


## Teacher's role in creating inclusive environments Rol del docente en la creación de entornos inclusivos

Marcia Adriana Vera-Rivera

[marciaa.vera@educacion.gob.ec](mailto:marciaa.vera@educacion.gob.ec)


Ministerio de Educación. Zona 4, Distrito 13D02 Manta, Manabí Ecuador

 <https://orcid.org/0009-0006-8574-3955>

María Obdulia Rizzo-Andrade

[maria.rizzo@educacion.gob.ec](mailto:maria.rizzo@educacion.gob.ec)


Ministerio de Educación. Zona 4, Distrito 13D02 Manta, Manabí Ecuador

 <https://orcid.org/0009-0004-3145-8783>

Patricio Francisco Ferrin-Vera

[patricio.ferrin@educacion.gob.ec](mailto:patricio.ferrin@educacion.gob.ec)


Ministerio de Educación. Zona 4, Distrito 13D02 Manta, Manabí Ecuador

 <https://orcid.org/0009-0006-3590-2970>

Hilda Etelvina Zambrano-Figueroa

[etelvina.zambrano@educacion.gob.ec](mailto:etelvina.zambrano@educacion.gob.ec)

Ministerio de Educación, Zona 4, Distrito 23D01, Santo Domingo, Santo domingo de los Tsáchilas, Ecuador

 <https://orcid.org/0000-0001-7023-2374>

### ABSTRACT

Inclusive education is an essential educational pillar. The research objective is to analyse the role of the teacher in the creation of inclusive environments with special emphasis on the identification of the necessary competences and pedagogical strategies that allow the development of an equitable and accessible education. This study is framed in a descriptive documentary type research in a population composed of 30 scientific articles. The creation of inclusive educational environments requires not only the implementation of adaptive pedagogical strategies, but also the development of seven key teaching competences. The effective use of ICT for inclusion, effective classroom climate management, pedagogical leadership and authority, an inclusive and reflective attitude, the ability to collaborate and work in teams, the design of inclusive pedagogical strategies, and sensitivity and empathy towards diversity.

**Descriptors:** inclusive education; ability grouping; teaching technique (Source: UNESCO Thesaurus).

### RESUMEN

La educación inclusiva se erige como un pilar esencial educativo. Se presenta el objetivo de investigación configurado en analizar el rol del docente en la creación de entornos inclusivos con especial énfasis en la identificación de las competencias necesarias y las estrategias pedagógicas que permiten el desarrollo de una educación equitativa y accesible. Este estudio se enmarca en una investigación descriptiva de tipo documental en una población compuesta por 30 artículos científicos. La creación de entornos inclusivos en el ámbito educativo requiere no solo la implementación de estrategias pedagógicas adaptativas, sino también el desarrollo de siete competencias docentes clave. El uso eficaz de las TIC para la inclusión, la gestión efectiva del clima en el aula, el liderazgo pedagógico y la autoridad, una actitud inclusiva y reflexiva, la capacidad para colaborar y trabajar en equipo, el diseño de estrategias pedagógicas inclusivas, y la sensibilidad y empatía hacia la diversidad.

**Descriptores:** educación inclusiva; agrupamiento por aptitudes; técnica didáctica. (Fuente: Tesoro UNESCO).

Received: 28/05/2024. Revised: 05/06/2024. Approved: 07/06/2024. Published: 01/07/2024.

Research articles section



## INTRODUCTION

Inclusive education is now an essential pillar of education systems globally, promoting equal access to quality education for all students, regardless of their abilities, cultural backgrounds or special needs. This educational approach is not only limited to providing access to content but seeks to transform the classroom into a space in which each student can fully participate and develop their academic and personal potential. In this sense, the role of teachers is crucial, as their ability to implement inclusive strategies and use information and communication technologies (ICT) effectively has a direct impact on the creation of accessible and adaptive learning environments (Álvarez et al., 2024; Bagon et al., 2018).

The incorporation of ICT in inclusive education has revolutionised the possibilities for personalisation and differentiation in the teaching-learning process. Tools such as virtual platforms, adaptive educational software and accessible digital resources have enabled teachers to design learning experiences that cater to the diverse abilities and styles of students (Chua & Bong, 2022; Delgado-Ramírez et al., 2021). However, effective use of these technologies requires teachers to develop a set of specific competencies that enable them to manage increasingly complex and diverse learning environments (Herrera et al., 2018; Keiler, 2018). This includes the ability to create collaborative activities, manage the emotional climate of the classroom and promote an inclusive and respectful environment (Dulfer et al., 2024; Hertz-Lazarowitz, 2008).

Recent research has highlighted that in order to achieve the goals of inclusive education, it is essential that teachers receive ongoing training that enables them not only to integrate ICT into their practices, but also to critically reflect on their role in promoting equity and active participation of all learners (Livingston, 2016; Duk et al., 2021). Teaching competences are not limited to the use of technological tools, but also encompass the development of skills in adaptive formative assessment, the promotion of a sense of ownership among students and the ability to design activities that foster autonomy and meaningful learning (Mejía-Caguana et al., 2023; Fonseca-Montoya et al., 2020).

The analysis of the teacher's role in creating inclusive environments must also consider how the educator's attitudes and values influence the implementation of inclusive strategies. Teachers' willingness to embrace diversity, to value individual differences and to adapt their teaching methods according to the specific needs of their students is crucial to ensure effective inclusion (González-Rojas & Triana-Fierro, 2018). In this way, teaching competences are not only built on technical skills, but also on a reflective attitude committed to educational equity.

In accordance with the above, the research objective is to analyse the role of teachers in the creation of inclusive environments with special emphasis on the identification of the necessary competences and pedagogical strategies that enable the development of equitable and accessible education.

## METHOD

This study is framed in a descriptive documentary research, focused on the review and analysis of a population of 30 scientific articles selected for their relevance in the field of inclusive education and the use of information and communication technologies (ICT). The articles were extracted from specialised academic databases, following inclusion criteria such as the focus on pedagogical strategies and teaching competences for the creation of inclusive environments, as well as their relevance and scientific quality.

The research design was based on a bibliographical approach, which allowed for a critical review of recent literature. Through the analytical-synthetic method, we proceeded to break down the contents of the selected articles, classifying the most salient teaching competences and pedagogical strategies to promote inclusion in the classroom. The technique used was the content analysis of documents, which allowed us to systematically examine the methodological



approaches and results of the studies in order to extract the most relevant contributions in the field of inclusive education.

The data obtained were organised into key categories, such as ICT integration, classroom climate management, pedagogical leadership, and the design of pedagogical strategies adapted to the diversity of learners. This structure facilitated the synthesis of the information into abstract tables highlighting key teaching competences and the most effective strategies for implementing inclusive education. The analysis identified trends and gaps in the literature that contribute to the development of inclusive and adaptive teaching practices in the current educational context.

## RESULTS

Based on the review of the scientific literature, table 1 is presented, which groups the documentary themes according to the references that support them:

**Table 1.** Inclusive education and ICTs.

REFERENCE	CENTRAL SUBJECT OF STUDY	MAIN CONTRIBUTION
Álvarez et al. (2024)	Virtual reality for teacher training	Virtual reality platform improves teachers' acceptance of classroom climate management
Badley (2017)	Teacher authority	Teacher authority is essential in managing inclusive classrooms
Bagon et al. (2018)	Use of ICTs in inclusive classrooms	ICT use supports inclusion of students with special needs
Chowdhary & Sharma (2022)	The role of the teacher in virtual classrooms	Teachers improve students' educational skills in virtual environments
Chua & Bong (2022)	Inclusive education in virtual classrooms	Inclusive education can be effectively implemented in virtual classrooms during pandemics
Delgado-Ramírez et al. (2021)	ICT for sensory disabilities	ICTs support students with sensory disabilities in inclusive settings
Duk et al. (2021)	Teacher professional development for inclusion	Teacher professional development through collaborative research promotes inclusiveness
Dulfer et al. (2024)	Belonging in virtual classrooms	Relationships are key to creating a sense of belonging in virtual classrooms.



Esmaeili et al. (2015)	Teacher authority	Teacher authority enhances inclusive learning
Fernández-Batanero Colmenero-Ruiz (2016)	& Teacher attitudes towards ICT	Teachers' attitudes towards ICTs are key to inclusive education
Fonseca-Montoya et al. (2020)	Teacher performance in inclusion	Teacher performance in Ecuador needs to improve for greater inclusion
Founes-Méndez et al. (2023)	Teaching competences in inclusion	Teaching competences are essential for effective inclusive education
García-García & López-Azuaga (2012)	Use of ICT in diversity	ICTs enable diversity to be addressed in the classroom
González-Rojas & Triana-Fierro (2018)	Teachers' attitudes towards inclusion	Positive teacher attitudes are key to inclusion
Herrera et al. (2018)	Teacher training for inclusion	University teacher training faces challenges to inclusive education
Hertz-Lazarowitz (2008)	Cooperative pedagogy	Teachers play a key role in cooperative pedagogy for inclusion
Keiler (2018)	Teaching roles in student-centred classrooms	Teachers must adapt their identity and roles for student-centred environments.
Laiton-Zarate et al. (2017)	ICT and inclusive education	ICTs are central to teacher professional development for inclusion
Laspina-Olmedo & Montero (2023)	Inclusive teacher competence	Proposed categorisation of inclusive competences
Livingston (2016)	Teacher training in educational change	Teacher training is key to tackling educational change towards inclusion
Marín-Díaz et al. (2020)	ICT in inclusive education in Greece	ICTs facilitate educational inclusion in Greece
Martínez-Sarmiento (2023)	Teachers' perceptions of inclusion	Mixed teacher perceptions of inclusion in Ecuador



Martín-González et al. (2017)	Theories on educational inclusion	Various theories support educational inclusion
Mejía-Caguana et al. (2023)	Inclusive care strategies	Inclusive strategies for university settings
Montenegro-Conce et al. (2020)	ICT as an inclusive trend	ICTs are a key trend for educational inclusion
Reyes-Chávez & Prado-Rodríguez (2020)	ICT in inclusive primary education	ICTs as an effective tool for inclusion in primary education
Salifu & Abonyi (2023)	Managing large classes in virtual environments	Teachers face challenges managing large virtual classrooms during pandemic
Sriharan (2020)	Online learning	Strategies for improving participation in virtual classrooms
Villasmil-Yáñez (2021)	Episteme of the subject in ICT-based learning	Subject-centred approach to inclusive ICT-based learning
Zhuo & Wang (2023)	Creating dynamic environments in virtual classrooms	The use of secure and dynamic virtual classrooms enhances the learning experience.

**Source:** Own elaboration.

Based on Table 1, it is shown that inclusive education, driven by the use of information and communication technologies (ICT), has proven to be a crucial element in the transformation of the educational environment. The reviewed studies reflect how ICT, combined with the appropriate training and attitude of teachers, allow building more inclusive and accessible educational spaces for all students, regardless of their abilities or context (Álvarez et al., 2024; Badley, 2017; Bagon et al., 2018). First, virtual reality is positioned as an innovative tool for teacher training, allowing teachers to better manage the classroom climate and respond to the needs of students with diverse abilities (Álvarez et al., 2024). Teacher authority, on the other hand, remains a key pillar in creating inclusive environments, as effective leadership facilitates equitable learning (Esmaeili et al., 2015; Badley, 2017).

The adoption of ICT not only supports the inclusion of students with disabilities, but also facilitates the management of virtual classrooms, especially in the context of the pandemic. Virtual environments have accelerated the implementation of inclusive education, allowing teachers to provide accessible educational experiences from anywhere, highlighting the importance of a learner-centred approach (Chua & Bong, 2022; Chowdhary & Sharma, 2022). Furthermore, positive teacher attitudes towards ICT are essential for the success of inclusive education (Fernández-Batanero & Colmenero-Ruiz, 2016). Teacher training must be continuously adapted to incorporate these tools and approaches into daily practice (Duk et al., 2021). In countries such as Ecuador, it has been identified that both professional development and inclusive competences of teachers need to be strengthened to improve inclusion (Fonseca-Montoya et al., 2020; Herrera et al., 2018).



Collaborative classroom study and cooperative pedagogy emerge as key methods for fostering inclusion, as does student-centred teaching (Keiler, 2018; Hertz-Lazarowitz, 2008). These methodologies allow teachers to adapt their roles to respond more effectively to diversity in the classroom. Moreover, ICTs are presented not only as support tools, but as catalysts that allow teachers to develop inclusive competences that go beyond initial training (Laiton-Zarate et al., 2017; Laspina-Olmedo & Montero, 2023). In the context of higher and primary education, ICT has proven to be a growing trend that supports the inclusion of students with diverse needs (Marín-Díaz et al., 2020; Reyes-Chávez & Prado-Rodríguez, 2020). From Greece to Ecuador, teachers have used ICT to address diversity in the classroom and to foster meaningful change towards more equitable and accessible education (Martínez-Sarmiento, 2023; González-Rojas & Triana-Fierro, 2018).

In times of crisis, such as during the COVID-19 pandemic, ICT has made it possible to effectively manage large and virtual classrooms while maintaining inclusiveness as a central tenet (Salifu & Abonyi, 2023). In this sense, student engagement and the creation of dynamic and safe learning environments are essential to ensure that all students benefit equally from educational opportunities, regardless of the limitations imposed by virtuality (Zhuo & Wang, 2023; Sriharan, 2020). Therefore, the analysis of these studies highlights how ICT implementation and inclusion-focused teacher training are essential to ensure that educational environments are more accessible, equitable and effective for all learners. Inclusive education requires not only technological tools, but also a profound transformation in teachers' attitudes, competencies and pedagogical practices (Livingston, 2016; Dulfer et al., 2024).

### **Competences for teachers' role in creating inclusive environments**

Within the framework of inclusive education, the role of the teacher has evolved considerably, requiring the acquisition and strengthening of specific competences that promote inclusion in various educational contexts. Based on an exhaustive analysis of the scientific literature, multiple competency dimensions are identified that are indispensable for teachers to be able to effectively carry out their work in creating inclusive environments, particularly through the use of information and communication technologies (ICT). These key competences are developed below with the support of 30 specialised academic references.

#### **1. Competence in the use of ICT for inclusion**

ICTs have proven to be fundamental catalysts for educational inclusion, allowing teachers to design accessible and personalised learning environments. In this sense, (Álvarez et al. 2024) highlight how virtual reality platforms become an effective pedagogical tool to improve teachers' competences in classroom climate management, a critical factor in inclusive settings. Similarly, (Bagon et al. 2018) underline that the use of ICT in inclusive classrooms encourages the participation of students with special educational needs, enabling equitable access to knowledge. These technologies not only expand learning opportunities, but also allow for more individualised attention, as evidenced by (Delgado-Ramírez et al. 2021), who report the success of ICT in supporting students with sensory disabilities in inclusive settings.

In the context of the pandemic, (Chua & Bong, 2022) note that virtual classrooms have played a crucial role in inclusive education, providing teachers with the necessary tools to adapt their teaching strategies to learners with diverse abilities. However, (Chowdhary & Sharma, 2022) caution that in order to maximise the inclusive potential of ICT, it is essential that teachers receive solid training to enable them to effectively manage these technological and virtual environments.





## **2. Effective classroom climate management**

Classroom climate management is an essential competence in creating inclusive environments, as teachers must be able to create an environment in which all students feel valued and motivated to participate. According to (Dulfer et al. 2024), interpersonal relationships and a sense of belonging are key elements in building inclusive classrooms, especially in virtual environments. Teachers' ability to manage these relationships effectively facilitates the creation of an environment where differences are recognised and valued. This management is also strengthened by leadership and pedagogical authority, as evidenced by (Esmaeili et al. 2015). Well-managed authority on the part of teachers not only contributes to discipline, but also reinforces an inclusive environment by establishing clear norms of respect and collaboration.

## **3. Leadership and pedagogical authority**

Pedagogical leadership is another crucial aspect of the teacher's role in creating inclusive environments. Pedagogical authority, far from being a hierarchical imposition, should be manifested through leadership that fosters empathy and inclusion, allowing students to feel safe to express their ideas and needs. Likewise, (Badley, 2017) argues that teacher authority is an indispensable component of maintaining order and promoting equitable learning, especially in settings that demand inclusive attention. This leadership must be flexible and adaptive, as noted by (Keiler, 2018), who emphasises the need for teachers to assume multiple roles in student-centred classrooms. In these contexts, teachers must not only be leaders, but also facilitators, guides and role models, adjusting their pedagogical practices to the diverse needs of their students.

## **4. Inclusive and reflective attitude**

Teachers' inclusive attitudes are fundamental to the success of any educational initiative that seeks to address diversity. Therefore, (González-Rojas & Triana-Fierro, 2018) indicate that teachers' attitudes towards inclusion are direct predictors of the success of inclusive strategies in the classroom. These attitudes translate not only into teachers' willingness to implement inclusive practices, but also into their ability to critically reflect on their own practice and adapt it to the demands of an ever-changing educational environment (Livingston, 2016). Pedagogical reflection is therefore a competence that enables teachers to evaluate the effectiveness of their strategies and make the necessary adjustments to ensure that all learners, regardless of their abilities, can benefit from an inclusive environment. As suggested by (Laiton-Zarate et al. 2017), this reflective attitude should be a central component of teacher professional development, ensuring that teachers not only embrace ICT, but use it in an inclusive and critical way.

## **5. Collaboration and teamwork**

Inclusive education is a collective effort that requires the collaboration of multiple actors, both inside and outside the classroom. In this regard, (Duk et al. 2021) highlight the importance of collaborative action research among teachers as an approach to strengthening inclusive competencies through the sharing of good practice and the creation of pedagogical solutions. The ability of teachers to work in teams, not only with other teachers but also with specialists and families, is essential to ensure comprehensive and coordinated care for students with special educational needs. This collaboration also extends to the educational community as a whole, as emphasised by (Hertz-Lazarowitz, 2008), who advocates for a cooperative pedagogy that involves all actors in the educational process in building an inclusive environment.

## **6. Designing inclusive pedagogical strategies**

Inclusive pedagogical design is an indispensable competence in the role of the teacher (Mejía-Caguana et al. 2023), stating that teachers must be able to plan activities that consider the



abilities, learning styles and individual needs of each student. This includes differentiating teaching, adapting teaching materials and using accessible resources, such as ICT, that facilitate the participation of all students. Consequently, (Laspina-Olmedo & Montero, 2023) add that inclusive competences must be supported by a robust theoretical framework that enables teachers to categorise and implement pedagogical strategies based on the diversity of their student body. This competence is articulated with the ability of teachers to continuously reflect and adapt their strategies according to the emerging needs of their students.

## 7. Sensitivity and empathy for diversity

Teacher sensitivity and empathy towards diversity in the classroom are competences that underlie all other competences (Keiler, 2018), arguing that empathy enables teachers to connect with their students on a personal level, understanding their challenges and adapting their pedagogical practices to respond to them effectively. This sensitivity is not only limited to direct interaction with students, but is also reflected in the way teachers design their lessons and create an environment in which differences are seen as opportunities for collective learning. Accordingly, creating inclusive environments requires teachers to develop a set of interrelated competences that enable them to effectively manage ICT, lead the classroom with pedagogical authority, collaborate with other educational actors and design inclusive pedagogical strategies. These competencies, based on an inclusive and reflective attitude, enable teachers to respond proactively to diversity and ensure that all students have equal opportunities for academic success (Reyes-Chávez & Prado-Rodríguez, 2020; Zhuo & Wang, 2023).

## Strategies and Competencies for Creating Inclusive Environments

Creating inclusive learning environments requires the implementation of pedagogical strategies that ensure the equal participation of all learners, regardless of their abilities, background or context. These strategies, which include the use of information and communication technologies (ICT), effective classroom climate management and the promotion of collaborative activities, need to be supported by specific teaching competences. In addition to mastering technological tools, educators must develop skills in adaptive formative assessment, the design of inclusive strategies, and the ability to foster a sense of belonging in their students. In this way, teachers can not only respond to the diverse needs of learners, but also actively contribute to the creation of inclusive learning environments where every learner can thrive and participate fully in the educational process. See Table 2.

**Table 2.** Strategies and competencies for creating inclusive environments.

STRATEGY	DESCRIPTION	IMPACT ON THE INCLUSIVE ENVIRONMENT	RELEVANT TEACHING COMPETENCE
Using ICTs for Differentiation Education	The integration of information and communication technologies (ICT) in the classroom allows teachers to customise activities according to the needs of each student. The use of interactive platforms, accessible digital resources and adapted educational software facilitates the	It promotes equitable access to knowledge, eliminating barriers to learning for students with disabilities or special educational needs, and encourages students' autonomy in the learning process.	Competence in the Use of ICT for Inclusion: The teacher must be proficient in the use of ICT to personalise learning according to individual needs.



		participation of students with diverse abilities.		
Designing Collaborative Activities	Planning group activities and collaborative projects encourages interaction between students of different abilities and backgrounds. These activities should be carefully structured to ensure the equal participation of all group members, with roles adapted to their individual abilities.	It strengthens social skills and empathy among students, while reducing isolation for those with special needs, fostering an environment of cooperation and mutual respect.	Collaboration and Teamwork: The teacher should develop the ability to organise and coordinate collaborative activities that promote the equal participation of all students.	
Positive Classroom Climate Management	Implement classroom management based on positive discipline, with a focus on mutual respect and peaceful conflict resolution. This includes creating clear rules and promoting an emotionally supportive environment where students feel valued and respected for their contributions.	It creates an environment where students feel safe to participate without fear of judgement, which increases their confidence and willingness to learn in an inclusive environment.	Effective Classroom Climate Management: The teacher must acquire classroom management skills based on positive discipline and mutual respect to create a safe and emotionally supportive environment.	
Continuous Training in Inclusion and ICT	Teachers need to participate in ongoing training that enables them to develop inclusive competences, with a focus on the effective use of ICT and the application of adaptive methodologies. Updating on technological tools and inclusive pedagogical strategies is essential to keep up with the needs of the modern classroom.	It enhances the teacher's ability to adapt to the diversity of learners and maximises the use of inclusive educational resources, resulting in more effective teaching and the creation of learning environments accessible to all.	Inclusive and Reflective Attitude: Teachers must be committed to continuous professional development, reflecting on their practice and updating themselves on the competences needed for inclusive teaching.	
Adapted Evaluation	Formative Assessment should be continuous, personalised and adapted to the needs of each student, using formative assessment techniques. This involves the use of a	It ensures that all students can show their progress without being constrained by traditional methods of assessment, allowing a better understanding of their abilities and a	Designing Inclusive Pedagogical Strategies: The teacher must be competent in creating adapted assessment methods that reflect the abilities and learning	



		variety of tools, such as digital quizzes, presentations and oral assessments, so that students can demonstrate their knowledge in different ways.	continuous adjustment of pedagogical strategies.	styles of each student.
Fostering a Sense of Belonging		Develop activities and projects that integrate students' experiences and cultures, promoting respect for diversity. Incorporating themes that reflect the realities of all students reinforces a sense of inclusion and belonging, especially for those from marginalised communities or with disabilities.	It strengthens students' self-esteem and sense of belonging by recognising and valuing their cultural and personal backgrounds, which contributes to a more equitable and accessible educational experience.	Sensitivity and Empathy for Diversity: The teacher must be able to value and respect the cultural and personal diversity of students, adapting educational content to promote inclusion.
Adaptation of Educational Materials		Ensure that materials used in class are accessible to all students, including those with physical, sensory or cognitive disabilities. This includes the availability of alternative formats, such as audiobooks, subtitles, Braille printouts or easy-to-read software.	It increases students' access to educational content, ensuring that all can participate equally and access information effectively according to their abilities.	Competence in the Use of ICT for Inclusion: The teacher must be able to identify and use educational resources accessible to all learners, including those with disabilities.
Promoting Student Autonomy		Encourage autonomy in learners by assigning responsibility and decision-making in their own learning. This can be achieved through self-assessment, choice of projects and personal goal-setting, tailored to each student's individual capabilities.	It develops self-management and empowerment skills in students, enabling them to take an active role in their learning process, which prepares them to be autonomous and responsible citizens in an inclusive environment.	Leadership and Pedagogical Authority: The teacher must be able to guide students towards self-management, delegating responsibilities and encouraging autonomous decision-making in their learning process.

Source: Own elaboration.

Table 2 provides a detailed overview of the actions that teachers should implement to ensure that their classrooms are inclusive and accessible spaces for all learners. Each strategy is closely linked to a specific teaching competence which, together, allow the educator not only to implement inclusive methodologies, but also to adapt to the diversity that characterises



contemporary educational environments. As for the use of ICT, it stands out as a key tool for teaching differentiation, allowing teachers to customise activities according to students' individual abilities. However, for this strategy to be effective, teachers must develop a solid competence in the use of ICT, which will allow them to integrate accessible resources adapted to the specific needs of their students.

Positive classroom climate management is another crucial strategy for inclusion, as it fosters an atmosphere of respect and emotional support where all students feel valued. To implement this strategy, the teacher must be competent in effective classroom management, based on positive discipline and the establishment of clear rules that encourage equitable participation. Therefore, continuous teacher training on inclusion issues and the design of adaptive pedagogical strategies strengthen the capacity of educators to respond to the changes and challenges faced by their students. This not only improves students' academic performance, but also strengthens their self-esteem and sense of belonging, which are key factors in an inclusive environment.

In summary, Table 2 not only identifies the strategies necessary for the creation of inclusive settings, but also underlines the importance of teachers acquiring and developing specific competences that enable them to implement these strategies successfully. This demonstrates that inclusion is not only a question of methodologies, but also of continuous teacher training and development, ensuring that each learner receives an education tailored to their individual needs and specific contexts.

## CONCLUSION

Creating inclusive environments in education requires not only the implementation of adaptive pedagogical strategies, but also the development of seven key teaching competences. Effective use of ICT for inclusion, effective classroom climate management, pedagogical leadership and authority, an inclusive and reflective attitude, the ability to collaborate and work in teams, the design of inclusive pedagogical strategies, and sensitivity and empathy towards diversity are fundamental to ensuring the equitable participation of all students. These competences enable teachers to personalise learning, foster an atmosphere of respect and belonging, and promote student autonomy. Therefore, continuous and reflective teacher education becomes an essential component to address current challenges and build a truly inclusive, equitable and quality education for all.

## Authors' contribution

**Marcia Adriana Vera-Rivera** led the conceptual development of the article, the literature review and initial drafting, while **María Obdulia Rizzo-Andrade** participated in the research design, data collection and qualitative analysis. **Patricio Francisco Ferrin-Vera** coordinated the team, validated the results and supervised the statistical analysis, contributing his experience in inclusive education policies. **Hilda Etelvina Zambrano-Figueroa** was in charge of the synthesis of the data, contributed to the writing of the discussion and ensured the correctness of the academic style. All authors made substantive and original contributions to ensure the scientific quality of the manuscript.

## FUNDING

Non-monetary

## CONFLICT OF INTEREST

There is no conflict of interest with persons or institutions involved in research.

## ACKNOWLEDGEMENTS

To teachers working for inclusive quality education.



## REFERENCES

- Álvarez, I. M., Manero, B., & Romero-Hernández, A. (2024). Virtual reality platform for teacher training on classroom climate management: Evaluating user acceptance. *Virtual Reality*, 28(78). <https://doi.org/10.1007/s10055-024-00973-6>
- Badley, K. (2017). The teacher's authority. In *What teachers need to know: Topics in diversity and inclusion* (Chapter 13). George Fox University, College of Education. [https://digitalcommons.georgefox.edu/soe\\_faculty/209](https://digitalcommons.georgefox.edu/soe_faculty/209)
- Bagon, Špela, Gačnik, M., & Istenic Starcic, A. (2018). Information Communication Technology Use among Students in Inclusive Classrooms. *International Journal of Emerging Technologies in Learning (iJET)*, 13(06), pp. 56-72. <https://doi.org/10.3991/ijet.v13i06.8051>
- Chowdhary, M. S., & Sharma, M. (2022). The role of teachers in virtual classrooms and online learning environments to improve students' educational skills. *Educational Administration: Theory and Practice*, 28(3), 321-332. <https://doi.org/10.53555/kuey.v28i03.5811>
- Chua, K. H., & Bong, W. K. (2022). Providing inclusive education through virtual classrooms: a study of the experiences of secondary science teachers in Malaysia during the pandemic. *International Journal of Inclusive Education*, 28(9), 1886-1903. <https://doi.org/10.1080/13603116.2022.2042403>
- Delgado-Ramírez, J. C., Valarezo-Castro, J. W., Acosta-Yela, M. T., & Samaniego-Ocampo, R. D. L. (2021). Inclusive Education and ICT: Assistive Technologies for Persons with Sensory Disabilities [Educación Inclusiva y TIC: Tecnologías de Apoyo para Personas con Discapacidad Sensorial]. *Docentes 2.0 Journal*, 11(1), 146-153. <https://doi.org/10.37843/rted.v11i1.204>
- Duk, Cynthia, Blanco, Rosa, Zecchetto, Fiorella, Capell, Carla, & López, Mauricio (2021). Teacher Professional Development for Inclusion: Collaborative Action Research through Lesson Study in Chilean Schools [Desarrollo Profesional Docente para la Inclusion: Investigación Acción Colaborativa a través de Estudios de Clase en Escuelas Chilenas]. *Latin American Journal of Inclusive Education*, 15(2), 67-95. <https://dx.doi.org/10.4067/S0718-73782021000200067>
- Dulfer, N., Gowing, A., & Mitchell, J. (2024). Building belonging in online classrooms: relationships at the core. *Teaching in Higher Education*, 1-17. <https://doi.org/10.1080/13562517.2024.2349993>
- Esmaeili, Z., Mohamadrezai, H., & Mohamadrezai, A. (2015). The role of teacher's authority in students' learning. *Journal of Education and Practice*, 6(19), 1-8.
- Fernández-Batanero, J., & Colmenero-Ruiz, M. (2016). ICT and inclusive education: Attitudes of secondary education teachers [ICT y educación inclusiva: Actitudes del profesorado de educación secundaria]. *Journal of Technology and Science Education*, 6 (1), 19-25. <https://doi.org/10.3926/jotse.208>
- Fonseca-Montoya, Somaris, Requeiro-Almeida, Reinaldo, & Valdés-Fonseca, Alexandra (2020). La inclusión de estudiantes con necesidades educativas especiales vista desde el desempeño de los docentes de la educación básica ecuatoriana [Inclusion of students with special educational needs: view from the performance of teachers of Ecuadorian basic education]. *Revista Universidad y Sociedad*, 12(5), 438-444.
- Founes-Méndez, Nancy Fabiola, Esteves-Fajardo, Zila Isabel, & Tamariz-Nunjar, Hidelgardo Uclides (2023). Teaching competencies in inclusive education [Competencias docentes



- en la educación inclusiva]. *Revista Arbitrada Interdisciplinaria Koinonía*, 8(Suppl. 1), 71-86. <https://doi.org/10.35381/r.k.v8i1.2608>
- García-García, M., & López-Azuaga, R. (2012). Exploring, from an inclusive perspective, the use of ICTs to cater for diversity [Explorando, desde una perspectiva inclusiva, el uso de las tic para atender a la diversidad]. *Profesorado. Revista de Currículum y Formación de Profesorado*, 16(1), 277-293.
- González-Rojas, Y., & Triana-Fierro, D. A. (2018). Teachers' attitudes towards the inclusion of students with special educational needs [Actitudes de los profesores frente la inclusión de estudiantes con necesidades educativas especiales [Teachers' attitudes towards the inclusion of students with special educational needs]. *Educación Y Educadores*, 21(2), 200-218.
- Herrera, José Ignacio, Parrilla, Ángeles, Blanco, Antonia, & Guevara, Geycell (2018). Teacher Training for Inclusive Education. A Challenge from the National University of Education in Ecuador [Teacher Training for Inclusive Education. A Challenge from the National University of Education in Ecuador]. *Latin American Journal of Inclusive Education*, 12(1), 21-38. <https://dx.doi.org/10.4067/S0718-73782018000100021>
- Hertz-Lazarowitz, R. (2008). Beyond the classroom and into the community: The role of the teacher in expanding the pedagogy of cooperation. In R. M. Gillies, A. F. Ashman, & J. Terwel (Eds.), *The teacher's role in implementing cooperative learning in the classroom* (pp. 38-52). Springer. [https://doi.org/10.1007/978-0-387-70892-8\\_2](https://doi.org/10.1007/978-0-387-70892-8_2)
- Keiler, L. S. (2018). Teachers' roles and identities in student-centered classrooms. *International Journal of STEM Education*, 5(34). <https://doi.org/10.1186/s40594-018-0131-6>
- Laiton-Zarate, E. V., Gómez-Ardila, S. E., Sarmiento-Porras, R. E., & Mejía-Corredor, C. (2017). Inclusive Practices Competence: ICT and Inclusive Education in Teacher Professional Development [Competencia de Prácticas Inclusivas: Las TIC y la Educación inclusiva en el desarrollo profesional docente]. *Sophia*, 13(2), 82-95. <https://doi.org/10.18634/sophiaj.13v.2i.502>
- Laspina-Olmedo, Tania, & Montero, Delfín (2023). Inclusive competence in teaching practice: bibliographic analysis and categorization proposal [Competencia inclusiva en la práctica docente: análisis bibliográfico y propuesta de categorización]. *ALTERIDAD. Revista de Educación*, 18(2), 177-186. <https://doi.org/10.17163/alt.v18n2.2023.02>
- Livingston, K. (2016). The role of teacher education in educational change. *European Journal of Teacher Education*, 39 (1), 1-4. <https://doi.org/10.1080/02619768.2016.1135531>
- Marín-Díaz, V., Vagena, E., & García, S. R. (2020). Visões do uso de TIC para a educação inclusiva: o caso da Grécia [Views on the Use of ICT for Inclusive Education: The Case of Greece]. *Texto Livre*, 13(3), 181-199. <https://doi.org/10.35699/1983-3652.2020.25117>
- Martínez-Sarmiento, Marlon Alirio (2023). Teachers' perception of inclusive education [Percepción docente sobre la educación inclusiva]. *Cienciamatria. Interdisciplinary Journal of Humanities, Education, Science and Technology*, 9(17), 133-144. Epub February 08, 2024. <https://doi.org/10.35381/cm.v9i17.1129>
- Martín-González, DM, González-Medina, M., Navarro-Pérez, Y., & Lantigua-Estupiñan, L. (2017). Theories promoting educational inclusion [Teorías que promueven la inclusión educativa]. *Atenas*, 4(40), 90-104.
- Mejía-Caguana, Digna Roció, Esteves-Fajardo, Zila Isabel, & Mateo-Ortega, Ricardo Andrés (2023). Estrategias de atención inclusiva: Competencias básicas y valores necesarios para entornos educativos en educación universitaria [Inclusive care strategies: Core



competencies and values needed for educational environments in university education]. *Episteme Koinonia. Electronic Journal of Educational Sciences, Humanities, Arts and Fine Arts*, 6(12), 4-19. <https://doi.org/10.35381/e.k.v6i12.2513>

Montenegro-Conce, M. E., Muevecela-Naranjo, S. C., & Reinoso-Reinoso, M. del C. (2020). Las Tics: Una nueva tendencia en la educación inclusiva [ICTs: A new trend in inclusive education]. *Scientific Magazine*, 5(17), 311-327. <https://doi.org/10.29394/Scientific.issn.2542-2987.2020.5.17.17.311-327>

Reyes-Chávez, R., & Prado-Rodríguez, AB (2020). Information and Communication Technologies as a tool for inclusive primary education [Las Tecnologías de Información y Comunicación como herramienta para una educación primaria inclusiva [Las Tecnologías de Información y Comunicación Tecnologías de Información y Comunicación como herramienta para una educación primaria inclusiva [Information and Communication Technologies as a tool for inclusive primary education]. *Revista Educación*, 44(2). <https://doi.org/10.15517/revedu.v44i2.38781>

Salifu, I., & Abonyi, U. K. (2023). Managing large classes in virtual teaching: experiences of university teachers in Ghana during COVID-19. *Educational technology research and development: ETR & D*, 71(2), 737-752. <https://doi.org/10.1007/s11423-022-10151-7>

Sriharan A. (2020). Teaching Online: Tips for Engaging Students in Virtual Classrooms. *Medical science educator*, 30(4), 1673-1675. <https://doi.org/10.1007/s40670-020-01116-7>

Villasmil-Yáñez, M. (2021). The subject-subject episteme in ICT-based learning [La episteme del sujeto - sujeto en el aprendizaje basado en TIC]. *Revista Multidisciplinaria Perspectivas Investigativas*, 1(3), 1. <https://doi.org/10.62574/rmpi.v1i3.34>

Zhuo, W., & Wang, Y. (2023). Create a dynamic teaching atmosphere for distance learning with secure virtual classroom. *Journal of Computational Methods in Sciences and Engineering*, 23(2), 705-714. <https://doi.org/10.3233/JCM-226609>

Copyright: 2024 By the authors. This article is open access and distributed under the terms and conditions of the Creative Commons Attribution-NonCommercial-ShareAlike 4.0 International (CC BY-NC-SA 4.0) licence. <https://creativecommons.org/licenses/by-nc-sa/4.0/>