phases (Table 3).

**Table 3**

*Stages of statistical analysis*

<b>Stages</b>	<b>Phase</b>	<b>Description</b>
1		Assessment of the level of social-emotional skills and distress at the two Moments of the <i>Aprende en Casa</i> program. The objective was to determine whether teachers scored high or low on these measures. To this end, the observed means were compared with the theoretical mean of 3.0 (moderate or acceptable level) for both variables, and potential significant differences were identified. To do this, the <i>one-sample T-test</i> was used, and a normal distribution was assumed since the values for skewness and kurtosis were in the range of -2 to +2 (Bollen & Long, 1993; Kim, 2013; Kline, 2016; Lin Low & Aryadoust, 2021).
2		Identification of potential changes or significant differences in teachers' social-emotional skills and distress throughout the <i>Aprende en Casa</i> program, using the linear mixed-effects model method, which involves analyzing multiple sets of responses measured repeatedly for each subject over time (Lachos et al., 2019). This was done by considering the educational level at which the teachers worked (preschool, elementary, and secondary), their years of service in education, and the highest academic degree obtained.
3		Identification of factors associated with distress using multiple linear regression, employing the stepwise method in the <i>JASP version 0.14.1.0</i> program, in order to identify the model and variables with the strongest association, based on standardized beta values and $p < .05$ (Gatica-Lara et al., 2010). This analysis determined whether the socio-emotional variables were associated with distress. The same analysis was conducted regarding teacher mediation from a socio-formative perspective and perceptions of COVID-19, to determine whether socio-emotional skills were associated with them.
4		Analysis of the factors associated with students' achievement of learning outcomes during the pandemic, across the two phases of the <i>Aprende en Casa</i> program. This was conducted using two methods: the <i>stepwise</i> method in the <i>JASP version 0.14.1.0</i> software, and structural equation modeling. The latter sought to determine the impact of various variables on students' academic performance, such as distress, socio-emotional skills, life satisfaction, and teacher mediation skills, using <i>AMOS v.26 software</i> and the maximum likelihood estimation method. For this analysis, the fit of the proposed model was evaluated using a set of goodness-of-fit statistics (Fornell & Larcker, 1981; Ruiz et al., 2010; Schreiber et al., 2006).

### 2.3. Ethical considerations

Five ethical criteria were followed in the research: 1) all participants were informed of the study's objectives and their rights were explained to them at the outset; 2) at the beginning of the questionnaires, a summary of the study was provided and it was made clear that participation was voluntary; 3) all participants signed an informed consent form before completing the instruments at both Moments of the study; 4) all participants were allowed to

withdraw from the research at any time without being asked any questions or facing any repercussions; and 5) all participants were guaranteed the confidentiality of their information in accordance with the Mexican Law on the Protection of Personal Data Held by Private Parties (Cámara de Diputados, 2010).

### 3. RESULTS

It was observed that the results were similar at both Moments of the study, as the measure of social-emotional skills was significantly above average, though not at a high level, and distress levels were significantly below average, though not at a very low level. This means that, in general, elementary school teachers had an acceptable level of social-emotional skills and did not exhibit high levels of distress at both points in the program *Aprende en Casa*.

Based on the above, we investigated the level of distress and the social-emotional skills of teachers according to the educational level at which they work. At all three levels, distress was significantly low, and social-emotional skills were above the theoretical mean, based on the results of the *One-sample T* test (Table 4). These results were similar to those presented (Table 5).

**Table 4**

*Level of distress and social-emotional skills at the two Moments of the study, based on the theoretical mean of 3.0*

Variables	Moment I		Moment II	
	Mean (+ standard deviation)	One-sample T test	Mean (+ standard deviation)	One-sample T test
Distress (levels 1-5, theoretical mean: 3.0)	2.37 (+ .71)	t: -33.32; p<0.001*	2.27 (+ 0.70)	t: -19.81; p<0.001*
Socioemotional skills (levels 1-5, theoretical mean: 3.0)	3.80 (+ 0.60)	t: 50.67; p<0.001*	3.88 (+ 0.61)	t: 28.16; p<0.001*

*Note.* Significant differences were found using the one-sample t-test in relation to the theoretical mean of the instruments. \*p < .001.

**Table 5**

*Level of distress and social-emotional skills according to the grade level in which teachers work, in the first and second administrations, based on a theoretical mean of 3.0*

Group	Variables	Moment I		Moment II	
		Mean (+ standard deviation)	One-sample T test	Mean (+ standard deviation)	One-sample T test
Kindergarten and Preschool	Distress (levels 1-5, theoretical mean: 3.0)	2.36 (+ .73)	t: - 15.31; p<0.001	2.40 (+ 0.71)	t: - 7.46; p<0.001
	Socioemotional skills (levels 1-5, theoretical mean: 3.0)	3.78 (+ .573)	t: 24.32; p<0.001	3.80 (+ 0.62)	t: 11.36; p<0.001
Elementary School	Distress (levels 1-5, theoretical mean: 3.0)	2.36 (+ .70)	t: - 24.76; p<0.001	2.23 (+ 0.72)	t: - 14.97; p<0.001
	Socioemotional skills (levels 1-5, theoretical mean: 3.0)	3.80 (+ 1.06)	t: 36.51; p<0.001	3.87 (+ 0.61)	t: 19.99; p<0.001
Middle School	Distress (levels 1-5, theoretical mean: 3.0)	2.38 (+ .72)	t: - 16.36; p<0.001	2.28 (+ .66)	t: - 10.88; p<0.001
	Socioemotional skills (levels 1-5, theoretical mean: 3.0)	3.83 (+ .63)	t: 25.58; p<0.001	3.96 (+ .57)	t: 16.70; p<0.001

*Note.* Significant differences were found using the one-sample t-test in relation to the theoretical mean of the instruments, by specific groups.

The assessment of the nine social-emotional skills in the social-emotional skills rubric indicated that scores were significantly higher than the expected theoretical mean at both assessment points (Table 6).

**Table 6**

*Social-emotional skills relative to the theoretical mean (3.0) at different points in the study*

Variables	Moment 1		Moment 2	
	Mean (+ standard deviation)	One-sample T test	Mean (+ standard deviation)	One-sample T test
Self-awareness	3.89 (+ .82)	t: 41.29; p<0.001	3.97 (+ .80)	t: 23.68; p<0.001
Self-regulation	3.67 (+ .85)	t: 30.34; p<0.001	3.87 (+ .75)	t: 22.25; p<0.001
Self-esteem	3.77 (+ .88)	t: 33.68; p<0.001	3.92 (+ .80)	t: 22.31; p<0.001
Self-motivation	3.82 (+ .87)	t: 35.95; p<0.001	3.93 (+ .81)	t: 22.46; p<0.001
Social awareness and empathy	3.62 (+ .90)	t: 26.11; p<0.001	3.65 (+ .91)	t: 13.76; p<0.001
Collaboration	3.72 (+ .88)	t: 31.33; p<0.001	3.74 (+ .87)	t: 16.46; p<0.001
Resilience	3.88 (+ .81)	t: 41.24; p<0.001	3.97 (+ .79)	t: 23.98; p<0.001
Decision-making and autonomy	3.95 (+ .76)	t: 47.97; p<0.001	4.00 (+ .74)	t: 26.11; p<0.001
Perseverance	3.89 (+ .83)	t: 40.87; p<0.001	3.88 (+ .83)	t: 20.68; p<0.001
General Scale for Social-Emotional Skills	3.84 (+ 0.59)	t: 27.782; p<0.001	3.88 (+ 0.61)	t: 28.150; p<0.001

*Note.* Significant differences were found using the one-sample t-test in relation to the theoretical mean of the instruments.

### 3.1. Identifying Significant Changes or Differences in Teachers' Distress and Social-Emotional Skills During the Pandemic

Based on Student's t-test, it was found that three social-emotional skills (self-regulation, self-esteem, and self-motivation) showed a significant increase compared to Moment I. No significant differences were found in distress levels between Moments I and II (Table 7).

**Table 7**

*Differences in social-emotional skills and distress between Moment 1 and Moment 2*

Measure		Differences between the variables		
		Moment I	Moment II	Differences in means
Self-awareness	Mean	3.89	3.97	0.08
	D.E.	(+ 0.82)	(+ 0.80)	
Self-awareness	Mean	3.67	3.87 *	0.2
	D.E.	(+ 0.85)	(+ 0.75)	
Self-esteem	Mean	3.77	3.92 *	0.15
	D.E.	(+ 0.88)	(+ 0.80)	
Self-motivation	Mean	3.82	3.93 *	0.16
	D.E.	(+ 0.87)	(+ 0.81)	
Social awareness and empathy	Mean	3.62	3.65	0.03
	D.E.	(+ .90)	(+ 0.91)	
Collaboration	Mean	3.72	3.74	0.02
	D.E.	(+ 0.88)	(+ 0.87)	
Resilience	Mean	3.88	3.97	0.09
	D.E.	(+ 0.81)	(+ 0.79)	
Decision-making and autonomy	Mean	3.95	4.00	0.05
	D.E.	(+ 0.76)	(+ 0.74)	

**Table 7***Differences in social-emotional skills and distress between Moment 1 and Moment 2*

Measure		Differences between the variables		
		Moment I	Moment II	Differences in means
Perseverance	Mean	3.89	3.88	-0.01
	D.E.	(+ 0.83)	(+ 0.83)	
General Scale for Social-Emotional Skills	Mean	3.84	3.88	0.04
	D.E.	(+ 0.59)	(+ 0.61)	
General measure of distress	Mean	2.271	2.279	-0.008
	D.E.	0.692	0.706	

An ANOVA was conducted to identify whether there were statistically significant differences in overall measures of distress and social-emotional skills based on the grade level at which teachers work. The results showed that both distress and social-emotional skills had similar scores at both Moments of the study. Furthermore, there was no difference in the scores obtained for either variable based on the grade level at which teachers work (Table 8).

**Table 8***Differences among teachers regarding the educational level at which they teach, at the two Moments of the study, using ANOVA*

Measure	Level at which they work	Distress			Socioemotional skills		
		Moment I	Moment II	Differences in means	Moment I	Moment II	Differences in means
Kindergarten and Preschool	Mean	2.36	2.40	-0.04	3.75	3.80	0.02
	D.E.	0.73	0.71		0.57	0.62	
Elementary School	Mean	2.26	2.23	0.15	3.85	3.87	0.07
	D.E.	0.68	0.72		0.59	0.61	
Middle School	Mean	2.20	2.28	0.1	3.84	3.96	0.13

**Table 8**

*Differences among teachers regarding the educational level at which they teach, at the two Moments of the study, using ANOVA*

Measure	Distress		Socioemotional skills	
D.E.	0.66	0.65	0.59	0.61
F (gl)	1.719 (2)		0.209 (2)	
p valor	0.181		0.812	
$\eta^2$	0.009		0.001	
Potencia	0.361		0.082	

*Note.* No significant differences were found using ANOVA to determine differences between specific groups.

Subsequently, we sought to confirm whether distress and social-emotional skills differed according to years of teaching experience, both at each assessment Moments and in terms of differences in scores between the two Moments. We found that teachers with 0–15 years of experience exhibited higher levels of distress compared to those with more than 15 years of teaching experience. This level of distress remained consistent at both Moments. Regarding social-emotional skills, it was found that these did not differ based on teachers' years of experience, nor did they show significant variations (Table 9).

**Table 9**

*Differences among teachers in terms of years of service, as determined by ANOVA, at Moments I and II*

Measure		Distress			Socioemotional skills		
Years of service		Moment I	Moment II	Differences in means	Momento I	Momento II	Differences in means
0-15 años	Mean	2.56*	2.49*	-0.071	3.718	3.805	0.087
	D.E.	0.506	0.574		0.623	0.610	
16-25 años	Mean	2.272	2.27	0.002	3.889	3.917	0.028
	D.E.	0.705	0.746		0.566	0.581	
26-35 años	Mean	2.250	2.23	0.02	3.854	3.883	0.029
	D.E.	0.722	0.704		0.599	0.641	

**Table 9***Differences among teachers in terms of years of service, as determined by ANOVA, at Moments I and II*

Measure	Distress	Socioemotional skills
F (gl)	0.738 (2)	0.400 (2)
p valor	0.49	0.671
$\eta^2$	0.007	0.002
Potencia	0.2	0.114

Note. Significant differences were found using ANOVA to identify differences between specific groups. \* $p < 0.05$ ; \*\* $p < 0.01$ ; \*\*\* $p < 0.001$ .

Furthermore, it was found that distress and social-emotional skills differed depending on the highest academic degree held. In general, teachers with master's and doctoral degrees were found to have higher levels of distress than those with bachelor's degrees and specializations. However, at Moment II, both groups showed a significant decrease in distress. There were no differences in social-emotional skills among teachers based on their highest degree, nor between Moment I and Moment II. (Table 10).

**Table 10***Differences among teachers regarding their highest level of education, as determined by ANOVA*

Measure		Distress			Socioemotional skills		
		Moment I	Moment II	Differences in means	Moment I	Moment II	Differences in means
Bachelor's degree or completed teacher training (Normal School)	Mean	1.86	2.09	0.23	3.79	3.79	0
	D.E.	0.46	0.80		0.59	0.59	
Specialization	Mean	2.24	2.23	-0.01	3.86	3.91	0.05
	D.E.	0.71	0.77		0.59	0.51	
Master's degree	Mean	2.48*	2.29*	-0.19	3.80	3.91	0.11
	D.E.	0.73	0.77		0.58	0.63	

**Table 10***Differences among teachers regarding their highest level of education, as determined by ANOVA*

Measure		Distress			Socioemotional skills		
Doctorate	Mean	2.52*	2.26*	0.12	3.81	3.93	0.12
	D.E.	0.673	0.67		0.59	0.53	
F (gl)		1.921 (2)			0.467 (2)		
p valor		0.045			0.801		
η <sup>2</sup>		0.025			0.006		
Potencia		0.649			0.176		

Note. Significant differences were observed between the groups at Moment I, with \* $p < 0.05$ .

Finally, the analysis using Student's t-test for gender did not reveal any significant differences between men and women for the variables considered in the study (Table 11).

**Table 11***Differences Between Women and Men in Socioemotional Skills and Emotional Distress*

Mean		Distress			Socioemotional skills		
Gender		Moment I	Moment II	Differences in means	Moment I	Moment II	Differences in means
Women	Media	2.07	2.17	0.1	3.83	3.91	0.08
	D.E.	0.56	0.744		0.67	0.71	
Men	Media	2.29	2.29	0	3.84	3.88	0.04
	D.E.	0.735	0.70		0.58	0.59	
F (gl)		1.793			0.405 (2)		
p valor		0.181			0.525		
η <sup>2</sup>		0.005			0.001		

**Table 11***Differences Between Women and Men in Socioemotional Skills and Emotional Distress*

Mean	Distress	Socioemotional skills
Potencia	0.267	0.097

Note. No significant differences were found at each Moment or between Moments I and II.

### 3.2. The Relationship Between Social-Emotional Skills and the Prediction of Stress, Social-Formative Teaching Practices, COVID-19 Prevention in Schools, and Student Learning Outcomes

A regression analysis was conducted to determine whether the social-emotional skills assessed at Moment 1 were predictors of the dependent variables at Moment 2. For example, distress, COVID-19 prevention practices, socio-formative teacher mediation, the level of student participation in class, the submission of learning evidence by students, and the achievement of learning outcomes among students (Table 12). In this regard, it was found that the overall score on the social-emotional skills rubric, as well as teacher collaboration, were factors that predicted student achievement of learning outcomes, which were assessed at Moment II during the pandemic. Additionally, certain specific social-emotional skills predicted COVID-19 prevention practices in schools as well as socio-formative teacher mediation.

**Table 12***Regression analysis based on the dependent variables from Round 2 using the independent variables from Moment 1*

Dependent variable for Moment II	Predictive variables assessed at Moment I	R2	B	Desv. Error	$\beta$	t	p	Tolerance	VIF
	(Constant)		4.170	0.197		21.137	0.001		
Distress	Self-motivation	0.20	-0.230	0.046	-2.72	-5.055	0.001	0.740	1.351
	Self-regulation		-0.157	0.049	0.174	-3.229	0.001	0.735	1.360
	(Constant)		3.173	0.178		17.866	0.001		
COVID-19 Prevention Measures	Self-awareness	0.09	0.123	0.043	0.155	2.863	0.004	0.868	1.152
	Social awareness and empathy		0.082	0.036	0.122	2.246	0.025	0.868	1.152
	General measure of		0.195	0.049	0.254	4.914	0.001	0.909	1.100

**Table 12**

*Regression analysis based on the dependent variables from Round 2 using the independent variables from Moment 1*

Dependent variable for Moment II	Predictive variables assessed at Moment I	R2	B	Desv. Error	$\beta$	t	p	Tolerance	VIF
	the COVID-19 distress scale								
	(Constant)		2.737	0.192		14.257	0.001		
Socio-formative teaching mediation	Resilience		0.171	0.043	0.212	3.982	0.001	0.857	1.167
	Self-awareness	0.09	0.120	0.043	0.150	2.809	0.005	0.857	1.167
	General measure of the COVID-19 distress scale		0.139	0.058	0.108	2.411	0.016	0.963	1.038
	(Constant)		0.998	0.289		3.458	0.001		
Student participation in learning activities	Implementation of cross-functional work plans		0.462	0.043	0.476	10.666	0.001	0.964	1.038
	Assessment of Students' Technological Resources	0.28	0.117	0.046	0.115	2.557	0.011	0.943	1.061
	Decision-making and autonomy		0.139	0.058	0.108	2.411	0.016	0.963	1.038
	(Constant)		10.968	1.088		10.078	0.001		
Failure to achieve learning outcomes	Adapting learning activities to students' technological resources	0.08	-0.786	0.206	-0.193	-3.789	0.005	0.966	1.035
	Collaboration		-0.593	0.225	-0.134	-2.632	0.044	0.966	1.035

**Table 12**

Regression analysis based on the dependent variables from Round 2 using the independent variables from Moment 1

Dependent variable for Moment II	Predictive variables assessed at Moment I	R2	B	Desv. Error	$\beta$	t	p	Tolerance	VIF
	Overall score for the social-emotional skills rubric		-0.120	0.050	-0.127	2.441	0.015	0.831	1.000

### 3.3. Structural equation modeling

As a final step, we analyzed whether the socio-emotional skills variables established causal relationships with the variables of interest in this study. In this regard, we found that socio-emotional skills predict students' levels of motivation, interaction, and participation (MIPS) through distress, which acts as the moderating variable. Higher levels of social-emotional skills in teachers are associated with lower stress and higher levels of motivation and participation in students. However, stress also influences social-emotional skills, as this is a bidirectional relationship. Another important finding is that stress variables (such as levels of anxiety and nervousness, feelings of compassion, helplessness, and anger, irritability, and insomnia) had a direct effect on students' levels of motivation and participation in the classroom ( $p < 0.001$ ). The proposed model is illustrated in Figure 1, and the goodness-of-fit indices are detailed below (Table 13).

**Table 13**

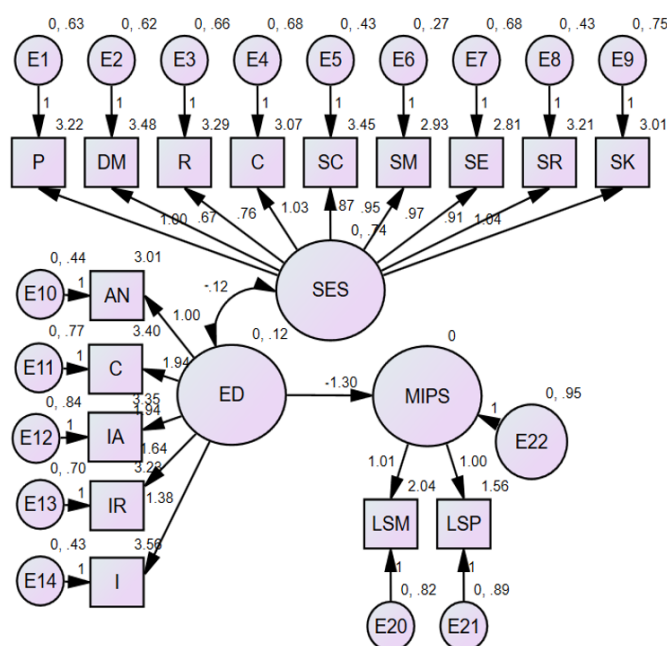
Model fitting

Statistical model	Acceptance value	Model value	Decision
$\chi^2$	-	194.144	Acceptance
gl	-	102	Acceptance
Reason $\chi^2 / gl$	< 3.0	1.903	Acceptance
CFI	> 0.95	0.939	Acceptance
TLI	> 0.95	0.929	Acceptance
GFI	> 0.95	0.981	Acceptance
NFI	> 0.95	0.882	Acceptance
PNFI	Cercano a 1	0.750	Acceptance

**Table 13**  
*Model fitting*

Statistical model	Acceptance value	Model value	Decision
RMSEA	< 0.08	0.060	Acceptance

**Figure 1**  
*Standardized solution for the proposed model*



*Nota.* SES= socio-emotional skills, ED= emotional distress, MIPS= motivation, interaction and participation of students, SK= self knowledge, SR= self regulation, SE= self esteem, SM= self motivation, SC= social conscience, C= collaboration, R= resilience, DM= decision making, P= perseverance, AN= anxiety and nervous, C= compassion, IA= impotence and anger, IR= irritability, I= insomnia, LSM= level of student motivation, LSP= level of student participation.

## 4. DISCUSSION

The primary objective of this study was to determine the level of development of social-emotional skills among public school teachers in Mexico's elementary and middle school system during the COVID-19 pandemic. In this regard, it was found that social-emotional skills exhibited a moderate or acceptable level of development, above the minimum expected level, both in the overall assessment and with respect to each of the nine skills evaluated among the teachers. This was found during both phases of the study: at the onset of the COVID-19 pandemic,

within the framework of the *Aprende en Casa I* program, and also during the consolidation phase of the pandemic, in the *Aprende en Casa II* program.

This contradicts the belief that teachers had low levels of social-emotional skills during the pandemic due to remote learning (Martins et al., 2022; Pérez-Sánchez et al., 2022; Sánchez-Pujalte et al., 2021; Sanz Ponce et al., 2022). However, the results obtained are consistent with other recent studies, which found average or acceptable levels of social-emotional skills among teachers during the COVID-19 pandemic (López-Angulo et al., 2022). Furthermore, it appears that even before the pandemic, teachers already possessed an acceptable level of emotional intelligence (Cejudo & López-Delgado, 2017), so their moderate development cannot be attributed to this fact.

It was found that the social-emotional skill most developed by teachers was decision-making and autonomy, as it involves solving problems through critical analysis, reasoning, and independence, without being swayed by others. This may be linked to increased information, preparation, and the way the pandemic was addressed in schools and in daily life. In contrast, other studies conducted during the pandemic indicated that the most developed social-emotional skill was resilience (López-Angulo et al., 2022). However, this research ranked it second, alongside self-awareness.

A high degree of resilience can be explained by the need to maintain the educational process, cope with uncertainty, and overcome the difficulties associated with COVID-19 (Bozkurt et al., 2022). In turn, the least developed social-emotional skills among teachers were social awareness and empathy. These involve putting oneself in the shoes of the community and students, understanding their needs and interests, and supporting them. Empathy in teachers is linked to students' academic performance (Cai et al., 2022; Vargas-Madriz & Konishi, 2021). Therefore, it is essential to strengthen it through professional development processes.

In addition, it was found that teachers showed significant improvements in three social-emotional skills: self-regulation, self-esteem, and self-motivation. However, no similar studies were found; nevertheless, it is possible that this increase is related to the need to provide educational services despite the difficulties and to persevere even though schools remained closed. During the pandemic, high levels of emotional regulation were also observed among teachers (López-Angulo et al., 2022).

With regard to stress among teachers, previous studies have indicated that the COVID-19 pandemic caused stress among teachers because it was an event that brought about numerous changes in their daily lives and professional practice (Bermejo-Martins et al., 2021; Beames et al., 2021; Miniñan et al., 2022; Suryaman et al., 2020). However, the levels of distress related to COVID-19 analyzed in this study were low, below the average. This was observed at both measurement points during the *Aprende en Casa I* and *Aprende en Casa II* programs.

This discrepancy may have been caused by the assessment tool, as other studies used general stress scales, whereas the present study employed a specific scale to assess stress related to COVID-19. It is possible that teachers' commitment to safeguarding students' well-being and their ability to cope with uncertainty (Kim et al., 2022) helped them manage their stress. Commitment to students is related to empathy and resilience, two social-emotional skills that teachers in this study demonstrated at a moderate or acceptable level.

The second objective of the study was to determine whether there were significant differences among various groups. In this regard, no significant differences were found in social-emotional skills among teachers working at the preschool, elementary, and secondary levels. Nor were any differences found based on years of service (years of teaching experience), the highest educational degree obtained (bachelor's, specialty, master's, and doctorate), or the teacher's gender (female and male). This differs from a recent study that found that men scored higher on emotional aspects (resilience and emotional intelligence) than women (López-Angulo et al., 2022). However, prior to the pandemic, women had higher levels than men in areas such as trait-level emotional intelligence (Meshkat & Nejati, 2017), and preschool teachers scored higher than elementary school teachers (Cejudo & López-Delgado, 2017). Perhaps these discrepancies may be due to measurement methods and the pandemic itself.

Teachers with less teaching experience—between zero and 15 years—reported higher levels of stress than teachers with more years of experience. This finding is similar to that reported by Feroz Ali et al. (2021). On the other hand, teachers with master's and doctoral degrees reported significantly higher levels of stress than teachers with bachelor's degrees and specializations. It is possible that this is a result of greater concern about learning processes. This may be due to fewer strategies for coping with pandemic-related changes in education.

This study found no differences between men and women in stress levels during the COVID-19 pandemic, a finding similar to that reported by Feroz Ali et al. (2021). However, this differs from another study conducted in the same Fiji Islands before the pandemic, which found that women had significantly higher stress levels than men. Likewise, there were no differences in the other variables studied, such as the educational level at which they work (preschool, elementary, or secondary). This could be because school closures and the shift to remote teaching led to similar teaching practices across all levels.

The third objective of the study was to determine whether social-emotional skills were predictors of stress, COVID-19 prevention practices, socio-formative teacher mediation, and student learning outcomes, as measured by students' average grades. In this regard, it was found that the overall measure of teachers' social-emotional skills was a predictor of student learning outcomes, along with collaboration. In this regard, it was evident that the way teachers regulate and manage their emotions influences their teaching style, such that adequate emotional regulation leads to better learning outcomes (Moè & Katz, 2021).

Specifically, it has been demonstrated that teachers' social competencies influence student learning (Thijssen et al., 2022). In particular, teachers' empathy has been found to be associated with higher levels of reading comprehension among students (Cai et al., 2022). However, these studies were cross-sectional. What was novel about this research was that repeated measures were taken using a novel instrument—the rubric—as it is not known to have been applied to teachers in similar studies before.

Previous studies have demonstrated the relationship between emotional intelligence and stress management (Bermejo-Martins et al., 2021) and its impact on physical and mental health (Sarrionandia & Mikolajczak, 2020). This was corroborated in the present study, conducted during a time of great upheaval—the COVID-19 pandemic—but using a follow-up analysis or repeated measures. Additionally, specific information was obtained regarding the involved social-emotional competencies, which in this case were self-motivation and self-regulation. In this regard, it was evident that social-emotional skills such as self-awareness, social awareness, and empathy were factors that predicted COVID-19 prevention practices. This may be achieved through the development of a healthier lifestyle (Bermejo-Martins et al., 2021). The latter is an important finding of the present study that has yet to be extensively studied in the field of emotional competencies.

Previous studies have found that social-emotional skills influence teaching and can affect student engagement and motivation (Jennings & Greenberg, 2009). This study confirms this finding but also demonstrates how two specific social-emotional skills in teachers—self-awareness and resilience—are particularly relevant to socio-formative teaching. Socio-formative teaching involves training students to solve real-world problems through project-based learning, collaboration, and addressing community challenges.

It is well established that teachers' social-emotional skills influence student engagement (Jennings & Greenberg, 2009; Sutton & Wheatley, 2003). However, the specific social-emotional skills involved and the mechanism of influence remained unclear. This study found that students' levels of engagement are predicted by teachers' decision-making and autonomy skills. However, an important finding was that teachers' social-emotional skills influence students' participation and motivation levels indirectly, through distress. Another interesting finding was that teachers' distress itself influences students' participation levels, which should be addressed in future studies.

Based on these findings, it is recommended that measures be implemented to help teachers develop social-emotional skills and stress management techniques. Although this study did not find *alarming* levels in these two variables, it was found that, in general, it is necessary to raise social-emotional competence to medium-high and high levels and to further reduce distress, as this can help transform education toward socio-formative teaching, with higher levels of student participation and motivation. Regarding social-emotional skills, there are still few studies on the effects of various intervention processes, although it is known that teamwork and leadership help strengthen

this component (Priya Kamboj & Garg, 2021). There is evidence of the positive effects of some strategies on both social-emotional skills and distress. For example, the *CARE for Teachers* program (Jennings et al., 2017).

## 5. CONCLUSIONS

This study contributed to our understanding of teachers' social-emotional skills, as there are currently no programs designed specifically for them. The findings revealed that, despite lacking such emotional support, teachers in Mexico maintained an average level of emotional development during the pandemic. Although a third assessment was not conducted, it is important to note that teachers' social-emotional skills serve as predictors of student academic achievement. However, these findings had limitations that should be considered for future research..

1. Teachers at private schools were not included. This is very important, as some studies have indicated that teachers at these types of institutions have better social-emotional skills. However, they were not included because the decision was made to focus on the public sector.
2. There was a lack of follow-up after the pandemic; the study, originally planned for 2024–2025, could not be carried out due to difficulties in retaining participants, making it impossible to determine whether the social-emotional skills observed during the pandemic represent temporary adaptations to the crisis or have become permanent developments. It is hoped to continue this effort in the future through a strategy that ensures the participation of a minimum percentage of teachers in order to conduct the analyses.
3. Further research is needed on the variables that predict or are associated with the development of social-emotional skills, and it is essential that this be addressed in future studies using a longitudinal design or, at a minimum, repeated-measures designs. In this regard, a recent study of prospective teachers found that the variables predicting higher levels of social-emotional competence were having siblings and choosing education as their first-choice major (Mayorga-Fernández et al., 2022).

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