

SPANISH VALIDATION OF A QUESTIONNAIRE TO EVALUATE INTERSECTORAL SOCIO-EDUCATIONAL COLLABORATION NETWORKS (CERS) FOR EDUCATIONAL IMPROVEMENT

*Validación española de un cuestionario para evaluar redes
socioeducativas de colaboración intersectorial (CERS) para
la mejora educativa*

Jordi LONGÁS MAYAYO, Cristina CAÑETE-MASSÉ and Jordi DÍAZ-GIBSON
Universidad Ramon Llull. Spain.
jordilm@blanquerna.url.edu; cristinacm22@blanquerna.url.edu; jorgedg@blanquerna.url.edu
<https://orcid.org/0000-0001-8511-3044>; <https://orcid.org/0000-0002-3101-2923>;
<https://orcid.org/0000-0001-7771-9580>

Date received: 28/02/2025

Date accepted: 24/05/2025

Date of publication on line: 01/01/2026

How to cite this article / Cómo citar este artículo: Longás Mayayo, J., Cañete-Massé, C. & Díaz-Gibson, J. (2026). Spanish Validation of a Questionnaire to Evaluate Intersectoral Socio-Educational Collaboration Networks (CERS) for Educational Improvement [Validación española de un cuestionario para evaluar redes socioeducativas de colaboración intersectorial (CERS) para la mejora educativa]. *Teoría de la Educación. Revista Interuniversitaria*, 38(1), 189-212. <https://doi.org/10.14201/teri.32518>

ABSTRACT

Introduction: The emergence and evolution of intersectoral collaboration in education is of growing interest for research that seeks to understand and support new networked organizational structures. This study seeks to validate an easy-to-apply

instrument that reliably estimates the degree of development or organizational maturity of interinstitutional collaboration networks for socio-educational improvement. Methods: A sample of 2,802 individuals involved in 158 networks across Spain was used, and exploratory and confirmatory factor analyses were conducted on two randomized subsamples. Results: The result was a 26-item questionnaire grouped into 3 factors (Collaboration, Legitimacy, and Leadership). Discussion: The model's good fit, with high indices of goodness-of-fit, internal consistency, and reliability, means that an easy-to-apply tool that is useful for the leadership and promotion of networks can be provided. We conclude that this instrument is valid and reliable and offers valuable input for evaluating socio-educational action networks, expanding research that supports their development, and constructing a theory to promote their effective implementation. It is a valuable resource for free use at the national level. Accordingly, it can be used by leaders of socio-educational networks and by regional governance teams to monitor the progressive development of local networks. In addition, the direct feedback obtained through CERS will allow these leaders to make evidence-based decisions that strengthen local social capital, addressing the complex challenge of educational success in contexts of high social vulnerability in a sustainable, collective, and effective way.

Keywords: interinstitutional cooperation; psychometric validation; leadership; social pedagogy; sociometry.

RESUMEN

Introducción: La emergencia y evolución de la colaboración intersectorial en educación interesa cada vez más a la investigación que busca comprender y fundamentar las nuevas estructuras de organización en red. El objetivo de este estudio es validar un instrumento de fácil aplicación que permita estimar con fiabilidad el grado de desarrollo o madurez organizacional de las redes de colaboración interinstitucional para la mejora socioeducativa. Métodos: Con una muestra de 2.802 personas implicadas en 158 redes de España se han realizado los correspondientes análisis factoriales (exploratorio y confirmatorio) con dos submuestras aleatorizadas. Resultados: El resultado es un cuestionario de 26 ítems agrupados en 3 factores (Colaboración, Legitimidad y Liderazgo). Discusión: El buen ajuste del modelo, con elevados índices de bondad, consistencia interna y fiabilidad, permite entregar un instrumento de fácil aplicación, útil para el liderazgo y la promoción de redes. Concluimos que el CERS es válido, fiable y supone un aporte valioso en la evaluación de redes de acción socioeducativa, ampliando el camino investigativo que apoya su desarrollo y la construcción de una teoría propia para su promoción efectiva. Supone un capital valioso para el uso libre a nivel estatal. De este modo, podrá ser utilizado tanto por líderes de redes socio-educativas como por equipos de gobernanza territorial para monitorizar el desarrollo progresivo de las redes locales. A su vez, el retorno directo que se obtiene a través de CERS permitirá a dichos líderes tomar decisiones basadas en evidencias que fortalezca el capital social local, abordando de forma sostenible, colectiva y efectiva el complejo reto del éxito educativo en contextos de alta vulnerabilidad social.

Palabras clave: cooperación interinstitucional; validación psicométrica; liderazgo; pedagogía social; sociometría.

1. INTRODUCTION

New intersectoral collaboration or networking strategies have emerged in response to the growing complexity of the challenges faced by education systems all over the world (UNESCO, 2015) and the situations of inequality that shape educational success (Civís & Longás, 2015; Longás & Civís, 2019; OECD, 2020). These experiences of collective action to improve education (Azorín, 2019) or community action (Longás, *et al.*, 2016) seek to improve coordination and cooperation between socio-educational stakeholders in an eco-social space (Alonso *et al.*, 2023; Cos *et al.*, 2023; González, 2023), attempting to overcome the professional isolation and the disciplinary and organizational fragmentation characteristic of service provision systems (Harris y Jones, 2017). Although there is evidence for their effectiveness and their use has spread through numerous countries, few instruments are available for evaluating them as an organizational structure. Progress towards this goal would be of theoretical and practical value.

The literature has considered different experiences of organizing socio-educational action at a local level that have started to appear over the last 20 years following a systems approach with notable results in educational and social improvement. We note the cases of the United Kingdom (Godfrey y Brown, 2019), the Netherlands (Moolenaar *et al.*, 2009), the USA (Clayton, 2016), Denmark (Sørensen y Torfing, 2011), Portugal (de Lima, 2007), and Spain (Longás y Civís, 2019). It should be noted that this type of initiative emerges in contexts of vulnerability, focussing on the fight against exclusion and improving social cohesion, educational achievement, and the development of citizenship competences. They are usually self-organized experiences that mature over time, implicitly or explicitly based on promoting and consolidating networking among schools, social services, nonprofit entities, cultural advocates, sometimes health services, volunteers, etc. They are transversal structures that operate at a local level with a community basis and centre on promoting socio-educational actions aimed at strengthening the social and learning environment (Curcic *et al.*, 2011; Muijs, 2015; Godfrey & Brown, 2019).

Some valuable effects of collaborative interinstitutional work at a local level stand out: a) optimization of socio-educational resources and improved organizational efficiency (Díaz-Gibson *et al.*, 2017); b) driving educational innovation and change (Díaz-Gibson *et al.*, 2020; Singh y Eggers, 2009); c) support for integral, non-fragmented action when facing complex situations (Harris y Jones, 2017); d) professional development and learning through the generation of synergies and mutual support (Brown y Flood, 2020; Campbell *et al.*, 2017); e) improvements in educational performance and reduced social vulnerability (Azorín y Muijs, 2017;

Longás, et al., 2016); and f) holding society more accountable in the process of education (Román y Murillo, 2010).

However, these networks are often fragile structures superimposed on the organizations involved in them, with these organizations' adherence to the shared project requiring generosity, mutual trust, and consensus (Clayton, 2016; Díaz-Gibson *et al.*, 2020). Their leadership is, in practice, often shared and/or distributed, focusing strongly on relational aspects (Azorín, et al., 2020), emphasising the systematization of relations between socio-educational stakeholders and the generation of positive ties (Kallio y Halverson, 2020). As a guide for good leadership of networks, Pino-Yancovic and Ahumada (2022) emphasize the need to develop collaborative activities that promote deep collaboration, trust, and joint responsibility, seeking to ensure that the distribution of the leadership is a characteristic of the organizational culture (MacBeath, 2011).

According to Longás, et al. (2020), the promotion and management of networks is formed on the basis of a certain shared pattern directed towards: having the same common purpose, generating collaborative strategies, and obtaining the results and recognition that give them legitimacy, thus fostering their sustainability. Other research explains that the effective leadership of networks involves increasing the number and quality of relationships among the stakeholders involved, increasing membership and resources, fostering information exchange, strengthening shared objectives, and ensuring sustainable collaboration between organizations (Clayton, 2016; OECD, 2020; Rincón-Gallardo y Fullan, 2016; UNESCO, 2020). The line of research followed by Díaz-Gibson, et al. (2013) proposes six theoretical principles of the specific leadership of networks: joint responsibility, transversality, horizontality, collaboration, proximity and projection.

Until now, there have been few instruments that allow the evaluation of the development of networks as socio-educational organizations (Díaz-Gibson *et al.*, 2023). Recent research has made a significant contribution to the evaluation of collaborative work in educational contexts, increasing the available tools and improving their validity. Martínez Venegas *et al.* (2023) adapted and validated a rubric that permits the evaluation of key dimensions of team work, such as joint planning and conflict management. For their part, Torres-Hernández and Gallego-Arrufat (2022) have revealed the benefit of combining self-evaluation, peer evaluation, and teacher evaluation to provide a fuller overview of collaboration between students. Finally, Zangara and Sanz (2020) have developed a specific methodology for monitoring work mediated by collaborative technology, proposing concrete indicators for its evaluation. These studies offer frameworks and tools that are transferable to the evaluation of interinstitutional networks, especially with regards to processes of collaboration, shared decision making and collective setting of objectives. Nonetheless, these are proposed as institutional tools and not as collective communal processes as a whole.

In the context of Spain, very few studies have validated instruments designed with this objective. One of the them is the *ACOES Evaluation Questionnaire*, developed by

García, et al. (2012), which centres on analysing the cooperative working methodology in higher education. Another example is the study by López *et al.* (2013), which investigated the functioning of educational networks in schools from the perspective of collaborative work. These questionnaires identified organizational improvements and improvements relating to development derived from participation in networks, underlining the importance of interchanging pedagogical experiences and joint planning. In this sense, Gairín, et al. (2012) presented an evaluation proposal for the Red de Apoyo a la Gestión Educativa (RedAGE, Educational Management Support Network), focussed on improving educational management in the Ibero-American setting. This evaluation considered variables such as the network's cohesion and its capacity to bolster educational management, providing a framework to analyse the functioning of interinstitutional networks.

Although these instruments contributed to evaluating networking between educational and social organizations, they display significant limitations. In general, they lack an adequate theoretical and contextualized adaptation to the complexity of the interinstitutional and interdisciplinary character of these networks, they offer a static vision without considering the networks' evolution over time, they often use small or unrepresentative samples, and they lack a solid psychometric validation, which limits their applicability to other contexts.

A frequent method for evaluating intersectoral collaboration networks is to create relationship maps with software, identifying the density of the relations and the more or less decentralized role of the nodes in the system (Daly, 2010). Another evaluation strategy is pre-post comparison and comparison with reference groups of indicators of networked actions, considering the hypothetical impact of collaborative work (for example, Longás and Riera, 2016), although they do not specifically report on the network as an organization. For our part, we have carried out qualitative studies of networks, with a quasi-ethnographic approach. These are of value for understanding their functioning, but have a high cost and are difficult to standardize (Longás *et al.*, 2018; Longás, et al., 2020). These latter pieces of research, undertaken following the development of 172 socio-educational networks promoted in Spain by the CaixaProinfancia programme since 2016, have shown different degrees of what we call organizational maturity (stability, autonomy, sustainability, and satisfaction with their functioning), relating to improved educational outcomes (Cañete-Massé *et al.*, 2023; Cussó-Parcerissas *et al.*, 2024).

The instrument published by Díaz-Gibson, et al. (2014) seeks to estimate the organizational capital and social capital of educational collaboration networks. It validates these two dimensions in a sample of 90 members of 2 consolidated networks in Barcelona and Madison, Wisconsin. The organizational dimension incorporates five factors that supposedly shape it: joint responsibility (members actively assume their task in the shared project); transversality (the composition of the network represents the highest number of sectors involved); horizontality (reflection and decision making are participatory or even collegiate); collaboration (members help one another to

achieve goals); and projection (it is not just a team for reflection but it also seeks results in the form of improvement and recognition). We share the theoretical focus of this work, although its sample size poses inherent limitations when extrapolating the results, and there are also certain psychometric difficulties, especially with the transversality factor, as the authors observe. Its exploratory nature and the need to update models developed at the start of the century (when networking in education emerged) justify continuing with this line of research.

We have found no studies that associate sociodemographic or professional variables with the perceptions of the socio-educational networks. If we bear in mind that the particular characteristic of the networks is the integration of very diverse members who, from different spheres and sectors, have an interest in educational improvement, including this perspective on the research seems appropriate.

In view of the above, to support the leadership and development of the networks as structures of socio-educational governance, we asked ourselves how to measure their maturity. Therefore, the primary aim of this study is to validate an easily applied instrument that makes it possible to estimate reliably the organizational maturity of interinstitutional collaboration networks for socio-educational improvement. As specific objectives we propose building a model of theoretically consistent organizational factors and analysing possible differences between the perceptions of the members of the networks taking into account their diversity.

2. METHODOLOGY

This study is selective and non-experimental.

2.1. *Participants*

A total of 2,802 people participated from 158 socio-educational networks out of a total of 172 possible ones. Of the participants, 78.2% were female. Regarding their positions, 63.3% were grassroots members, 25% held coordination positions, and 11.6% were leaders or backers. All of them are connected to organizations from the third sector, principally from the social and educational sphere: 43.3% were from nonprofit organizations, 28.4% from the private sector, 24.1% from the public sector, and 4.2% were volunteers. In relation to their professional sphere, 48% were from the education sector, 36.1% the social sector, 7.5% the recreational sector, 3.7% the health sector, and 4.6% from other sectors. Finally, with regards to age, 12.1% were aged between 17 and 25 years, 53.7% between 26 and 40, 28.7% between 41 and 55, and 5.4% were older than 55.

2.2. *Design and validation of the instrument*

The construction of the scale and the corresponding steps to confirm its validity and reliability followed the recommendations of Boateng *et al.* (2018) and Prinsen

et al. (2018). After the literature review, we decided to use the questionnaire of Díaz-Gibson, et al. (2014) as a starting point owing to its particular orientation towards socio-educational networks in Spain. In the present work we discussed the wording of the items with professionals, academics, and researchers specialising in social education. Two in-person focus groups were organized (of approximately 3 hours length and with 6 different professionals from the socio-educational intervention in each case), with people with experience of promoting and leading community-based socio-educational action networks and/or educational projects, from the local government and third-sector bodies. Their proposals for improvement resulted in a total of 60 items relating to the factors that could explain different degrees of maturity of the networks. In a second process of revision by experts with the involvement of 9 experts (4 researchers and 5 leaders of networks with more than 15 years of experience), content validity was assessed, evaluating each item's suitability by means of a questionnaire with a 1–3 scale considering the criteria of clarity, pertinence, and relevance. They also suggested improvements for the comprehension of the wording. In this phase, 28 items were eliminated owing to inaccuracy or repetitions, and primarily for having mean evaluations of less than 2.5 points. This cutoff point made it possible to select the items above the mean and median of the valuations (1–3), as a required measure in the established criteria. As a result, the scale of 32 items administered was obtained.

The questionnaire was answered by members of socio-educational action networks from 11 Autonomous Regions of Spain that implemented the CaixaProinfancia programme (Longás, et al., 2016). This programme encourages collaboration between social entities, schools, and social services to help with systematic social and educational support for young children in situations of relative poverty and give them free access to quality support services. The different networks were contacted and were asked to help distribute the questionnaire among their members. The questionnaire was accessible online on the *Google Forms* platform. Participation was voluntary. Participants were informed of the aim of the study and their confidentiality was guaranteed. We also committed to return the results to each network. Only responses from networks with more than 50% participation by their members were considered in the study, giving a response rate of 95.2% of the total of the networks invited.

2.3. *Instruments administered*

The Socio-Educational Networks Evaluation Questionnaire (CERS) that we administered was designed around 7 hypothetical factors, expanding the proposal from the questionnaire of Díaz-Gibson, et al. (2014) with the theoretical-practical contributions generated from the successful experiences that the participants in the discussion phase of the construct contributed. As well as the sociodemographic variables included (gender, age, position in the network, sector in which the network

operates, and sphere of work), the CERS included 32 items (Table 1) to evaluate the following factors in the networks' organizational maturity: *joint responsibility* among members (items 2, 3, 13, and 16); *transversality* in the composition and forms of work (items 8, 9, 14, 15, 22, and 23); *horizontality* in organization and decision making (items 10, 11, 29, and 30); internal *collaboration* to achieve results (items 7, 18, 25, and 26); improvements in the form of *innovation* resulting from shared work and learning (items 6, 12, 17, 27, 28, 31, and 32); mutual *trust*, which is both a precondition for and result of networking (items 1, 4, 5, 21, and 24); and *perception of success* in the results obtained (items 19 and 20). The answer format is a five-point Likert-type scale depending on the level of agreement (1 = strongly disagree, 5 = strongly agree). The final instrument is the result of the psychometric validation that we report in this article.

2.4. Data analysis

The following analyses were performed to verify the psychometric properties of the questionnaire:

- a) Analysis of items, based on the mean, standard deviation, and item-total correlation.
- b) Exploratory factor analysis (EFA) of a randomly selected half of the sample ($n = 1401$) to review the dimensionality of the questionnaire and test the factor structure of the scale. No statistically significant differences between the two random subsamples for the EFA and the confirmatory factor analysis (CFA) were found in sociodemographic variables or in the questionnaire itself. The latent domains that make up the questionnaire were extracted with oblique rotation given the correlated nature of the factors. The principal axis method was used owing to the multidimensional nature of the scale and its origin as a Likert-scale in the items. Parallel analysis based on principal components was used. The following criteria were used to make decisions about whether or not to keep a domain: 1) explained variance; 2) number of items included; 3) factors that included three items or fewer were eliminated. Items were kept in each factor if they had a factor loading greater than 0.4 and did not simultaneously load in two or more factors. Acceptable results were not obtained when forcing the analyses according to the theoretical factors.
- c) First-order CFA owing to the justified theoretical model. This CFA was done on the other half of the sample by applying the maximum likelihood criterion owing to the multivariate normal distribution of the data, to achieve the global fit of the model and the functioning of its factors. The goodness of fit indices taken into account (Hu & Bentler, 1999) were the comparative fit index (CFI) and the TLI (Tucker-Lewis Index) with a cutoff point equal to or greater than .95 (Prinsen *et al.*, 2018). Finally, the root mean square error of approximation (RMSEA) and

standardized root mean residuals (SRMR) were used, which indicate goodness of fit from values equal to or less than .06 (Prinsen *et al.*, 2018).

- d) Internal consistency was evaluated with Cronbach's alpha and McDonald's omega. Values equal to or greater than 0.70 indicate good internal consistency (Prinsen *et al.*, 2018).
- e) Complementary analyses: For the appraisal of the instrument, the means for each factor were calculated by adding the corresponding values and dividing by the total number of items in the factor. The Pearson correlations between factors were studied with the aim of ascertaining the relationship between them. Bivariate analyses were also performed for each factor with distinct sociodemographic variables (age, gender, position, sector, and sphere). In the case of gender, as homoscedasticity was not found, the corresponding non-parametric test was used.

The analyses were done using IBM SPSS version 25 for the standard descriptive statistics and RStudio version 4.0.1 for the exploratory and confirmatory analyses, and also using lavaan (Rosseel, 2012) for the bivariate analyses. It should be noted that in all of the cases parametric and technical tests based on scale scores were performed, despite the use of a Likert-type scale. These analyses were performed owing to the sample size (parametric tests are sufficiently robust with ordinal data) and owing to their behaviour with ordinal data (Martínez-Abad & Rodríguez-Conde, 2017).

3. RESULTS

The analysis of the items (Table 1) includes the mean, the standard deviation, and the item-rest correlation. The correlations of each item with the others are very high and so no items were eliminated. Before proceeding with the EFA, the Kaiser-Meyer-Olkin (KMO) measure of suitability of the sample, and Bartlett's test of sphericity were calculated. Both statistics confirmed the suitability of performing two factor analyses (KMO = .974, Bartlett's χ^2 test (325) = 29352.734; $p < .001$). The EFA was done on the first half of the sample (Table 1) and gave a 3-factor result, with eigenvalues of 18.42 (F1), 1.53 (F2), 1.10 (F3) and 62.5% of the explained variance (22.9% for F1; 21.3% for F2; and 18.2% for F3). Items with loadings of less than 0.4 were eliminated (18 and 19) as were ones that simultaneously loaded in two or more factors (11, 12, 13, and 16). Factor 1 comprises 10 items (1, 2, 3, 4, 5, 6, 7, 8, 9, and 14) relating to the perception of the conditions that favour horizontal work, help with trust, and facilitate joint work, and so we call it *Collaboration*. Factor 2 comprises 8 items (10, 15, 17, 19, 29, 30, 31, and 32) relating to the perception of the conditions that allow for recognition of the network and affirmation of its meaning and results, and so it is called *Legitimacy*. Factor 3 comprises 8 items (20, 21, 23, 24,

TABLE 1
ANALYSIS OF ITEMS AND STANDARDIZED FACTOR LOADINGS FOR EACH ITEM FROM THE EFA
(n = 1401) IN THE ROTATED MATRIX WITH LOADINGS GREATER THAN 0.4

Item	($\bar{x}$ SD)	Correl.	F1	F2	F3
1. I feel like I participate in the new ideas and actions that emerge in the network.	3.44 (0.91)	0.72	0.573		
2. The members of the network feel united and cohesive as a group.	3.38 (0.90)	0.76	0.611		
3. I feel committed to the network.	3.72 (0.88)	0.71	0.705		
4. The opinions I share in meetings are taken into account when taking decisions.	3.53 (0.88)	0.75	0.618		
5. I identify the network as a space for debate where we can express our own views and disagreements.	3.55 (0.90)	0.76	0.655		
6. I apply the knowledge that I learn in the network in my own organization.	3.52 (0.88)	0.72	0.697		
7. The resources shared with other professionals from the network help improve my practice.	3.60 (0.86)	0.72	0.716		
8. I understand that the involvement of a variety of stakeholders (public, private, and/or third sector) in the community network contributes to achieving the educational project's objectives.	3.81 (0.86)	0.61	0.716		
9. The network's objectives are developed by effective interdisciplinary working teams.	3.60 (0.86)	0.73	0.679		
14. The network has the effective collaboration of schools (early childhood, primary, and/or secondary) in the community.	3.62 (0.90)	0.60	0.457		
10. The members who represent the administration (local, autonomous region, and/or state) and the project funders participate in the network's debates with equal power when it comes to decision making.	3.10 (0.89)	0.67	0.493		
15. The network has political support that contributes to its sustainability.	2.96 (0.85)	0.54	0.533		
17. The network provides possibilities for training and learning that make us as individuals and the project as a whole grow meaningfully.	3.15 (0.90)	0.67	0.420		
19. The network has been able to achieve its objectives successfully.	3.37 (0.81)	0.77	0.413		

Item	($\bar{x}$ SD)	Correl.	F1	F2	F3
29. The leadership of the network takes the voice of adult service users into account when taking important decisions.	3.24 (0.89)	0.79		0.722	
30. The leadership of the community network takes the voice of young and/or child service users into account when taking important decisions.	3.09 (0.91)	0.75		0.853	
31. The leadership of the network takes the voice of adult service users into account when creating new ideas and projects.	3.16 (0.88)	0.78		0.899	
32. The leadership of the network takes the voice of young and/or child service users into account when creating new ideas and projects.	3.10 (0.89)	0.75		0.902	
20. The leadership of the network establishes a shared vision of the project and the challenges to confront.	3.39 (0.84)	0.82			0.617
21. The leadership of the network listens to us and collects evidence about our needs to improve the educational and social action.	3.47 (0.88)	0.81			0.733
23. The leadership of the network seeks to collaborate with programmes implemented in the community that share objectives with the project.	3.41 (0.84)	0.77			0.432
24. The leadership of the network promotes and facilitates all members being able to lead actions and projects that emerge in the community.	3.28 (0.86)	0.79			0.538
25. The leadership of the network acts as a mediator in discussions regarding differences between professionals, centring on the positive part of the conflict.	3.39 (0.85)	0.80			0.656
26. The leadership of the network pays special attention to increasing the number and quality of connections between its members.	3.41 (0.86)	0.82			0.670
27. The leadership of the network facilitates mechanisms for evaluating the organizational and collaborative task.	3.38 (0.87)	0.80			0.556
28. The leadership of the network promotes and facilitates the interchange of new and creative ideas.	3.42 (0.90)	0.83			0.567

(continued)

TABLE 1
ANALYSIS OF ITEMS AND STANDARDIZED FACTOR LOADINGS FOR EACH ITEM FROM THE EFA
(n = 1401) IN THE ROTATED MATRIX WITH LOADINGS GREATER THAN 0.4 (CONTINUED)

Item	($\bar{x}$ SD)	Correl.	F1	F2	F3
11. In my working space in the network, responsibilities for leading actions and projects are shared between a large group of professionals.	3.34 (0.87)	0.73	0.414	0.402	
12. The new and creative ideas that emerge in the network are implemented through diverse actions or projects.	3.31 (0.83)	0.78	0.404	0.476	
13. The network establishes effective mechanisms for participation by people from the community (families, young people, social volunteering, and/or service-learning, etc.) within its educational activities.	3.39 (0.88)	0.72	0.405	0.453	
16. The network develops effective communication strategies to connect with the community and situation	3.26 (0.86)	0.75	0.412	0.413	
18. The network takes advantage of and uses some of the community's public resources (such as libraries, cultural centres, sports centres, etc.) with educational and social objectives.	3.48 (0.91)	0.65	-	-	-
22. The leadership of the network pursues the inclusion of governmental bodies, nonprofit agencies, and private agencies with which it shares objectives.	3.42 (0.85)	0.76	-	-	-

Note: $\bar{x}$ = Mean; SD = Standard Deviation; Correl = item-total correlation
Source: Prepared by the authors

25, 26, 27, and 28) relating to the perception of the type of direction and management that helps to develop a networked organization, and it is called *Leadership*.

In the CFA on the second half of the sample, the goodness of fit indices for the proposed 3-factor model are adequate as the CFI was 0.997, the TLI 0.997, the RMSEA 0.0027, and the SRMR 0.043. Table 2 presents the final factor loadings and the definite proposal for the questionnaire with the items renumbered.

TABLE 2
STANDARDIZED FACTOR LOADINGS FOR EACH ITEM FROM THE CFA (n = 1401) AND THE
AVERAGE VARIANCE EXTRACTED

Item	F1	F2	F3
(1) 1. I feel like I participate in the new ideas and actions that emerge in the network.	0.666		
(2) 2. The members of the network feel united and cohesive as a group.	0.689		
(3) 3. I feel committed to the network.	0.623		
(4) 4. The opinions I share in meetings are taken into account when taking decisions.	0.673		
(5) 5. I identify the network as a space for debate where we can express our own views and disagreements.	0.686		
(6) 6. I apply the knowledge that I learn in the network in my own organization.	0.669		
(7) 7. The resources that we share with other professionals from the network help improve my practice.	0.647		
(8) 8. I understand that the involvement of a variety of stakeholders (public, private, and/or third sector) in the community network contributes to achieving the educational project's objectives.	0.595		
(9) 9. The network's objectives are developed by effective interdisciplinary working teams.	0.647		
(10) 10. The members who represent the administration (local, autonomous region, and/or state) and the project funders participate in the network's debates with equal power when it comes to decision making.		0.628	
(14) 11. The network has the effective collaboration of schools (early childhood, primary, and/or secondary) in the community.	0.617		
(15) 12. The network has political support that contributes to its sustainability.		0.478	
(17) 13. The network provides possibilities for training and learning that make us as individuals and the project as a whole grow meaningfully.		0.651	
(19) 14. The network has been able to achieve its objectives successfully.		0.627	

(continued)

TABLE 2
STANDARDIZED FACTOR LOADINGS FOR EACH ITEM FROM THE CFA (n = 1401) AND THE
AVERAGE VARIANCE EXTRACTED (*CONTINUED*)

Item	F1	F2	F3
(20) 15. The leadership of the network establishes a shared vision of the project and the challenges to confront.			0.704
(21) 16. The leadership of the network listens to us and collects evidence about our needs to improve the educational and social action.			0.729
(23) 17. The leadership of the network seeks to collaborate with programmes implemented in the community that share objectives with the project.			0.688
(24) 18. The leadership of the network promotes and facilitates all members being able to lead actions and projects that emerge in the community.			0.686
(25) 19. The leadership of the network acts as a mediator in discussions regarding differences between professionals, centring on the positive part of the conflict.			0.679
(26) 20. The leadership of the network pays special attention to the increase and quality of connections between its members.			0.714
(27) 21. The leadership of the network facilitates mechanisms for evaluating the organizational and collaborative task.			0.681
(28) 22. The leadership of the network promotes and facilitates the interchange of new and creative ideas.			0.732
(29) 23. The leadership of the network takes the voice of adult service users into account when taking important decisions.		0.718	
(30) 24. The leadership of the community network takes the voice of young and/or child service users into account when taking important decisions.		0.686	
(31) 25. The leadership of the network takes the voice of adult service users into account when creating new ideas and projects.		0.686	
(32) 26. The leadership of the network takes the voice of young and/or child service users into account when creating new ideas and projects.		0.649	
Average Variance Extracted	0.614	0.606	0.726

Note: The original numbering of the items is shown in parentheses followed by the numbers from the final proposal.
Source: Prepared by the authors

Table 3 shows the results for reliability measured with McDonald’s ω and Cronbach’s α . In all cases, there is high internal consistency for all of the factors and for the total. Consequently, the questionnaire adopts its final form with 3 factors.

TABLE 3
INTERNAL CONSISTENCY OF THE DIFFERENT FACTORS

Factors	McDonald's Ω	Cronbach's α
F1: Collaboration	0.930	0.929
F2: Legitimacy	0.922	0.919
F3: Leadership	0.953	0.952
Total	0.974	0.974

Source: Prepared by the authors

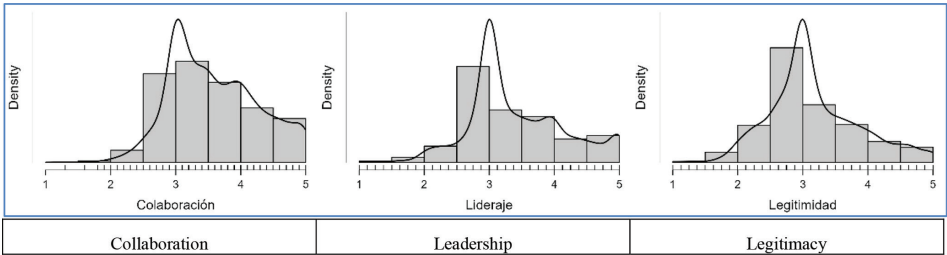
Table 4 shows the descriptive statistics for each factor and Figure 1 shows the distribution of the means.

TABLE 4
DESCRIPTIVE STATISTICS OF THE 3 CERS FACTORS

Factors	$\bar{x}$ (DS)	Min.	Max.	25th percentile	50th percentile	75th percentile
F1: Collaboration	3.59 (0.67)	1.3	5	3	3.5	4.1
F2: Legitimacy	3.17 (0.69)	1	5	2.75	3	3.6
F3: Leadership	3.41 (0.74)	1	5	3	3.12	3.87

Source: Prepared by the authors

FIGURE 1
HISTOGRAMS OF THE DISTRIBUTIONS OF MEAN OF THE 3 CERS FACTORS



Source: Prepared by the authors

The analyses show a positive correlation between *Collaboration* and *Legitimacy* ($r = 0.757$; $p < .001$, $r^2 = 0.573$) with a large effect size as well as between *Leadership* and *Collaboration* ($r = 0.815$; $p < .001$, $r^2 = 0.664$) and between *Leadership* and *Legitimacy* ($r = 0.830$; $p < .001$, $r^2 = 0.689$).

In the case of age (Table 5), there are no statistically significant differences between age groups in *Collaboration* ($F = 0.77$; $df = 2, 2702$; $p = 0.51$). In *Legitimacy*,

there are statistically significant differences by age group, with a small effect size ($F = 6.61$; $df = 3, 2663$; $p < .001$; $\eta^2 = 0.007$). We observed differences between the 17–25 and 26–40 age groups on the one hand ($t = 4.27$; $p_{Scheff\acute{e}} < .001$) and the 41–55 age group on the other ($t = 3.84$; $p_{Scheff\acute{e}} < .001$). Participants aged 17–25 report a better perception of *Legitimacy* than the others. In the case of *Leadership*, there are no statistically significant differences between age groups ($F = 0.41$; $df = 3, 2739$; $p = 0.75$).

Regarding gender (Table 5), we can observe statistically significant differences in the perception of *Collaboration* ($U_{Mann-Whitney} = 687151.0$, $p < .001$), *Legitimacy* ($U_{Mann-Whitney} = 677886.0$, $p < .001$), and *Leadership* ($U_{Mann-Whitney} = 710828.0$, $p < .001$), all of which are greater in men.

TABLE 5

MEAN AND STANDARD DEVIATION OF COLLABORATION, LEGITIMACY AND LEADERSHIP BY AGE GROUPS AND BY GENDER

Sociodemographic variables	Collaboration		Legitimacy		Leadership	
	<i>n</i>	$\bar{x}$ (SD)	<i>n</i>	$\bar{x}$ (SD)	<i>n</i>	$\bar{x}$ (SD)
Age						
17–25 years	331	3.54 (0.66)	320	3.33 (0.64)	331	3.40 (0.69)
26–40 years	1448	3.60 (0.67)	1430	3.14 (0.70)	1475	3.40 (0.74)
41–55 years	778	3.60 (0.68)	769	3.15 (0.67)	788	3.42 (0.75)
> 55 years	149	3.62 (0.74)	148	3.22 (0.72)	149	3.45 (0.79)
Gender						
Male	585	6.92 (0.67)	578	3.30 (0.72)	598	3.51 (0.77)
Female	2123	3.57 (0.67)	2091	3.14 (0.68)	2147	3.38 (0.73)

Source: Prepared by the authors

Table 6 shows the descriptive data by position in the network, the sector that the network is part of, and the working sphere of the respondents. Regarding the position, in *Collaboration* there are statistically significant differences ($F = 55.90$; $df = 2, 2705$; $p < .001$; $\eta^2 = 0.04$). We observe differences between leaders and grassroots members ($t = 8.10$; $p_{Scheff\acute{e}} < .001$) and between grassroots members and coordinators ($t = 8.34$; $p_{Scheff\acute{e}} < .001$), with technical coordinators having the highest perception of *Collaboration*, followed by the leaders. As for *Legitimacy*, there are also statistically significant differences ($F = 5.31$; $df = 2, 2666$; $p = .005$; $\eta^2 = 0.004$), with leaders perceiving greater *Legitimacy* than the grassroots members ($t = 3.10$; $p_{Scheff\acute{e}} = .004$). In *Leadership*, there are statistically significant differences ($F = 36.65$; $df = 2, 2742$; $p < .001$; $\eta^2 = 0.026$) between the perception of the leaders and of the grassroots members of the network ($t = 7.06$; $p_{Scheff\acute{e}} < .001$) and between grassroots

members and coordinators ($t = 6.22$; $p_{Scheffé} = .004$). The perception of *Leadership* is greater among people in leadership positions, followed by coordinators and then grassroots members.

TABLE 6
MEAN AND STANDARD DEVIATION OF COLLABORATION, LEGITIMACY AND LEADERSHIP BY
POSITION IN THE NETWORK, SECTOR AND SPHERE

Network variables	Collaboration		Legitimacy		Leadership	
	<i>n</i>	$\bar{x}$ (SD)	<i>n</i>	$\bar{x}$ (SD)	<i>n</i>	$\bar{x}$ (SD)
Position in the network						
Leader	685	3.74 (0.70)	668	3.24 (0.76)	696	3.55 (0.81)
Team coordinator	1709	3.49 (0.65)	1694	3.14 (0.67)	1733	3.316 (0.71)
Member	314	3.83 (0.67)	307	3.19 (0.68)	316	3.595 (0.71)
Sector of the network						
Private sector	776	3.57 (0.65)	755	3.15 (0.66)	777	3.38 (0.72)
Public sector	653	3.65 (0.69)	658	3.27 (0.69)	670	3.45 (0.76)
Third or philanthropic sector	1162	3.59 (0.68)	1139	3.11 (0.72)	1181	3.41 (0.75)
Volunteer	117	3.44 (0.63)	117	3.34 (0.60)	117	3.34 (0.66)
Sphere of the network						
Education sector	1294	3.62 (0.66)	1292	3.21 (0.66)	1315	3.40 (0.72)
Social sector	975	3.56 (0.69)	942	3.05 (0.69)	989	3.38 (0.76)
Others	439	3.56 (0.69)	435	3.31 (0.74)	441	3.49 (0.77)

Source: Prepared by the authors

Regarding the sector, in *Collaboration* there are statistically significant differences ($F = 3.92$; $df = 3, 2704$; $p = .008$; $\eta^2 = 0.004$) with a small effect size between participants from the public sector and volunteers ($t = 3.15$; $p_{Scheffé} = .009$), with the former having a more positive perception. In *Legitimacy* there are statistically significant differences ($F = 10.21$; $df = 3, 2604$; $p < .001$; $\eta^2 = 0.011$) with professionals from the private sector having a higher perception than those from the public sector ($t = 3.24$; $p_{Scheffé} = .006$), as well as between professionals from the private sector and volunteers ($t = 2.78$; $p_{Scheffé} = .028$), with volunteers giving higher scores. Statistically significant differences were also found between participants from public-sector

institutions and those from the third or philanthropic sector ($t = 4.77$; $p_{Scheffé} < .001$), with the ones from the public sector scoring higher. There are also statistically significant differences in *Legitimacy* with volunteers having a higher perception than professionals from the third or philanthropic sector ($t = 3.47$; $p_{Scheffé} = .003$). Finally, in *Leadership* there are no statistically significant differences ($F = 1.51$; $df = 3, 2741$; $p = .209$).

As for the professional sphere, there are no statistically significant differences in *Collaboration* ($F = 2.39$; $df = 2, 2705$; $p = .09$). In *Legitimacy* there are statistically significant differences ($F = 26.60$; $df = 2, 2666$; $p < .001$; $\eta^2 = 0.02$) with respondents from the education sector having a higher perception than those from the social sector ($t = 5.68$; $p_{Scheffé} < .001$) and other sectors having a higher perception than the education sector ($t = 2.46$; $p_{Scheffé} = .028$). Statistically significant differences were also found between the perception of participants from the social sector and the perceptions of others ($t = 6.56$; $p_{Scheffé} < .001$), with the others giving higher scores. Finally, in *Leadership* there are statistically significant differences ($F = 3.89$; $df = 2, 2742$; $p = .021$; $\eta^2 = 0.003$), albeit with a small effect size, only between the greater perceptions of good *Leadership* from the other sectors compared with the participants from the social sector ($t = 2.77$; $p_{Scheffé} = .016$).

4. DISCUSSION AND CONCLUSIONS

We believe that the proposed objectives of this study have been satisfactorily achieved having followed the current recommendations for constructing and validating scales and cleaning items (Prinsen *et al.*, 2018). The sample of people directly involved in socio-educational action networks was of a sufficient size. The statistical analyses revealed a high correlation between items and the scale as a whole, demonstrating the high construct validity. The results of the factor analyses reveal the existence of three factors (*Collaboration*, *Legitimacy*, and *Leadership*) instead of the seven in the hypothetical design. The confirmatory factor analysis revealed a good fit of the model, complying with the indices proposed by Prinsen *et al.* (2018). The analysis of internal consistency, Cronbach's alpha, and McDonald's omega indicate high reliability.

We must categorically acknowledge that our initial theoretical factors were not confirmed, although the selection of items and their subsequent cleansing have made it possible to identify three factors based on networks theory (MacBeath, 2011; Díaz-Gibson, *et al.*, 2013; Clayton, 2016; Kallio & Halverson, 2020; Longás, *et al.*, 2020). It may be that the hypotheses underlying the starting construct could not be confirmed in the psychometric analysis as they respond to different planes, one of a structural and managerial type (transversal composition, horizontality) and others closer to axiomatic principles (joint responsibility, trust and innovation). The factors of transversality in the networks and horizontality in their organization did not display consistency, although a good number of their items appear within the

Collaboration, *Legitimacy*, and *Leadership* factors. We understand that these are hard to isolate and so a level of interdependence is found between these determinants, which could even be constituents of the network as an organizational structure. Networks are not possible without the integration of different institutions and without them participating on an equal footing. This factor already presented difficulties in its fitting in Díaz-Gibson, et al. (2014). Regarding trust among members, although this is theoretically justifiable, it can at the same time be a precondition for a good experience of collaboration and the result of it. Equally, innovation (the result of “joint learning” and “joint building”) was not reflected in the analyses, perhaps being more of a long-term effect of collaborative work than a precondition for the network to be a mature or well-established organization. Trust and innovation were also proposed as hypothetical factors in the phase of working with experts in Díaz-Gibson, et al. (2014) and were then dismissed in the psychometric analyses.

With regards to the initial questionnaire by Díaz-Gibson, et al. (2014), a certain principle of parsimony seems to impose itself, reducing the proposal for evaluation of the organizational maturity of the networks to 3 factors that are more consistent and robust thanks to their greater precision and better reliability and validity results. The initial associations between items and factors were derived from consultation of earlier theoretical proposals with little empirical foundation as there was no equivalent research, and they were strongly influenced by the different qualitative works close to grounded theory strategies. The research we have presented also included this process of constructing theory from practice in its first phase. Rather than being a case of overfitting of the model, the smaller number of factors and their new names could be due to the difficulty of precisely delimiting or defining certain factors with too many crossed or ambivalent items. Although indicators of external validity were not used, the good indicators of fit that confirm the internal validity of the questionnaire encourage us to continue with this line of research. The sample size and the possibility of performing a CFA are a notable methodological advance. According to the significance of the items, the 3 factors explain 3 critical dimensions in the management of networks that are well defined and are coherent with the research mentioned below.

The *Collaboration* factor is key from the theoretical perspective, simultaneously resulting from and creating trust, as an expression of the joint responsibility of the members of the network, and closely linked to recognition of transversality given that the innovative element of collaboration is found in the fact that it takes place between people who are part of organizations with different types of ownership and/or differing working spheres (Clayton, 2016; Rincón-Gallardo & Fullan, 2016). Much has been written about intersectoral educational networks and local socio-educational action networks as collaborative working networks (Civís & Longás, 2015; Pino-Yancovic & Ahumada, 2022), recognising in this their value as social innovation.

The perception of *Legitimacy* by members of the network is not considered in depth in the literature, perhaps because of the characteristic idiosyncrasy of intersectoral networks. Most members of these networks are not professionals employed

by the networks and their membership often comes into conflict with the scheduling obligations imposed by the organizations to which each person belongs. Beyond the positive experience of collaboration or the good social relations obtained, the growth and sustainability of networks is directly related to their effectiveness, whether they achieve successful results, their perceived achievements, and so achieving recognition (Longás, et al., 2020).

As for the *Leadership* factor, we believe that it is expressed unequivocally in the corresponding items as they directly question the type of direction and management of the network aimed at making it effective and sustainable, taking into account the needs for integration and harmonization of members with different filiations (Azorín, et al., 2020; Pino-Yancovic & Ahumada, 2022).

The differences by the sociodemographic variables that have been detected provide a first point of reference for future studies, opening up further possibilities for research that take into account the great diversity of members. Differences by gender are revealed in the three factors, with men having stronger perceptions of *Collaboration*, *Legitimacy*, and *Leadership*. We do not have references that enable us to discuss these results and so we can only make hypotheses of differences between men's and women's expectations of networking.

In the case of results divided by age, a lower perception of *Collaboration* and *Legitimacy* is apparent in participants aged between 17 and 25 years. Given the age ranges, it can be assumed that many will be volunteers, a profile that is presumably enthusiastic and demanding in the more social/collaborative dimension, and at the same time likely to recognize value wherever they freely participate.

The higher perception of *Collaboration* and *Leadership* among grassroots members of networks is of interest, contrasting with the leaders' greater perception of the networks' *Legitimacy*. It could be that the experience of or need for collaboration occurs more among the grassroots, and that recognising leadership is more characteristic of the lower level, while the challenges of leadership include ensuring the consolidation and continuity of the network, something reflected in this factor.

Being in the private, public, or third sector does not affect the perception of *Leadership*, which confirms the theoretical consistency of this factor. In contrast, participants from the public sector have a better perception of *Collaboration*, as do professionals from the education sector, with these two groups perhaps being influenced by more individualistic prior experiences than the others.

Given the strong correlation between factors that the additional analyses identify, we believe that this proposal is a step forward in the construction of an integrated model for the organization and leadership of socio-educational networks. Rather than being a forced simplification, the reduced number of factors and items and the degree of reformulation compared to the initial instrument provide better conceptual clarity and, according to the results, improved psychometric reliability. The validated questionnaire is easy to apply and can help guide management because it focusses its outlook on applied and more tangible concepts than previous questionnaires did. We conclude that

the CERS is valid and reliable and offers valuable input for evaluating socio-educational action networks, expanding research that supports their development, and constructing a theory to promote their effective implementation. The instrument can be freely used and we expect it will support the monitoring and progressive development of local networks since the results it provides can help with evidence-based decision making.

This work's main limitation is the lack of a gold-standard instrument with which correlations with CERS can be established. The sample for the factor analyses is large. The networks are all from the same model of local networks (the model that CaixaProinfancia has been promoting since 2016) and while they all have the same purpose, there are also large differences between them as they are from different autonomous regions and cities with different educational and social action policies, distinct professional cultures, and large differences in the fabric of associations and cultures of participation. Although we have no doubt about its validity, further applications of the instrument would be advisable, both using different samples and in longitudinal studies, in order to confirm our contribution.

REFERENCES

- Alonso, I., Martínez, B., & Darretxe, L. (2023). Inclusión socioeducativa de la infancia, innovación e investigación participativa. *Profesorado, Revista de Currículum y Formación del Profesorado*, 27(1), Artículo 1. <https://doi.org/10.30827/profesorado.v27i1.18375>
- Azorín, C. (2019). The emergence of professional learning networks in Spain. *Journal of Professional Capital and Community*, 4(1), 36-51. <https://doi.org/10.1108/JPC-03-2018-0012>
- Azorín, C., Harris, A., & Jones, M. (2020). Taking a distributed perspective on leading professional learning networks. *School Leadership y Management*, 40(2-3), 111-127. <https://doi.org/10.1080/13632434.2019.1647418>
- Azorín, C., & Muijs, D. (2017). Networks and collaboration in Spanish education policy. *Educational Research*, 59(3), 1-24. <https://doi.org/10.1080/00131881.2017.1341817>
- Boateng, G.O., Neilands, T.B., Frongillo, E.A., Melgar-Quinonez, H.R., & Young, S.L. (2018). Best practices for developing and validating scales for health, social, and behavioral research: A primer. *Frontiers in public health*, 6. <https://doi.org/10.3389/fpubh.2018.00149>
- Brown, C., & Flood, J. (2020). Conquering the Professional Learning Network labyrinth: What is required from the networked school leader if schools are to benefit from engaging in Professional Learning Networks. *School leadership and management.*, 40(2-3), <https://doi.org/10.1080/13632434.2020.1731684>
- Campbell, C., Osmond-Jonhson, P., Faubert, B., Zeichner, K., Hobbs-Jonhson, A., Brown, S., DaCosta, P., Hales, A., Kuehn, L., Sohn, J., & Steffensen, K. (2017). *The State of Educators' Professional Learning in Canada*. Learning Forward. <https://learningforward.org/wp-content/uploads/2017/08/state-of-educators-professional-learning-in-canada.pdf>
- Cañete-Massé, C., Cussó-Parcerisas, I., Longás, J. y Riera, J. (2023). *Informe de Evaluación del Programa CaixaProinfancia. Anàlisi d'incidència, vulnerabilitat i èxit educatiu, 2021-22*. Fundació la Caixa. <https://fundacionlacaixa.org/documents/d/guest/analisis-incidencia-vulnerabilidad-exito-educativo-2021-2022-pdf>

- Civís, M. y Longás, J. (2015). La colaboración interinstitucional como respuesta al desafío de la inclusión socioeducativa. Análisis de 4 experiencias de trabajo en red a nivel local en Cataluña. *Educación XXI*, 18(1), <https://doi.org/10.5944/educxx1.18.1.12318>
- Clayton, R. (2016). *Building Innovation Ecosystems in Education to Reinvent School A study of innovation and system change in the USA*. Winston Churchill Memorial Trust.
- Cos, M., Civís, M., & Díaz-Gibson, J. (2023). Validación del modelo secuencial de la herramienta Schoolweavers para transformar ecosistemas educativos. *Revista de Educación a Distancia* (Red), 23(74). <https://revistas.um.es/red/article/view/545191>
- Curcic, S., Gabel, S., Zeitlin, V., Cribaro-difatta, S., & Glarner, C. (2011). Policy and Challenges of Building Schools as Inclusive Communities. *International Journal of Inclusive Education*, 15. <https://doi.org/10.1080/13603116.2010.496206>
- Cussó-Parcerisas, I., Rodríguez-García, E., Longás, J. y Riera, J. (2024). *Informe de Evaluación del Programa CaixaProinfancia. Anàlisi d'incidència, vulnerabilitat i èxit educatiu, 2022-23*. Fundació la Caixa. <https://fundacionlacaixa.org/documents/d/guest/impacto-caixaproinfancia-2022-2023-pdf>
- Daly, A. (2010). *Social Network Theory and Educational Change*. Harvard University Press.
- de Lima, J. (2007). Redes na educação: Questões políticas e conceituais. *Revista Portuguesa de Educação*, 20(2), 151-181.
- Díaz-Gibson, J., Civís, M. y Longás, J. (2013). La gobernanza de redes socioeducativas: Claves para una gestión exitosa. *Teoría de la Educación. Revista Interuniversitaria*, 25(2), 213-230. <https://doi.org/10.14201/11584>
- Díaz-Gibson, J., Civís-Zaragoza, M. & Guàrdia-Olmos, J. (2014). Strengthening education through collaborative networks: leading the cultural change. *School Leadership and Management*, 34(2), 179-200. <https://doi.org/10.1080/13632434.2013.856296>
- Díaz-Gibson, J., Daly, A., Balslev, G., Civís, M., & Liou, Y.H. (2020). The SchoolWeavers Tool: Supporting school leaders to weave learning ecosystems. *School Leadership and Management*, 41. <https://doi.org/10.1080/13632434.2020.1770210>
- Díaz-Gibson, J., Zaragoza, M., Daly, A., Longás, J. & Riera, J. (2017). Networked leadership in Educational Collaborative Networks. *Educational Management Administration y Leadership*, 45(6), 1040-1059. <https://doi.org/10.1177/1741143216628532>
- Díaz-Gibson, J., Whittaker, R., Civís, M., Fagerström, P., Addae-Bohane, A., Kudzi, A., Lerena, M. & Jelenjev, A. (2023). Learning Ecosystems Trilogy: Weaving our relational capacity for flourishing futures. Report 1: An Evolutionary Framework for Flourishing Learning Ecosystems. *NetEduProject, Jacobs Foundation, UNESCO*. <https://hdl.handle.net/20.500.14342/3599>
- Gairín, J., Rodríguez-Gómez, D., & Muñoz, J. L. (2012). Evaluar el funcionamiento de una red. La red de apoyo a la gestión educativa, REDAGE. *Revista Iberoamericana de Educación*, 58(3), 1-12. <https://doi.org/10.53362/rie5831439>
- García, M., González, I., & Mérida, R. (2012). Validación del cuestionario de evaluación ACOES. Análisis del trabajo cooperativo en educación superior. *Revista de Investigación Educativa*, 30(1), 87-109. <https://doi.org/10.6018/rie.30.1.114091>
- Godfrey, D. & Brown, C. (Eds.). (2019). *An Ecosystem for Research -Engaged Schools: Reforming Education Through Research*. Routledge.

- González, C.F. (2023). *Diseño y validación exploratoria de un modelo de evaluación de desarrollo comunitario a partir de la Teoría de Posicionamiento Social de Pierre Bourdieu*. Tesis doctoral. <https://tesisenred.net/handle/10803/689735?show=full>
- Harris, A. & Jones, M.S. (2017). Professional Learning Communities: A Strategy for School and System Improvement? *Wales Journal of Education*, 19(1), Article 1. <https://doi.org/10.16922/wje.19.1.2>
- Hu, L., & Bentler, P.M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling: A Multidisciplinary Journal*, 6(1), 1–55. <https://doi.org/10.1080/10705519909540118>
- Kallio, J., & Halverson, R. (2020). Designing for Trust-building Interactions in the Initiation of a Networked Improvement Community. *Frontiers in Education*, 4(2), 154. <https://doi.org/10.3389/feduc.2019.00154>
- Longás, J., de Querol, R., Ciraso, A., Riera, J. y Úcar, X. (2018). Redes de acción socioeducativa contra la pobreza infantil. Evaluación de la percepción de impacto del programa CaixaProinfancia. *Revista de Estudios y Experiencias en Educación*. Número Especial No 2, febrero 2018, pp. 111-128.
- Longás, J., & Civís, M. (2019). Xarxes de coresponsabilitat socioeducativa: Un nou repte per a la governança del Sistema Educatiu. En *Anuari Educació a Catalunya 2018*. Fundació Jaume Bofill.
- Longás, J. y Riera, J. (2016). Resultados del observatorio transición escuela-trabajo y monitoreo de la red socioeducativa de Sant Vicenç dels Horts para el éxito escolar y el empoderamiento de los jóvenes. *Bordón*, 68(4), 103-120. <https://doi.org/10.13042/Bordon.2016.48837>
- Longás, J., Riera, J. & de Querol, R. (2020). Management and leadership of networks for educational success: Analysis of emerging networks in Spain. *School Leadership y Management*, 40(2-3), 183-202. <https://doi.org/10.1080/13632434.2019.1692197>
- Longás, J., Riera, J. y Civís, M. (2016). Asesoramiento al programa CaixaProinfancia: evaluación del cambio hacia un modelo de acción socioeducativa. *Pedagogía social. Revista interuniversitaria*, 28, 85-98. https://doi.org/10.7179/PSRI_2016.28.07
- López Martínez, A., Ordóñez Sierra, R., Hernández de la Torre, E., & Navarro Montaña, M. J. (2013). Funcionamiento de las redes educativas de centros escolares: desarrollo de un trabajo colaborativo. *Revista Española de Orientación y Psicopedagogía*, 24(1), 25–41. <https://doi.org/10.5944/reop.vol.24.num.1.2013.11268Dialnet>
- MacBeath, J. (2011). *Liderar el aprendizaje dentro y fuera de la escuela*. Centro de Innovación en Educación de Fundación Chile.
- Martínez-Abad, F., & Rodríguez-Conde, M. J. (2017). Comportamiento de las correlaciones producto-momento y tetracórica-policórica en escalas ordinales: un estudio de simulación. *RELIEVE - Revista Electrónica de Investigación y Evaluación Educativa*, 23(2). <https://doi.org/10.7203/relieve.23.2.9476>
- Martínez-Venegas, L., Gaytán Lugo, L. S., & Hastie, C. R. (2023). Adaptación y validación de rúbrica para trabajo en equipo en aprendizaje colaborativo. *IE Revista de Investigación Educativa de la REDIECH*, 14, e1870. https://doi.org/10.33010/ie_rie_rediech.v14i0.1870amexcomp.mx+1Rediech+1

- Moolenaar, N. M., Slegers, S., Karsten, S., & Zijlstra, B.K.H. (2009). A social capital perspective on professional learning communities: Linking social networks and trust. En *Annual Meeting of the American Educational Research Association (AERA)* (pp. 13-17).
- Muijs, D. (2015). Improving schools through collaboration: A mixed methods study of school-to-school partnerships in the primary sector. *Oxford Review of Education*, 41(5), 563-586. <https://doi.org/10.1080/03054985.2015.1047824>
- OECD. (2020). *TALIS 2018 Results (Volume II): Teachers and School Leaders as Valued Professionals* (TALIS). OECD Publishing. <https://doi.org/10.1787/19cf08df-en>
- Pino-Yankovic y Ahumada, L. (2022). La indagación colaborativa. Una metodología para desarrollar aprendizajes en red. *Perfiles educativos*, XLIV(175), Enero-Marzo, 62-78. <https://doi.org/10.22201/iissue.24486167e.2022.175.60049>
- Prinsen, C.A.C., Mokkink, L.B., Bouter, L.M., Alonso, J., Patrick, D.L., de Vet, H.C.W., & Terwee, C.B. (2018). COSMIN guideline for systematic reviews of patient-reported outcome measures. *Quality of Life Research: An International Journal of Quality of Life Aspects of Treatment, Care and Rehabilitation*, 27(5), 1147-1157. <https://doi.org/10.1007/s11136-018-1798-3>
- Rincón-Gallardo, S., & Fullan, M. (2016). Essential features of effective networks in education. *Journal of Professional Capital and Community*, 1(1), 5-22. <https://doi.org/10.1108/JPCC-09-2015-0007>
- Román, M., & Murillo, F.J. (2010). Introducción. Cambio y mejora escolar. *Revista Iberoamericana de Educación*, 54, 15-22. <https://rieoei.org/RIE/article/view/538>
- Rosseel, Y. (2012). lavaan: An R Package for Structural Equation Modeling. *Journal of Statistical Software*, 48(2), 1-36. <https://doi.org/10.18637/jss.v048.i02>
- Singh, S.K., & Eggers, B. (2009). *The Public Innovator's Playbook: Nurturing bold ideas in government*. Ash Institute.
- Sørensen, E., & Torfing, J. (2011). Enhancing Collaborative Innovation in the Public Sector. *Administration y Society*, 43(8), 842-868. <https://doi.org/10.1177/0095399711418768>
- Torres-Hernández, N., & Gallego-Arrufat, M. J. (2022). Evaluación del trabajo en equipo en Educación Primaria. Estudio en España y México. *Revista Educación*, 46(1), 188-204. <https://doi.org/10.15517/revedu.v46i1.44258Digibug+1ORCID+1>
- UNESCO. (2015). *Rethinking Education. Towards a global common good?* UNESCO Publishing. <https://unevoc.unesco.org/e-forum/RethinkingEducation.pdf>
- UNESCO. (2020). *Education in a post-COVID world: Nine ideas for public action*. <https://www.unesco.org/en/articles/education-post-covid-world-nine-ideas-public-action>
- Zangara, M. A., & Sanz, C. (2020). Trabajo colaborativo mediado por tecnología informática en espacios educativos: Metodología de seguimiento y su validación. *Revista Iberoamericana de Tecnología en Educación y Educación en Tecnología*, (25), 8-20. <https://doi.org/10.24215/18509959.25.e01>