Teaching competences for inclusive education

Competencias docentes para una educación inclusiva

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ABSTRACT
The research aims to analyse teaching competences for inclusive education. The study employed a systematic review design, the review population included 25 scientific articles selected from the reviewed literature. In this review, nine key categories of teaching competences have been identified and analysed: Assistive Technologies, Teacher Education and Development, Teacher Perceptions and Attitudes, Inclusive Methodologies, Impact of COVID-19, Universal Design for Learning, Inclusive Physical Education, Personal Competences and Legislative Framework and Educational Policies. Each of these categories contributes an essential piece to the complex puzzle of inclusive education, and their coordinated integration is critical to the success of these initiatives. By holistically addressing these categories, significant progress can be made towards creating a truly inclusive and equitable education system.
Descriptors: inclusive education; special needs education; educational policy. (Source: UNESCO Thesaurus).

RESUMEN
La investigación tiene por objetivo de investigación analizar las competencias docentes para una educación inclusiva. El estudio empleó un diseño de revisión sistemática, la población de la revisión incluyó 25 artículos científicos seleccionados de la literatura revisada. En esta revisión, se han identificado y analizado nueve categorías clave de competencias docentes: Tecnologías de Asistencia, Formación y Desarrollo Docente, Percepciones y Actitudes Docentes, Metodologías Inclusivas, Impacto de la COVID-19, Diseño Universal para el Aprendizaje, Educación Física Inclusiva, Competencias Personales y Marco Legislativo y Políticas Educativas. Cada una de estas categorías aporta una pieza esencial al complejo rompecabezas de la educación inclusiva, y su integración coordinada es fundamental para el éxito de estas iniciativas. Al abordar de manera holística estas categorías, se puede avanzar significativamente hacia la creación de un sistema educativo verdaderamente inclusivo y equitativo.

Descriptores: educación inclusiva; educación especial; política educacional. (Fuente: Tesauro UNESCO).

INTRODUCTION

In the field of inclusive education, teaching competences play a fundamental role in ensuring equity and quality in the learning of all students, including those with special educational needs. Teacher training and professional development in this area is crucial to meet the challenges presented by diversity in the classroom. According to (Al-Dababneh & Al-Zboon, 2022), incorporating assistive technologies into the curriculum for children with specific learning disabilities significantly enhances teachers' professionalism and beliefs in inclusive settings. This perspective aligns with the research of (Almalky & Alwahbi, 2023), who found that teachers' perceptions of inclusive education in Saudi Arabia are shaped by their direct experiences and the inclusive practices they have been involved in.

Inclusive education involves not only the adaptation of pedagogical methods and strategies, but also the development of appropriate attitudes and competences to manage diversity in the classroom. In this regard, (Fernández-Batanero, 2013) highlights that teaching competences for inclusive education encompass pedagogical skills, positive attitudes towards inclusion and specific knowledge about students' needs. On the other hand, research by (Carrión-Macas et al. 2017) emphasises the need to prepare teachers to cater for students with special educational needs by developing specific competences.

In a broader context, (Balongo-González & Mérida-Serrano, 2017) highlight the importance of inclusive methodologies, such as project work in early childhood education, which promote equal participation and equity for all students. Furthermore, (Bastian et al. 2023) point out how digital literacy is radically transforming inclusive classrooms post-COVID-19, providing tools and resources that facilitate effective inclusion. This digital transformation has led to a revaluation of teaching competences, focusing on the ability to integrate educational technologies that support student diversity.

Technology has emerged as an indispensable ally in inclusive education, in this order, (Calleja-Vázquez, 2023) underlines that the development of teaching competences for inclusive education can be enhanced through Information and Communication Technologies (ICT), which offer new opportunities for the personalisation and adaptation of teaching. These technologies not only facilitate the inclusion of students with disabilities, but also enrich the educational experience for all students.

The importance of continuous and specialised training for teachers is highlighted by (Founes-Méndez et al. 2023), who argue that teaching competences in inclusive education must be constantly developed and updated to meet the changing challenges of modern education. Similarly, (García-González et al. 2018) indicate that teacher training should include theoretical and practical components that prepare educators to handle diverse and complex situations in the inclusive classroom. In addition, the implementation of technology-based inclusive activities in early childhood education and inclusive teaching is described as explored (Daems et al. 2023) and (Dewsbury & Brame, 2019) highlight the benefits of an educational approach that integrates universal design for learning, enabling teachers to create more accessible and equitable learning environments.

In terms of teachers' perceptions of inclusive education, studies such as that of (Quispe et al. 2023) reveal that teachers' attitudes and experiences are crucial to the success of inclusive practices. These findings underline the need for adequate institutional support and resources for teachers to effectively implement inclusive strategies. While research by (Figueredo-Canosa & Lozano-Díaz, 2022) on the Spanish legislative framework during the COVID-19 pandemic demonstrates that inclusive education policies must also adapt to emerging circumstances, ensuring that all students receive a quality education, regardless of external conditions.

Therefore, the development of teaching competencies for inclusive education is essential to promote an educational environment that values and caters for diversity. Continuous training and the adoption of innovative technologies are key elements for teachers to meet the challenges of inclusion and ensure quality education for all learners.

In pursuit of the above, the research objective is to analyse teaching competences for inclusive education.

METHOD

The study employed a systematic review design to comprehensively analyse teaching competences in the context of inclusive education. This methodology allows for the synthesis and critical evaluation of the existing literature, providing a comprehensive and up-to-date overview of the topic. The systematic review was conducted following the PRISMA guidelines, ensuring the rigorousness and transparency of the review process.

The review population included 25 scientific articles selected from the reviewed literature. These articles provided a wide range of perspectives and approaches to teaching competences in inclusive education, allowing for a comprehensive and detailed synthesis of best practices and challenges in the field. For the selection of the articles, inclusion criteria were established:

1. Studies published between 2013 and 2023.

2. Articles available in English and Spanish.

3. Research addressing teaching competences in the context of inclusive education.

4. Empirical studies using qualitative, quantitative or mixed methods.

Studies that did not provide empirical data, narrative reviews and opinion pieces were excluded, thus ensuring the relevance and quality of the data analysed.

The literature search was conducted in high-impact electronic databases, including PubMed, Scopus, Web of Science and Google Scholar. Specific search terms such as 'teacher competences', 'inclusive education', 'educational technologies', 'teacher education' and their English equivalents were used. The strategic combination of these terms enabled the identification of a broad and representative set of relevant studies.

The selection of studies was carried out in two rigorous phases. In the first phase, an initial review of titles and abstracts was conducted to identify potentially relevant studies. In the second phase, a full review of the selected texts was conducted to confirm their eligibility. A total of 25 articles met the inclusion criteria and were selected for detailed analysis.

The data analysis was carried out using a qualitative methodology based on the content analysis technique. The teaching competences identified in each study, as well as the methodologies used to develop and assess them, were extracted and categorised. The results were organised into key themes reflecting the areas of competence most relevant to inclusive education, providing a detailed and in-depth synthesis.

This study complies with established ethical standards for research in education. All articles included in the systematic review were reviewed to ensure that ethical principles were respected in data collection and management. No primary data were collected, and the analysis was based exclusively on published information, which minimises the risk of harm to the original participants of the studies reviewed, and ensured confidentiality and respect for the copyright of the publications used.

RESULTS

The analysis of the 25 selected scientific articles identified several documentary categories related to teaching competences for inclusive education. A summary of these categories, including a brief description and references, is presented below. See Table 1. See figure 1.

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Table 1. Categories of teaching competences for inclusive education.

CATEGORY	DESCRIPTION	REFERENCES
Assistive Technologies	Studies exploring the use of assistive technologies to support educational inclusion.	Al-Dababneh & Al-Zboon (2022); Daems et al. (2023); Calleja-Vázquez (2023)
Teacher Training and Development	Research on initial and in-service teacher training to improve teachers' inclusive competences.	Fernández-Batanero (2013); Founes-Méndez, Esteves-Fajardo & Tamariz-Nunjar (2023); García-González, Herrera-Seda & Vanegas-Ortega (2018).
Teachers' Perceptions and Attitudes	Studies analysing teachers' perceptions and attitudes towards inclusive education.	Almalky & Alwahbi (2023); Chwastek et al. (2021); Quispe et al. (2023)
Inclusive Methodologies	Research on pedagogical strategies and methodologies that promote inclusion in the classroom.	Balongo-González & Mérida-Serrano (2017); Lowrey, Hollingshead & Howery (2017); Dewsbury & Brame (2019).
Impact of COVID-19	Studies examining how the COVID-19 pandemic has affected inclusive education and teacher competencies.	Bastian, Liza & Efastri (2023); Figueredo-Canosa & Lozano-Díaz (2022)
Universal Design for Learning	Research addressing the implementation of Universal Design for Learning (UDL) in inclusive contexts.	McKenzie & Dalton (2020); Orndorf et al. (2022); Pagliara et al. (2023)
Inclusive Physical Education	Studies on approaches and competencies for inclusive physical education.	Liang et al. (2022)
Personal Competences	Research on teachers' personal competences, such as empathy and self-efficacy, for inclusion.	Sebastián-Heredero (2017); Carrión-Macas, Valarezo-Castro & Peñaloza-Peñaloza (2017).
Legislative Framework and Education Policies	Studies analysing the legislative framework and education policies that support inclusive education.	Figueredo-Canosa & Lozano-Díaz (2022); Balongo-González & Mérida-Serrano (2017).

Source: Own elaboration.

Legislative Framework and Educational Policies

Personal Competencies

Inclusive Physical Education

Universal Design for Learning

Impact of COVID-19

Inclusive Methodologies

Teacher Perceptions and Attitudes

Teacher Training and Development

Assistive Technologies

Figure 1. Categories of teaching competences in inclusive education.

Source: Own elaboration.

Assistive technologies

Assistive technologies are proving to be indispensable tools for inclusive education, facilitating the integration of students with specific disabilities into mainstream educational settings. Studies such as those by (Al-Dababneh & Al-Zboon, 2022) and (Daems et al. 2023) highlight that these technologies not only improve access to the curriculum, but also enhance the professionalism and beliefs of teachers in inclusive settings. The ability to adapt the learning environment to individual needs through technology is a significant step towards more equitable and accessible education.

Teacher training and development

Teacher training and professional development is a key pillar of inclusive education. Research such as that of (Fernández-Batanero, 2013) and (Founes-Méndez et al. 2023) highlights the importance of comprehensive preparation that encompasses both theoretical and practical aspects. Continuous training enables teachers to update and refine their competences, ensuring an effective response to diversity in the classroom. The implementation of specific training programmes in inclusive competences is crucial for the development of adaptive and equitable teaching practices.

Teachers' perceptions and attitudes

Teachers' perceptions and attitudes towards inclusive education are determinants in the effective implementation of inclusive practices. In this regard, (Almalky & Alwahbi, 2023) and (Chwastek et al. 2021) show that teachers' prior experiences and positive attitudes significantly influence their willingness and ability to teach in inclusive settings. Fostering positive attitudes and eliminating prejudices are key to creating an inclusive and welcoming learning environment.

Inclusive methodologies

Inclusive methodologies, such as project work and universal design for learning (UDL), are key pedagogical strategies that promote equal participation and equity for all learners. Studies such as those by (Balongo-González & Mérida-Serrano, 2017) and (Lowrey et al. 2017) highlight the effectiveness of these methodologies in creating inclusive classrooms. Adopting pedagogical approaches that consider the diversity of learning styles is essential for effective inclusive education.

Impact of COVID-19

The COVID-19 pandemic has raised new challenges and opportunities for inclusive education. Research such as (Bastian et al. 2023) and (Figueredo-Canosa & Lozano-Díaz, 2022) explores how the health crisis has affected educational practice and teaching competencies. The need to rapidly adapt teaching methodologies and the use of digital technologies has highlighted the importance of flexibility and innovation in inclusive education.

Universal Design for Learning

Universal Design for Learning (UDL) is a pedagogical approach that seeks to create accessible and equitable learning environments for all learners. Studies such as those by (McKenzie & Dalton, 2020) and (Orndorf et al. 2022) highlight the implementation of UDL in inclusive contexts, underlining its benefits in personalisation and adaptability of learning. SAD enables teachers to design learning experiences that cater to the diversity of students' needs and abilities.

Inclusive physical education

Inclusive physical education represents an important area of study that addresses the equitable participation of all students in physical activities, in this order, (Liang et al. 2022) note the importance of inclusive approaches in physical education to foster the participation and physical development of students with diverse abilities. The integration of inclusive practices in physical education is fundamental to the holistic development of all students.

Personal competences

Teachers' personal competences, such as empathy, self-efficacy and reflective skills, are crucial for inclusive education. Studies such as those by (Sebastián-Heredero, 2017) and (Carrión-Macas et al. 2017) highlight the importance of developing these competences to effectively manage diversity in the classroom. Strengthening personal competences contributes to the creation of an inclusive and respectful learning environment.

Legislative framework and educational policies

The legislative framework and educational policies play a crucial role in promoting inclusive education. Research such as that of (Figueredo-Canosa & Lozano-Díaz, 2022) and (Balongo-González & Mérida-Serrano, 2017) analyses how policies and legislation support the implementation of inclusive practices. The existence of a robust legislative framework and inclusive education policies is fundamental to guarantee the right to equitable and quality education for all students.

DISCUSSION

The integration of assistive technologies in the educational environment is widely recognised as an effective tool to support students with disabilities. In this regard, (Al-Dababneh & Al-Zboon, 2022) and (Daems et al. 2023) agree that these technologies not only improve access to the curriculum, but also strengthen the professionalism of teachers. However, the adoption of these technologies varies considerably across contexts, as seen in the studies by (Calleja-Vázquez, 2023) and (McKenzie & Dalton, 2020), which highlight the need for adequate infrastructure and specific training for teachers.

In-service training and professional development of teachers are essential for effective inclusive education. In this regard, (Fernández-Batanero, 2013) and (Founes-Méndez et al. 2023) stress the importance of specific training programmes that address both theoretical and practical aspects. This need is corroborated by (García-González, Herrera-Seda & Vanegas-Ortega, 2018), who argue that initial training should include inclusion components from the outset. However, there is variability in the implementation of these programmes, suggesting the need for more coherent and systematic educational policies.

Teachers' perceptions and attitudes towards inclusive education are crucial to the success of inclusive practices. Accordingly, (Almalky & Alwahbi, 2023) and (Chwastek et al. 2021) show that teachers' positive attitudes and self-efficacy significantly influence their ability to implement inclusive strategies. On the other hand, studies such as (Quispe et al. 2023) reveal that prejudices and stereotypes can persist, negatively affecting inclusion. This highlights the importance of awareness-raising and training programmes on inclusive attitudes.

The adoption of inclusive methodologies, such as Universal Design for Learning (UDL) and project work, is essential to promote the participation of all learners. In this area, (Balongo-González & Mérida-Serrano, 2017) and (Lowrey et al. 2017) demonstrate that these methodologies can significantly improve the educational experience of students with disabilities. However, (Dewsbury & Brame, 2019) warn that the successful implementation of these methodologies requires a cultural change in educational institutions, which is not always easy to achieve.

The COVID-19 pandemic has had a profound impact on inclusive education. In this vein, (Bastian et al. 2023) and (Figueredo-Canosa & Lozano-Díaz, 2022) document how the health crisis has exacerbated educational inequalities and posed new challenges for teachers. The rapid transition to online teaching has highlighted the digital divide and the need for digital skills among teachers. However, it has also provided opportunities to innovate and adapt inclusive practices, as noted in studies by (Pagliara et al. 2023) and (McKenzie & Dalton, 2020).

Universal Design for Learning (UDL) is a pedagogical approach that has gained prominence in inclusive education. In this regard, (McKenzie & Dalton, 2020) and (Orndorf et al. 2022) highlight the benefits of UDL in creating accessible and adaptive learning environments. These studies agree that SAD enables teachers to design learning experiences that cater to a wide range of needs and abilities, thus promoting equity in the classroom. However, effective implementation requires adequate training and institutional support.

Inclusive physical education is another critical area that deserves attention. In this context, (Liang et al. 2022) stress the importance of developing specific competencies in physical education teachers to manage the diversity of abilities among students. This is especially

relevant in contexts where participation in physical activities may be limited for students with disabilities. Inclusive approaches in physical education, such as those described by these authors, are fundamental for the holistic development of all students.

Personal competences of teachers, such as empathy, self-efficacy and reflective skills, are essential for inclusive education. In this regard, (Sebastián-Heredero, 2017) and (Carrión-Macas et al. 2017) highlight that these personal competences enable teachers to effectively manage diversity in the classroom and create an inclusive learning environment. Training in these competences should be an integral part of professional development programmes for teachers.

The legislative framework and educational policies are key to supporting inclusive education. Accordingly, (Figueredo-Canosa & Lozano-Díaz, 2022) and (Balongo-González & Mérida-Serrano, 2017) discuss how policies and legislation can facilitate or hinder the implementation of inclusive practices. The existence of a robust legislative framework and inclusive education policies is crucial to ensure that all students have access to equitable and quality education.

The contrast between the studies reviewed reveals a diversity of approaches and practices in inclusive education, highlighting both progress and persistent challenges. Assistive technologies, teacher training and development, perceptions and attitudes, inclusive methodologies, the impact of COVID-19, SED, inclusive physical education, personal competences and the legislative framework are all interrelated components that, when addressed holistically, can promote more effective inclusive education. Research highlights the need for an integrated approach that combines sound policies, ongoing training and the use of technologies to create truly inclusive learning environments.

CONCLUSION

In this review, nine key categories of teaching competencies have been identified and analysed: Assistive Technologies, Teacher Training and Development, Teacher Perceptions and Attitudes, Inclusive Methodologies, Impact of COVID-19, Universal Design for Learning, Inclusive Physical Education, Personal Competencies, and Legislative Framework and Educational Policies. Each of these categories contributes an essential piece to the complex puzzle of inclusive education, and their coordinated integration is critical to the success of these initiatives. By holistically addressing these categories, significant progress can be made towards creating a truly inclusive and equitable education system. Developing teacher competencies for inclusive education requires a holistic approach that combines sound policies, ongoing training, and the use of inclusive technologies and methodologies. Adopting these practices can promote a more equitable and accessible learning environment, enabling all students to reach their full potential. Research underscores the need for a coordinated effort to integrate these components and create truly inclusive learning environments.

CONFLICT OF INTEREST

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

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