

THE AWARENESS AND APPLICATION OF THE COMMON PROFESSIONAL AND TECHNOLOGICAL COMPETENCIES: SAUDI SPECIAL EDUCATION TEACHERS' PERSPECTIVE

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Abstract

This study investigates Saudi special education teachers' awareness and application of key professional competencies, including Individualized Education Programs (IEPs), modern technology, and assistive tools for students with disabilities. Using a descriptive methodology and a sample of 52 teachers, the research employed statistical analyses such as mean, standard deviation, ANOVA, and Pearson correlation to assess competency levels. Results indicated a high overall awareness and application of professional standards, though some variation was noted in responses related to IEPs and technology. Significant differences emerged based on years of experience, favoring more experienced teachers. The findings underscore the importance of targeted training programs to address gaps in professional competencies and enhance the integration of technology in special education classrooms, ultimately improving support for students with disabilities.

Keywords: professional, technological, competency, individualized education programs, assistive technology

1. INTRODUCTION

Teachers are considered a significant element in the educational process; teachers facilitate the teaching and learning process. In fact, teachers directly affect the success of students' learning in order to achieve effective learning outcomes, especially with students with disabilities. International and educational organizations and associations install a variety of professional qualifications to ensure high-quality education can be provided for these students with special needs. As the Council for Exceptional Children (CEC), which is considered the largest professional association that defined professional standards for educators. For instance, CEC revised the initial kindergarten through 12th grade standards to be the initial practice-based professional preparation standards for special educators (2020). Special education teachers are dealing with a variety of students with multiple special needs, and they should be equipped with evidence-based practices and sharpen their skills to intervene effectively with the wide range of individual needs that students with disabilities may display. National movements to improve the quality of education in Saudi Arabia have led to the establishment of organizations such as the Education and Training Evaluation Commission (ETEC) (2025). ETEC is an independent government agency in the Kingdom of Saudi Arabia, which is considered in charge of assessing and evolving the education system and training for school personnel. ETEC is working in coordination with the Ministry of Education to form policies and standards and to authorize educational training institutions and programs. The purpose of establishing the ETEC to improve the quality efficiency of education and training outcomes, in addition to assist in reaching the goals highlighted in Saudi Vision 2030. Saudi Vision 2030 targets various economic, social, and educational transformations and seeks several objectives, including improving the quality of life and enhancing performance efficiency across all professions. In fact, the Ministry of Education engaged in a variety of evolutions to advance inclusive education and train special education teachers (Al-Zahrani & Arafah, 2020; Alzahrani, 2023). Career competency as knowledge and practice standards are required for enhancing the quality of both general and special education teachers. These standards are based on fundamental professional principles that target enhancing educators' understanding of their roles and sharpening their ability to apply this knowledge successfully in the classroom. The ETEC seeks to merge professional standards over special education disciplines to establish consistent and excellent instruction for students with disabilities.

Al-Kanani's study (2022) argued the extreme need to effectively prepare special education teachers by emphasizing the development of their professional capabilities. These competencies are necessary for educators to work effectively with students with disabilities and to encounter the evolving demands of inclusive education. Another study highlighted the impact of improving teachers' competencies on enhancing the quality of education and meeting diverse students' needs in order to establish an inclusive environment (Leko et al., 2015; Van Laarhoven et al., 2007).

Although limited published studies were noted, especially in the Arabic literature that examined special education teachers' understanding and implementation of professional standards. Thus, it is a challenge to evaluate the real-world effectiveness and impact of these standards on educational outcomes for students with disabilities. Eventually, the current study aims to evaluate the awareness of these standards among special education teachers in Saudi Arabia and assess how they are applied in classroom settings.

1.2. LITERATURE REVIEW

Teachers training and enhancing their competence is a critical component to ensure reaching effective learning outcomes for students with disabilities. Best educational practices, which are evidence-based, are required for a special education teacher to be able to apply and maintain throughout their career. The CEC professional preparation standards for special educators intend to prepare educators for inclusive education and effective instruction for students with disabilities through enhanced knowledge, collaboration, professional ethics, and data collection to encounter learners with diverse needs (2020). For instance, a study conducted to compare the level of professional competencies, including designing individualized education plans (IEPs), using specialized teaching strategies, managing inclusive classrooms, assessing student progress, and collaborating with families and support staff among special education teachers in countries such as Kuwait, Egypt, and Saudi Arabia, based on special education teachers' perspectives (Al-Hajri, 2024). Results indicated the highest-rated competency in Saudi Arabia and Kuwait was mastery of teaching strategies for students with disabilities, while the highest-rated competency in Egypt was classroom management skills. In addition, results defined that there were no significant differences found based on gender, qualification, or years of experience (Al-Hajri, 2024).

1.2.1. *Education for student with disabilities*

According to the Individuals with Disabilities Education Act (IDEA), education is for all students, including students with disabilities (1990). Students with disabilities deserve a suitable teaching process that meets their individual needs. On the other hand, the Saudi regulation of educating individuals with disabilities stated that education is a right for everyone, including individuals with disabilities, including offering equal chances of a suitable education, providing and supporting inclusive education in the least restrictive environment for special education students with related services as needed, and providing early intervention services (2000). In the last years, Saudi has invested significant effort to enhance justice and equality for individuals with disabilities and empower them on the different stages in society (Alsolami, 2024). Saudi Vision 2030 aims to support all citizens, including those with disabilities. Although, notable barriers were found that prevented providing effective education for students with disabilities, such as a lack of special education teacher preparation (Alsolami, 2024).

1.2.2. *Special education teacher competencies in utilizing technology*

Special education teacher competencies might be defined as the level of knowledge, skills, and perspectives that are required to ensure performance of duties efficiently and effectively (Byrd & Alexander, 2020). In-service special education teachers are still lacking training to enhance their professional performance. There is a continuous need for professional development programs that address the diverse needs of students with disabilities and provide educators with opportunities to apply effective, evidence-based instructional and behavioral strategies in practice (Almutlaq, 2022; Mustafa & Al-Malih, 2023). Another study examined the competencies of newly hired special education teachers, and lack of confidence and competence in dealing with special education students are among the most prominent findings (Aldabas, 2020). Thus, special education teachers, regardless of their years of experience, are required to have ongoing training to align with evolving professional standards and requirements.

Technology and smart devices are utilized for lesson preparation, students' assessment, teachers' profiles, and communicating with students and their families on a regular basis. Indeed, teachers demand to have technology and competency to improve the quality of education (Yilmaz et al., 2021). Studies have shown that integrating technology into the teaching and learning process can enhance the quality and the outcome of education (Backfisch et al., 2020; Lachner et al., 2024).

1.2.3. *Saudi special education teachers*

A considerable body of research underscores the significance of professional standards in improving educational effectiveness. For instance, Meng (2023) emphasized that these standards offer a structured framework that guides teachers in aligning their instructional practices with students' needs, ultimately leading to enhanced academic outcomes. Similarly, Sims et al. (2025) demonstrated that professional development programs focused on deepening educators' understanding of these standards contribute to noticeable improvements in teaching performance. In the Saudi context, Algethami (2022) explored the effects of targeted training initiatives on the professional competence of special education teachers and emphasized the pressing need for increased resources to facilitate the effective implementation of these standards.

1.3. Purpose of the Study

Limited studies were conducted in the area of Saudi special education teachers' professional competencies (Aldabas, 2020; Algethami, 2022; Al-Hajri, 2024), especially competencies such as concepts and general knowledge of special education, classroom and behavioral management strategies, and application of IEPs, modern technology, and assistive technology with students with disabilities, and in the educational process. There are essential and significant competencies of special education teachers, such as general knowledge of special

education, classroom and behavioral management strategies, and application of IEPs, modern technology, and assistive technology, that were not examined sufficiently in previous studies. These professional competencies form the cornerstone for enhancing special education teachers' understanding of their roles and strengthening their ability to successfully apply this knowledge in classrooms with students with disabilities (ETEC, 2025). This study aimed to assess Saudi special education teachers' competencies and seeks to evaluate the level of awareness and application regarding professional knowledge and practice standards, such as application of IEPs, modern technology, and assistive technology with students with disabilities. In addition, the present study examined whether variations in awareness and application exist based on years of experience and academic qualification within the level of application of individual educational plans, technology, and assistive technology in the education process.

1.4. Research Questions

- 1- What is the level of awareness among special education teachers in Saudi Arabia regarding concepts and principles of special education?
- 2- To what extent do special education teachers implement effective practices for classroom and behavioral management inside the classroom?
- 3- What is the level of special education teachers' awareness and application of individual educational plans, technology, and assistive technology in the education process?
- 4- Are there statistically significant differences attributed to variables such as years of experience or academic qualifications among the study sample's responses regarding the level of application of individual educational plans, technology, and assistive technology in the education process?

2. METHODOLOGY

This study utilized a descriptive survey method, in order to investigate the level of awareness and the extent to which special education teachers in some regions of Saudi Arabia implement the common professional and technological competencies. This method is suitable for the nature of the study, as it allows the description of the phenomenon as it appears in reality and enables the analysis of quantitative data related to the perspectives and perceptions of the study sample (Babbie, 2020). Creswell and Creswell (2018) advocated for the use of questionnaires in educational research, noting their reliability and ability to capture insights from large populations. Additionally, Johnson and Christensen (2024) highlighted that well-designed questionnaires enhance the accuracy and quality of collected data while minimizing the risk of response bias.

2.1. Participants

The Institutional Review Board (IRB) approval was maintained before proceeding to implement the study. The study population consists of all special education teachers working in public, private schools, or specialized centers in the Riyadh region during the academic year 2025. The random sampling method was retained to select the study sample, which consisted of 52 special education teachers from public, private schools or specialized centers. The participants were recruited from various regions in Saudi Arabia. Participation in this study is entirely voluntary, and they had to sign a consent form on the first page of the survey with all the detailed information listed about the right to withdraw at any time without any consequences before proceeding to the survey sections. All data and information collected was treated with strict confidentiality and used for scientific research purposes only.

The distribution of sample individuals was analyzed according to demographic variables, and descriptive statistics were employed, including frequency counts and percentages. The sample was analyzed based on characteristics of the study variables (gender, years of experience, and educational qualification) as shown:

Table 1: Distribution of Sample Individuals According to Demographic Variables

Variables	Categories	Frequency	Percentage
Gender	Male	19	36.5%
	Female	33	63.5%
Educational Qualification	Diploma	5	10%
	Bachelor	32	61%
	Master	13	25%
	Doctoral	2	4%
Years of Experience	1 year or less	10	19%
	2 to 5 years	6	12%
	5 to 10	10	19%
	More than 10 years	26	50%

Note. N= 52

Table 1 represented a predominantly female population of approximately 63%, with male participation represented by 36%. Those holding a bachelor's degree comprised the majority at 61%, and doctoral holders accounted for only 4%. Regarding years of experience, around 50% of the participants had "More than 10 years",

and those with "5 to 10 years and less than 1 year" represented about 19%. Only 12% had "2 to 5 years of experience."

2.2. Instrument

The primary tool for data collection was an adopted (Al-Hajri, 2024) and modified survey on the awareness and implementation of the common professional and technological competencies of special education teachers from various regions in Saudi Arabia. After obtaining ethical approval, an electronic link to the questionnaire was created and distributed across various education departments to recruit participants. The survey consisted of 41 items, which fell under four main dimensions:

1. Competence of general knowledge of special education and students' characteristics (9 items)
2. Competence of implementing specialized teaching methods for students with disabilities (8 items)
3. Competence of classroom management strategies (8 items)
4. Competence of planning and implementing individualized education plans (8 items)
5. Competence of employing assistive technology and educational technology devices (8 items)

2.2.1. Validity of the instrument

To ensure the validity of the instrument, the initial version of the survey was presented to 5 experts in the fields of special education and educational psychology. These experts provided feedback on the clarity of the items, their appropriateness for the target group, and their relevance to the study's objectives. The experts unanimously agreed that the phrasing of the items was clear and appropriate for the study's aims, with some suggestions to remove certain items and rephrase others to enhance clarity and alignment with the study's goals.

2.2.2. Internal consistency

Internal consistency refers to the correlation between the items in the instrument that measure the same construct. In this study, internal consistency was assessed by calculating the correlation coefficient between the responses of 18 participants for each survey item and the overall score of the survey. The results indicated a positive correlation, suggesting that the instrument is internally consistent and reliable for measuring the constructs it is designed to assess.

Table 2: Correlation Coefficients Between Each Dimension and the Total Questionnaire Score

Dimension	Pearson's r	p
General knowledge of special education and students' characteristics	0.915	< .0001
Implementing specialized teaching methods for students with disabilities	0.935	< .0001
Classroom management strategies	0.873	< .0001
Planning and implementing Individualized Educational Plans (IEPs)	0.922	< .0001
Employing assistive technology and educational technology devices	0.924	< .0001

Note. $N = 18$. All correlation coefficients are strong and statistically significant at $p < 0.001$ level.

As represented in Table 2, the Pearson correlation coefficients between each dimension and the total score ranged from .873 to .935, all of which are strong and statistically significant at the .001 level. All dimensions show strong positive correlations with the total score and support the construct validity of the questionnaire dimensions.

2.2.3. Instrument reliability

Instrument reliability refers to the consistency and stability of the questionnaire results under consistent conditions. A reliable instrument provides consistent outcomes when applied multiple times to the same sample under comparable conditions.

Table 3: Cronbach's Alpha Coefficients for Questionnaire Dimensions

Dimension	Cronbach's α
General knowledge of special education and students' characteristics	0.916
Implementing specialized teaching methods for students with disabilities	0.972
Classroom management strategies	0.880
Planning and implementing Individualized Educational Plans (IEPs)	0.954
Employing assistive technologies and educational technology devices	0.964

Note. $N = 18$ (pilot sample)

As shown in Table 3, Cronbach's Alpha Coefficients for dimensions ranged from .880 to .972, while the overall reliability of the full scale was 0.982. These values demonstrate strong to excellent internal consistency, which confirms the reliability of the instrument for research purposes.

2.3. Procedures

The recruitment process for participants began by using convenience sampling. Cooperation between the researcher and other professional agencies, such as educational administrations, was established to deliver the questionnaire to potential participants who met the inclusion criteria and who volunteered to respond to the survey items. Educators who were willing to volunteer were asked to sign a consent form on the first page in order to

proceed to the following items of the survey. The participants were not asked to provide names or any other personal information, in order to protect their personal privacy. All of the questionnaires were distributed and collected from March through September 2025.

2.4. Data Analysis

Data were exported from the online Google Forms software into IBM SPSS Statistics software (Version 23) for statistical analysis. Google Forms and SPSS software were used to descriptively analyze the data. Incomplete responses and information from respondents who declined to participate in the study were excluded. To accomplish the study objectives and answer its questions, various appropriate statistical methods were used, which included descriptive statistics, means, standard deviations, Pearson Correlation Coefficient, Cronbach's Alpha, percentages, effect size, and One-Way ANOVA to identify the differences in responses of sample members based on academic qualifications and years of experience.

3. RESULTS

The first research question was: *What is the level of awareness among special education teachers in Saudi Arabia regarding concepts and principles of special education?*

To answer this question, means and standard deviations were calculated for the level of awareness among special education teachers in the targeted regions regarding concepts and principles of special education. Table 3 presents the results.

Table 4: Means and Standard Deviations for Educators Awareness of the Concepts and Principles of Special Education

No.	Item	Mean	SD	Level
1	I have good knowledge about the definition, goals, and history of special education	4.55	0.61	Very High
2	I can distinguish between different types of disabilities and their characteristics	4.59	0.61	Very High
3	I apply the rights and duties of students with disabilities	4.63	0.56	Very High
4	I have knowledge of modern trends in special education	4.43	0.76	High
5	I am aware of the importance of the family and society and their role in caring for students with disabilities	4.75	0.52	Very High
6	I have the skills to deal with students with disabilities in different situations	4.47	0.64	High
7	I am adept at assessing the skills and abilities of students with disabilities	4.33	0.71	High
8	I implement educational program planning for students with disabilities	4.31	0.81	High
9	I complete the implementation of educational programs for students with disabilities	4.43	0.73	High
	Overall	4.50	0.52	Very High

Mean scores for educators' awareness ranged between 4.31 and 4.75, as shown in Table 4, reflecting a high level of awareness. The overall mean score was 4.50, indicating a high level of awareness of the concepts and principles of special education among special education teachers in variety of Saudi regions.

The second research question was: *To what extent do special education teachers implement effective practices for classroom and behavioral management inside the classroom?*

To address this question, means and standard deviations were calculated for items related to the degree of effective practices for classroom and behavioral management implementation by special education teachers. The results are illustrated in Table 5.

Table 5: Means and Standard Deviations for Implementing Effective Classroom and Behavioral Management Strategies by Educators

No.	Item	Mean	SD	Level
18	I strive to create a supportive and safe learning environment in the classroom	4.61	0.58	Very High
19	I address behavioral problems in the classroom	4.42	0.72	High
20	I establish positive relationships with students with disabilities	4.55	0.60	Very High
21	I interact appropriately with students with disabilities	4.47	0.66	High
22	I manage my time effectively in class	4.36	0.70	High
24	I collaborate with parents in managing the classroom	4.41	0.69	High

No.	Item	Mean	SD	Level
	Overall	4.47	0.66	High

As shown in Table 5, mean scores for implementing effective classroom practices and behavioral management strategies ranged between 4.36 to 4.61, which reflects a high level of competence. The overall mean score was 4.47, indicating a high level of special education teachers' competence in implementing effective classroom and behavioral management strategies.

The third research question was: *What is the level of special education teachers' awareness and application of individual educational plans (IEP), technology, and assistive technology in the education process?*

To answer this question, means and standard deviations were calculated for items related to the level of special education teachers' awareness and application of IEP, technology, and assistive technology in the education process. Table 6 presents the results.

Table 6: Means and Standard Deviations for Educators' Awareness and Implementation of IEP and Technology, and Assistive Technology

No.	Item	Mean	SD	Level
26	I follow the steps of preparing the Individualized Education Program (IEP).	4.52	0.59	Very High
27	I seek the necessary data to prepare the IEP.	4.48	0.63	High
28	I prepare the IEP with its various steps.	4.44	0.66	High
29	I implement the IEP.	4.46	0.62	High
30	I evaluate the effectiveness of the IEP.	4.50	0.60	Very High
31	I assist students with disabilities in contributing to the preparation of the IEP.	4.41	0.68	High
32	I collaborate with the multidisciplinary team in preparing the IEP.	4.47	0.64	High
33	I use modern technology in preparing the IEP.	4.39	0.70	High
34	I have knowledge about the types of assistive technology for students with disabilities.	4.55	0.58	Very High
35	I can identify appropriate assistive technology for students with disabilities.	4.49	0.61	High
36	I apply various assistive technology for students with disabilities.	4.43	0.67	High
37	I evaluate the effectiveness of different assistive technology.	4.46	0.63	High
38	I adapt new assistive technology according to case conditions and different situations.	4.42	0.69	High
39	I collaborate with students with disabilities in using modern technologies.	4.40	0.71	High
40	I employ modern technology in teaching students with disabilities.	4.51	0.60	Very High
41	I strive for the continuous use of assistive and modern technologies.	4.53	0.59	Very High
	Overall	4.47	0.64	High

Mean scores for educators' awareness and implementation of IEP, technology, and assistive technology ranged between 4.391 and 4.55, as shown in Table 6, reflecting a high level. The overall mean score was 4.47, indicating a high level of awareness and implementation of IEP, technology, and assistive technology among special education teachers.

The fourth research question was: *Are there statistically significant differences attributed to variables such as years of experience or academic qualifications among the study sample's responses regarding the level of application of IEP, technology, and assistive technology in the education process?*

To address this question, statistics were employed, such as mean and standard deviation for years of experience and qualification groups, effect size, and One-Way ANOVA to analyze the variance among dimensions, including level of IEP, technology, and assistive technology in the education process. Tables 7 and 8 display the results.

Table 7: One-Way ANOVA for Application of IEPs

Grouping Variable	Variance	Sum of Squares	df	Mean Square	F-value	Significance
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Years of Experience	Between Groups	2.87	4	0.96	3.71	*0.018 Statistically Significant
	Within Groups	12.44	48	0.26		
	Total	15.31	52			
Academic Qualification	Between Groups	1.12	4	0.37	1.48	0.233
	Within Groups	12.01	48	0.25		
	Total	13.13	52			

Note. Mean Score per Group calculated and found educators with >10 years of experience scored higher than less experienced groups.

Table 7 illustrates the results of the one-way ANOVA test for the differences in the attitudes of sample members regarding the level of application of IEPs, based on the years of experience and educational qualification variable. According to the F-value and significance levels, significant differences were found only for IEP application ($F = 3.71$, $p = 0.018$) regarding the years of experience. For instance, the mean score per group was calculated and evidenced that participants of special education teachers who had over 10 years of experience scored higher on the application of IEPs. On the other hand, there were no significant differences for academic qualification ($p > 0.05$).

Table 8: One-Way ANOVA for Application of Technology and Assistive Technology

Grouping Variable	Variance	Sum of Squares	df	Mean Square	F-value	Significance
Years of Experience	Between Groups	2.15	4	0.72	2.68	0.058
	Within Groups	12.90	48	0.27		
	Total	15.05	52			
Academic Qualification	Between Groups	0.98	4	0.33	1.26	0.299
	Within Groups	12.64	48	0.26		
	Total	13.62	52			

As shown in Table 8, there were no significant variation in the application of technology and assistive technology for years of experience and academic qualification ($F = 1.26$ to 2.68 , $p = 0.299$ to 0.058) of sample members.

4. DISCUSSIONS

The findings of this study indicate that special education teachers in a variety of Saudi regions demonstrated a high level of professional competence regarding awareness and application of special education concepts and knowledge, classroom and behavioral management strategies, IEPs, modern technology, and assistive technology with students with disabilities in the education process.

Results determined that educators highly confirmed the significance and role of family participation in developing and maintaining the educational process for their children with disabilities. In contrast, Medabesh et al., study (2024) illustrated the lack of parental involvement due to challenges and barriers to inclusion comprehensively, such as finding a teacher who is empathetic. In addition, results presented that most educators had highly scored their positive vital role of creating and maintaining a safe learning environment in the classroom. This is consistent with Duka et al., study (2024), which explored the effect of an appropriate learning environment that special education teachers create on academic achievement and social skills for students with disabilities.

Educators indicated that they were often utilizing assistive technology with students who were in need; however, they were slightly lower in using modern technology regarding preparing IEPs or educational lessons. These results agreed with other studies that examined the limited use of modern technology by teachers due to lack of knowledge, support, and resources (Anne & Rashid, 2024; Aldabas, 2020).

This study addressed statistically significant differences attributed to the sample group of special education teachers with more than 10 years of experience who confirmed their proficiency skills in implementing IEPs effectively compared to the other group with less career experience. Results confirmed long special education teaching experience is often associated with greater self-efficacy and applied competence. This is consistent with the study by Mastrothanasis et al. (2021), which identified significantly higher self-efficacy levels among teachers

with long experience compared to those with less experience in the career. Another study also found statistically significant differences in favor of age and self-efficacy among special education teachers, as well as their mastery of various professional competencies (Dimitrios et al., 2020).

Furthermore, the majority of special education teachers reported high levels of awareness and application of professional competencies; however, a small subset of responses indicated areas of uncertainty or limited practice, particularly in dimensions such as employing assistive technology and activating participation with multidisciplinary teams. These findings recommend that while essential competencies are well established, contextual limitations, for instance, available resources, lack of time, or professional development needs, may impede an appropriate implementation in certain settings (Almutlaq, 2022; Mustafa & Al-Malih, 2023).

4.1. Recommendation

Understanding how teachers utilize technology in the education process is fundamental due to ongoing development (Backfisch et al., 2020; Lachner et al., 2024; Yilmaz et al., 2021). Most of the teaching and learning procedures rely on technology. Understanding teachers' perspectives assists policymakers in designing a training program that suits educators' needs, such as artificial intelligence (AI) tools for educators, students, and their families to reach quality education.

5. CONCLUSION

The findings of this research highlight the critical need to reinforce training and professional development programs for special education teachers, especially newly hired teachers, ensuring that they possess a thorough understanding of professional knowledge and practice standards and can implement them effectively. Based on the results, the study recommends the creation of specialized training curricula aimed at raising awareness and supporting the successful application of these standards in educational contexts (Algethami, 2022).

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