

## Design and Validation of an Instrument to Assess Social and Civic Competencies in Secondary School Students

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**Citation:** Jenkins, A. I. S., & Torres-Zapata, Ángel E. (2025). Design and Validation of an Instrument to Assess Social and Civic Competencies in Secondary School Students. *Journal of Cultural Analysis and Social Change*, 10(3), 392–399. <https://doi.org/10.64753/jcasc.v10i3.2423>

**Published:** November 26, 2025

### ABSTRACT

This study aimed to design and validate an instrument to assess teachers' perceptions of the development of social and civic competencies in secondary school students. A quantitative methodology based on expert judgment was used. Seven education specialists with more than five years of experience in teaching, research, or educational consulting participated. Knowledge (K<sub>c</sub>), argumentation (K<sub>a</sub>), and expert competence (K) coefficients were calculated, obtaining values above 0.8 in all cases, confirming the robustness of the validation process. The results demonstrated high internal consistency of the questionnaire, with an overall Cronbach's alpha of 0.954, indicating excellent reliability. The criteria of coherence, clarity, scale, and relevance achieved Cronbach's alpha values above 0.94, demonstrating the relevance and comprehensibility of the items. Furthermore, item-total correlations ranged from 0.744 to 0.979, reflecting the adequate integration of the instrument's elements. In conclusion, the validated instrument demonstrated high validity and reliability, allowing for the accurate assessment of social and civic competencies. Its versatile application across different subjects makes it a useful tool for identifying areas for improvement and strengthening students' comprehensive education, providing a solid foundation for future research in the field of education.

**Keywords:** Social Competencies, Civic Competencies, Instrument Validation, Teacher Perception

### INTRODUCTION

School, as a fundamental platform for the teaching-learning process, has acquired a central role in the comprehensive education of new generations. This educational space, traditionally complementary to the family environment, has progressively assumed the mission of transmitting the values, knowledge, and skills necessary for social and democratic life (Cedeño & Torres-Zapata, 2024). In Costa Rica, the State has reaffirmed this commitment through educational policies that guarantee the right to education and its public funding, recognizing it as a pillar of national development (OECD, 2017). In this sense, the Political Constitution establishes in Article 78 that "preschool, basic general education, and diversified education are compulsory and, in the public system, free and funded by the Nation" (Legislative Assembly of Costa Rica, 2011; Chavarría-Mora et al. 2025), which demonstrates the importance of universal access to quality education.

The Costa Rican education system is based on the Fundamental Education Law of 1957, whose Article 2 defines the essential purposes of education as the formation of citizens aware of their duties and rights, committed to democracy, solidarity, and respect for human dignity (Jiménez, 2023). These purposes are realized in the pursuit of a comprehensive education that fosters both the cognitive and socio-emotional and civic competencies necessary for the exercise of active citizenship. The Ministry of Public Education (MEP) in Costa Rica, through the "Ethics, Aesthetics, and Citizenship" project, implemented since 2009, has promoted the consolidation of these

values through the Civic Education curriculum (Barrón & Rodríguez, 2017; Chavarría-Mora et al., 2025). In 2019, Arce noted that this approach seeks to offer students active, comprehensive, and contextualized civic education, which entails the development of cognitive, formative, and attitudinal competencies geared toward the responsible exercise of citizenship.

The Civic Education Program for the Third Cycle and Diversified Education recognizes that education constitutes an essential process for life and coexistence and emphasizes the importance of fostering social and civic competencies as the foundation of a democratic society. These competencies include knowledge, attitudes, and practices aimed at developing active citizenship in both youth and adults and strengthening social and political coexistence. From this perspective, pedagogical strategies must be dynamic, participatory, and democratic, promoting reflection, dialogue, and collaboration among students (Agüero, 2016).

In line with the curricular transformation policies promoted by the Ministry of Education (MEP), education is conceived as a process that must respond to the challenges of the 21st century, marked by globalization, cultural diversity, and the intensive use of digital technologies (Chavarría-Mora et al., 2025). The document "Educating for a New Citizenship" highlights the importance of training individuals capable of thinking globally and acting locally, strengthening global citizenship without losing their sense of national identity. This perspective emphasizes the need to articulate social and civic competencies with digital competencies in educational practice, as an essential requirement for participation in an interconnected society (Navarro-Medina et al., 2022; Rivera et al., 2023).

Several authors agree in highlighting the importance of these competencies in the comprehensive education of students. Vallejos et al. (2022) affirms that schools have the responsibility to educate critical and participatory citizens, capable of understanding and responding to both local and global challenges. For their part, Cedeño and Torres-Zapata (2024) point out that the proper use of technologies and digital media represents a key competency for communication and citizen participation. Along the same lines, Molina et al. (2023) emphasize that digital literacy is a fundamental requirement for exercising active and engaged citizenship in contemporary democracies. Consequently, promoting social and civic competencies within the educational sphere requires strengthening students' communicative, empathetic, and ethical skills, considered essential pillars of learning for coexistence and democratic life (López-Meseguer & Mínguez-Vallejos, 2024).

However, although Costa Rica has made a commitment to a comprehensive education focused on the development of these competencies, empirical studies that assess their level of development in different educational contexts are still scarce. It is essential to understand the perceptions of teachers, both those who teach Civic Education and those who do not, regarding the level of development of these competencies in their students. The teacher's perspective is key, as their pedagogical experience and daily contact with students offer valuable insights into the effectiveness of the educational process.

Validation of an assessment instrument through expert judgment ensures that it complies with the principles of objectivity, validity, and reliability. Objectivity guarantees that the results are not influenced by evaluator bias; content validity, assessed by experts, confirms that the instrument adequately measures the variable of interest; and reliability ensures that the results are consistent when administered on different occasions. The participation of qualified specialists is essential to ensure that the instrument accurately captures the evidence of learning or competencies to be assessed (Rodríguez et al., 2021).

In this context, the present study was developed, with the aim of designing and validating a questionnaire for secondary school teachers to assess their perceptions of the level of development of social and civic competencies in students. This will contribute to the development of a reliable diagnostic tool that will strengthen research and educational practice in the field of citizenship education.

## RESEARCH METHOD

This study used a quantitative and descriptive approach, aiming to design and validate an instrument to assess teachers' perceptions of the development of social and civic competencies in secondary school students. The research focused on constructing a structured questionnaire, which included specific items designed to capture teachers' perceptions of the different components of social and civic competencies, both among teachers who teach Civics and among those who do not.

### Instrument Design

The teacher questionnaire was developed based on the reviewed conceptual and regulatory frameworks, considering the guidelines of the Ministry of Public Education (Ministry of Public Education & National Commission of Costa Rica for UNESCO, 2014) and background on civic education and social competencies (Arce, 2019; Arce et al. 2025). The instrument includes two questionnaires: the first, titled "Perception of the Development of Social and Civic Competencies," with 34 items organized into three dimensions: coexistence, knowledge of social reality, and citizen participation; the second, titled "Use of Assessment Methodologies and

Techniques for Learning Social and Civic Competencies," with 20 items, distributed into 10 items on active methodologies and 10 items on assessment, allowing us to understand the pedagogical strategies applied and teachers' perceptions of their effectiveness. All items use a 5-point Likert-type scale, from "Never" to "Always," to assess the frequency of observation or the degree of agreement with the statements.

### Validation of the Instrument

The questionnaire was validated in two phases. The first involved assessing content validity using the expert judgment technique (Cabero and Barroso, 2013). Seven education experts with more than five years of experience and knowledge of social and civic competencies were selected. The experts' competency was assessed using the Expert Competence Coefficient (K), which combines the Knowledge Coefficient (Kc), based on the expert's self-assessment, and the Argumentation Coefficient (Ka), which reflects the basis of their criteria. All experts obtained  $K \geq 0.8$ , indicating high influence and ensuring the robustness of the instrument's validation.

The second stage consisted of assessing the questionnaire's internal reliability using Cronbach's alpha coefficient, which was used to determine item consistency and make the necessary adjustments to ensure the instrument's reliability in its final administration. This coefficient allowed for verification of the scale's unidimensionality and the coherence between its components, establishing that values between 0.70 and 0.90 indicate adequate internal consistency and support the validity of the construct measured.

### Procedure

The questionnaire administration process followed standardized steps to ensure the validity of the collected data. First, the selected teachers were contacted and explained the purpose of the study, ensuring confidentiality and the ethical use of the information. The questionnaire was subsequently administered in person or virtually, depending on the participants' availability. Finally, the data obtained were organized and analyzed using SPSS statistical software, allowing reliability calculations and generating the results that support the instrument's validation.

## RESULTS

To ensure the content validity of the questionnaire for teachers, the expert judgment technique (Cabero and Barroso, 2013) was applied, selecting a total of seven education specialists with more than five years of experience in teaching, research, or educational consulting. The experts conducted a self-assessment of their knowledge of social and civic competencies, active methodologies, and assessment, using a scale of 0 to 10.

The selection of experts considered criteria such as experience in educational research, academic training related to the assessment of social competencies, recent publications in the field, and knowledge of educational measurement instruments (Table 1).

**Table 1.** Characteristics of the selected expert judges.

Judge	Academic Degree	Experience (Years)	Area of Specialization	Recent Publications
1	Master's in Education	8	Educational Assessment	3
2	Ph.D. in Educational Psychology	12	Social Competencies	5
3	Master's in Pedagogy	10	Curriculum Development	4
4	Ph.D. in Education	15	Learning Assessment	6
5	Master's in Psychopedagogy	9	Civic Competencies	2
6	Ph.D. in Education	14	Educational Innovation	7
7	Master's in Educational Psychology	11	Social and Educational Development	3

The knowledge coefficient (Kc) was calculated from the experts' self-assessment. All obtained a  $Kc \geq 0.8$ , indicating a high level of knowledge.

**Table 2.** Knowledge Coefficient (Kc) by Expert.

Expert	Self-assessment (0-10)	Kc
E1	9	0.9
E2	8	0.8
E3	10	1.0
E4	9	0.9
E5	8	0.8

E6	8	0.8
E7	10	1.0

Average  $K_c = 0.885$ , standard deviation = 0.899. This indicates high homogeneity in the experts' knowledge.

The level of knowledge of each expert was categorized into Low, Medium and High considering: theoretical analysis, practical experience, national and foreign studies, own knowledge of the state of the problem and intuition on the subject (Table 3).

**Table 3.** Distribution of Knowledge Level by Source of Information (%).

Source of Knowledge	Low f (%)	Medium f (%)	High f (%)
Theoretical analysis	0 (0%)	2 (28.6%)	5 (71.4%)
Practical experience	0 (0%)	1 (14.3%)	6 (85.7%)
National studies	1 (14.3%)	3 (42.9%)	3 (42.9%)
International studies	0 (0%)	2 (28.6%)	5 (71.4%)
Personal knowledge of the problem	0 (0%)	4 (57.1%)	3 (42.9%)
Intuition on the topic	0 (0%)	3 (42.9%)	4 (57.1%)

Source: Own elaboration.

The argumentation coefficient ( $K_a$ ) represents the basis on which each expert bases their criteria. Preset values were assigned according to the influence of each source (High = 0.3–0.5; Medium = 0.2–0.4; Low = 0.05–0.2). The results are shown in Table 4.

**Table 4.** Values of Argumentation Sources and  $K_a$  Coefficient.

Expert	Fa1	Fa2	Fa3	Fa4	Fa5	Fa6	Ka
E1	0.2	0.5	0.05	0.05	0.05	0.05	0.9
E2	0.3	0.5	0.05	0.05	0.05	0.05	1.0
E3	0.3	0.5	0.05	0.05	0.05	0.05	1.0
E4	0.3	0.4	0.05	0.05	0.05	0.05	0.9
E5	0.3	0.5	0.05	0.05	0.05	0.05	1.0
E6	0.2	0.5	0.05	0.05	0.05	0.05	0.9
E7	0.3	0.5	0.05	0.05	0.05	0.05	1.0

Source: Own elaboration.

Combining the knowledge ( $K_c$ ) and argumentation ( $K_a$ ) coefficients yields the expert competence ( $K$ ) coefficient, which determines each expert's level of influence in the validation process (Table 5). The results show that the seven experts evaluated had a high level of influence ( $K > 0.8 \leq 1$ ), while no experts were found to have medium ( $K \geq 0.7 \leq 0.8$ ) or low ( $K \geq 0.5 \leq 0.7$ ) influence.

**Table 5.** Expert Competence Coefficient ( $K$ ).

Expert	$K_c$	$K_a$	$K$
E1	0.9	0.9	0.9
E2	0.8	1.0	0.9
E3	1.0	1.0	1.0
E4	0.9	0.9	0.9
E5	0.8	1.0	0.9
E6	0.8	0.9	0.85
E7	1.0	1.0	1.0

Source: Own elaboration.

According to the previous results of the first phase, it is observed that all experts present a high level of competence and substantiation of criteria, which ensures the solidity of the questionnaire validation.

To ensure the validity and reliability of the questionnaires administered to teachers on the development of social and civic competencies, four criteria were evaluated: coherence, which analyzes the internal consistency of the items with respect to the measurement objectives; clarity, which refers to the teachers' comprehensibility of the statements; scale, which verifies the internal consistency of the responses using the Likert scale; and relevance, which evaluates the appropriateness of the items for measuring social and civic competencies. The sample consisted of seven teachers, and all questionnaires were valid, with no cases excluding (Table 6).

**Table 6.** Valid and Excluded Cases of the Questionnaire Applied to Teachers.

Cases	N	%
Valid	7	100
Excluded	0	0
Total	7	100

Source: Own elaboration.

Cronbach's alpha was used to measure the internal consistency of each criterion, along with the variance per item, which allows the construct validity to be assessed (Table 7).

**Table 7.** Reliability and Variance Results by Criterion.

Criterion	No. of Items	Cronbach's Alpha	Total Variance	Observations
Coherence	20	0.952	64.33–70.14	All items contribute to internal coherence.
Clarity	20	0.948	56.62–67.48	Items are understandable and consistent with each other.
Scale	20	0.954	56.62–70.14	Likert scale from 1 to 5, consistent across the sample.
Relevance	20	0.945	48.62–53.48	Items are relevant for measuring social and civic competencies.

Source: Own elaboration.

The results show that all items present high item-total correlations (0.744–0.979), reflecting the internal consistency of the questionnaire. The means and variances indicate that the statements were consistently understood by the teachers, while a Cronbach's alpha of 0.954 confirms the reliability and stability of the scale. Furthermore, the relevance of the items is supported by a Cronbach's alpha of 0.945 and item-total correlations between 0.867 and 0.978, demonstrating that they contribute significantly to the instrument's objective.

## DISCUSSION

The validation and design of an instrument consist of ensuring its reliability and consistency by analyzing criteria such as item clarity, coherence, scale, and relevance, as well as assessing variance and calculating Cronbach's alpha. This process ensures that the items are understandable, relevant, and properly integrated, allowing for consistent, stable, and replicable data (García et al. 2017).

Content validity allows us to verify that an instrument adequately and consistently measures the competencies and dimensions it seeks to assess. This process seeks to ensure that the items represent a comprehensive education focused on knowing how to be, knowing how to live, knowing how to do, and knowing how to know, incorporating cognitive, emotional, and social components. This ensures that the assessment is relevant, ethical, and consistent with educational purposes focused on human development and equity (Yepes et al. 2023). In this study, the expert judgment technique was used, selecting seven specialists with extensive experience in education and social and civic competencies. The high score obtained on the Expert Competence Coefficient ( $K \geq 0.8$ ) supports the robustness of the validation process. This approach is consistent with previous research highlighting the importance of expert validation to ensure the relevance and representativeness of the questionnaire items (García et al. 2017).

The reliability of the instrument is essential to guarantee its effectiveness, as it ensures that the results are consistent and stable over time, accurately reflecting the variables evaluated. This attribute allows for obtaining consistent data and minimizing errors, strengthening the validity and confidence in the research findings (Ramírez-Pérez et al., 2022). Cronbach's alpha coefficient obtained (0.954) indicates excellent internal consistency, suggesting that the questionnaire items are coherent and reliably measure the proposed dimensions. Similar studies have reported Cronbach's alpha values in similar ranges, reinforcing the robustness of the instrument in educational contexts (Bielba et al., 2016).

The validity of an instrument depends largely on the clarity and relevance of its items, ensuring that each question is easily understandable and directly related to the construct being measured. Clarity avoids confusion and allows responses to accurately reflect participants' knowledge or perceptions, while item relevance ensures that each element contributes significantly to the instrument's objectives, strengthening content validity and the consistency of the results obtained (Gutiérrez-Martínez et al. 2024). The results obtained for the criteria of coherence, clarity, scale, and relevance, with Cronbach's alpha values above 0.94, indicate that the items are relevant and understandable for teachers. Previous research has emphasized the importance of clarity in assessment instruments to ensure accurate and useful responses (Secretaría de Educación Pública del Estado de Campeche, 2022).

The versatility of assessment instruments makes the information obtained useful and reliable in different educational contexts. Their flexible application facilitates the collection of data on students' knowledge, skills, and competencies, aligning them with teaching strategies, learning objectives, and individual characteristics. The variety of techniques and instruments makes it possible to assess various dimensions of learning and use them in formative, summative, or diagnostic assessments, ensuring accurate interpretations and informed pedagogical decisions that contribute to improving the quality of education (Medina-Díaz et al. 2020). The designed questionnaire has proven effective for both civic education teachers and those who do not teach this subject, which broadens its applicability. Previous studies have highlighted the need for flexible instruments that can be adapted to various educational contexts to effectively assess social and civic competencies (Aguirre, 2022).

Strengthening social and civic competencies is essential for students' comprehensive development. The validated instrument provides a diagnostic tool that allows for identifying areas for improvement in the development of these competencies, facilitating the implementation of appropriate pedagogical strategies. Previous research has underscored the importance of assessing and promoting these competencies to foster active and responsible citizenship (Arce, 2019).

The study presents strengths that support its methodological soundness and the reliability of its results. Content validation through expert judgment ensured the relevance and representativeness of the items, while a high Cronbach's alpha confirms its internal consistency. The clarity and relevance assessment guaranteed that the items were understandable and directly related to the construct, and the instrument's versatility allows for its application in different educational contexts.

Despite the strengths of this study, it is necessary to acknowledge certain limitations that offer opportunities for future research. First, the number of experts consulted was seven, which is adequate for initial validation, although increasing this sample could strengthen the representativeness of expert judgment in subsequent studies. Furthermore, the instrument has not yet been applied in different cultural and educational contexts, which restricts the generalization of the results; future research could replicate the validation in diverse populations to broaden its applicability. A construct validity analysis using advanced statistical techniques was not performed, nor was the questionnaire's temporal stability (test-retest reliability) assessed. These aspects would allow for a more in-depth understanding of the instrument's dimensional structure and ensure consistency of results over time. These limitations do not compromise the robustness of the initial validation but rather point to areas for improvement that will strengthen the instrument's psychometric evidence in future research.

## CONCLUSION

This study allowed us to design and validate an instrument for assessing teachers' perceptions of social and civic competencies in secondary school students, demonstrating a high level of validity and reliability. The results indicate that the questionnaire presents excellent internal consistency (Cronbach's alpha = 0.954) and adequate coherence between items, accurately reflecting the dimensions of coexistence, knowledge of social reality, and civic participation. The clarity and relevance of the statements ensure the fidelity of the measured construction, while the versatility of the instrument allows its application both to Civic Education teachers and to those who do not teach the subject, expanding its usefulness in diverse educational contexts.

The results confirm that the questionnaire constitutes a rigorous diagnostic tool, capable of guiding the identification of areas for improvement in the development of social and civic competencies, as well as supporting the implementation of effective pedagogical strategies. The evidence obtained supports the instrument's contribution to strengthening students' comprehensive education, promoting active, ethical, and participatory citizenship. Furthermore, it provides a solid scientific basis for future research and the ongoing evaluation of Civic Education programs at the secondary level, contributing to the development of educational policies aimed at strengthening social and civic competencies.

## ACKNOWLEDGMENTS

We extended our sincere gratitude to the supervisors of educational Circuits 01 and 02 in the Alajuela Region for their valuable support and collaboration, which were essential to the completion of this research. We are also deeply grateful for the commitment and dedication of the social studies and civics teachers at the participating institutions, whose daily work with students is the foundation of any educational process. Finally, we are grateful to the 11<sup>th</sup>-grade students from the eight institutions for their enthusiastic participation. We hope that this work will serve as a significant contribution that will help in the future to formulate concrete pedagogical strategies and inputs for the continuous improvement of social and civic skills in the educational system, strengthening the formation of active and responsible citizens.

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