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## **A Training Package Based on Digital Education in Developing the Professional Competencies of Inclusion Teachers and its Impact on Improving their Attitudes towards Students with Special Needs**

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### **Abstract**

The current study aimed to develop the professional competencies of inclusion teachers, and improve their attitudes towards Students with Special Needs (SSNs) through the training package based on digital education. Thirty teachers in inclusion schools participated in the study. The study used the professional competencies of inclusion teachers test, the teachers' attitudes toward students with special needs scale, and the training package based on digital education. The results revealed that the training package based on digital education was effective in developing the professional competencies of inclusion teachers and improving their attitudes toward SSNs. The effect of the training package continued after a period of training. The study recommended to preparing a guide for teachers to introduce them to digital education and its advantages in educating SSNs.

### **Keywords**

Training package, Digital education, Professional competencies, Attitudes, Students with special needs

## Introduction

The Arab Republic of Egypt has developed special education services to educate Students with Special Needs (SSNs). However, it is necessary to note that a great deal of restructuring is needed if we want to achieve the inclusion of SSNs in Egypt.

Technological tools and strategies must be included in students' education, including SSNs (Tohara, 2021), so teachers must be professionals and have digital skills (Ibda et al., 2023). There are many strategies to deliver learning experiences and digital content, such as preparing teachers for online lectures, and coordinating online videos from different sources (Maher et al., 2015).

Continuous training leads to the development of teachers' professional competencies (Mallarangan et al., 2024). The professional competence of teachers of SSNs is necessary for success of the inclusion education (Kalgotra, 2020), so the most important factor affecting inclusive education is the preparation of teachers for their professional activities (Makhambetova, & Magauova, 2023).

All children deserve to have quality early care and education experiences that value them and lay the foundation for positive life paths. Unfortunately, many minority children experience inequalities in early childhood, including a greater likelihood of exclusion. These early experiences influence children's development, and early childhood education teachers' dispositions, knowledge, and skills are key drivers of these experiences (Lang et al., 2024). Teachers are the most important factors in the successful implementation of inclusive education (Almalky, & Alrabiah, 2024), so the formation of positive attitudes among teachers is necessary to teach SSNs in inclusive classrooms (Saloviita, 2020). Yet the trend towards improving the attitudes of teachers is missing in recent studies (Lindner et al., 2023).

Therefore, it becomes clear the importance of using digital education in education, the importance of improving the professional competencies of inclusion teachers, and the importance of changing the attitudes of inclusion teachers towards SSNs.

### *The problem of study*

The potential of digital learning has not been fully exploited in education. Teachers' digital literacy is important. Accurately identifying teachers' continuing professional learning needs is critical to creating relevant professional development opportunities (van der Lans et al., 2024). Many studies have found that inclusion teachers need training courses to develop their professional competencies to educate SSNs (e.g. De Vroey et al., 2023; Kantor et al. 2023; Makhambetova, & Magauova, 2023; Ng'andu, 2023; Specht et al., 2016; Yada& Savolainen, 2017; Zarate et al., 2023).

Teachers in inclusive schools are accommodating an increasing number of heterogeneous students. However, teachers often feel unprepared, and therefore may be afraid to include SSNs in regular classrooms (Robinson, 2017). Many studies have found that inclusion teachers have a negative attitude towards SSNs (e.g. Al-Rashaida, & Massouti, 2024; Buzzai et al., 2023; Giavrimis, 2023; Herman, et al., 2023; Kamran et al., 2023; Kielblock, & Woodcock, 2023; Sandhu, 2017; Saloviita, 2020).

Results of some studies have shown that developing teachers' competencies improves their attitudes towards SSNs. Lee et al. (2015) found that training teachers of SSNs made them strong advocates for the inclusion of children with intellectual disabilities or visual, hearing, speech, and language disabilities, regardless of their professional role (administrator or classroom teacher). Al-Shammari (2015) also showed that a training package (Deaf: Language, Culture, and Inclusion) was effective in modifying teachers' attitudes toward

integrating deaf students into regular school. Sharma, and Sokal (2015) showed that a training course was effective in improving Australian inclusion teachers' attitudes.

In the digital age, the teacher faces great challenges that require him to have a set of skills that he must possess in order to be able to use new technology. Gaggioli's study (2018) revealed that digital education effective in teaching SSNs. Zakri and Mahmoud (2021) revealed that it is necessary to meet a several special requirements for teachers of SSNs to implement digital education. Shater et al. (2023) found that teachers have a positive attitude toward using digital education to teach SSNs.

So the present study sought to find an answer to the following question:

What is the effectiveness of the training package based on digital education in developing professional competencies of inclusion teachers and its impact on improving their attitudes towards SSNs?

### *Purpose of the study*

The current study aimed to:

1. Examine the effectiveness of the training package based on digital education to develop the professional competencies of inclusion teachers.
2. Investigate the effectiveness of the training package based on digital education in improving inclusion teachers' attitudes towards SSNs.

### *The importance of studying*

The importance of the current study was determined as follows:

#### **a. Theoretical importance**

1. Shedding light on the inclusion of SSNs.

2. Shedding light on using digital education in the training programs for teachers of SSNs.
3. The scarcity of Arab studies - to the extent of the researcher's knowledge - that dealt with the use of the training package based on digital education in developing the professional competencies of inclusion teachers.

#### **b. Practical importance**

1. Designing professional competencies of inclusion teachers' test that will benefit the Professional Academy for Teachers in identifying the training needs of inclusion teachers.
2. Designing a teachers' attitudes scale will benefit decision-makers in determining teachers' attitudes towards SSNs.
3. Designing the training package based on digital education will benefit the Professional Academy for Teachers in developing the skills of teachers.
4. Designing the training package based on digital education will benefit decision-makers in creating programs to change teachers' attitudes toward inclusion.

### ***Definition of the terms***

#### **a. Professional competencies of inclusion teachers**

Competence is the development of an individual's skills, especially when applied to a task or group of tasks (VandenBos, 2015). Inclusion means actions and methods that ensure that all students are equally welcomed, supported, valued, and respected (Barnabe et al., 2023).

The researcher defines the professional competencies of inclusion teachers procedurally as the level of actual performance of the teacher in inclusion schools to teach

SSNs and it is measured by the score of the teacher in the professional competencies of inclusion teachers test.

#### **b. Attitudes towards SSNs**

Attitudes are a relative evaluation of a thing ranging from negative to positive (VandenBos, 2015). SSNs are students who receive a variety of special educational services (Brucker, 2021).

The researcher defines attitudes toward SSNs procedurally as the attitudes adopted by teachers in inclusion schools toward SSNs and it is measured by the score of the teacher in teachers' attitudes toward SSNs scale.

#### **c. The training package based on digital education**

It is a training bag consisting of a trainer, trainee, PowerPoint, bag key, and enrichment material in which digital education methods are used through a set of activities and worksheets. With the aim to develop the professional competencies of inclusion teachers and improve their attitudes towards inclusion education within a specific period.

### ***Limitations of the study***

The study was determined as follows:

**Methodological limitations:** The study used the quasi-experimental method.

**Spatial limitations:** The study was applied in the West Fayoum Administration.

**Human limitations:** The participants were selected from inclusion teachers.

## Literature review and previous studies

This section will deal with digital education, inclusion of SSNs, the professional competencies of inclusion teachers, and the teachers' attitudes towards SSNs:

### *Digital education*

It has become necessary for the educational system to keep pace with technological development through using digital education (Decuypere et al., 2021). Digital technologies can be used to support the inclusion of diverse student groups in education in several ways including enhancing access to educational content, and increasing personalization. However, persistent digital inequality can undermine digital justice, equity and inclusion in the digital sphere (Gottschalk, & Weise, 2023).

There are several models that rely on digital education, such as blended learning which is an educational model that combines the advantages of face-to-face and e-learning (Saragih et al., 2020). The flipped classroom is a popular strategy in which students watch a video lecture at home and work on tasks with the teacher in class (Setren et al., 2020). Computer-supported educational platforms are also of utmost importance because they provide students and engineers with interactive and personalized learning experiences, meet their individual needs and enhance their academic growth (Afrazi et al, 2023).

### *Inclusion of SSNs*

Inclusion is the process of adjusting schools to educate SSNs. It is a means these schools accommodate all students without discrimination (Okongo et al., 2015). From a broader perspective, inclusive education is an educational model based on the comprehensive inclusion of all types of students regardless of social, cultural, and physiological disadvantages (Panda et al., 2023). Inclusive education represents a major challenge for many

educational systems around the world (Navarro et al., 2016). Although inclusion is a way to create an inclusive society in which SSNs are educated beside normal students there are concerns and objections from teachers towards inclusion mainly due to the diversity SSNs (Pappas et al., 2018).

According to the Egyptian Ministry of Education and Technical Education's Resolution No. 252 of 2017, and Circular No. (3) In 2019, the target groups for inclusion enrollment are:

- Mild Intellectual disability is accepted if the IQ ranges between (70-60).
- Autism spectrum disorder is accepted if CARS test ranges between (30-36) or the Gilliam test ranges between (80-110).
- Hearing disability is accepted if the degree of hearing loss is between (40 – 70) decibels.
- Visual impairment is accepted if visual is 1/60 degrees, and blind.
- Motor disability and cerebral palsy.

### *Professional competencies of inclusion teachers*

Schools today focus on inclusive education for SSNs. So general and special education teachers together bear responsibilities for student education (Da Fonte, & Barton-Arwood, 2017). Educating all children in inclusive settings requires appropriate support and guidance. Effective coaching has the potential to give teachers at every stage of their career the ability to influence student thinking and increase the educational development of all students (Larios, & Zetlin, 2023).

The competence of teachers in inclusive education is the key to the successful implementation of inclusive education (Xue et al., 2023). Educational inclusion is a great interest to those working in educating SSNs, as it is a means to help SSNs adapt to ordinary



students to acquire new educational skills that contribute to developing their personality and including them in society. Although special education teachers are specialized, it has become necessary for regular teachers to possess information about their teaching methods (Sayed & Tabbaa, 2021).

Many studies have concluded that inclusion teachers need to develop their professional competencies. Forlin et al. (2015) found that teachers of SSNs have low teaching skills. Bailey et al. (2015) found that teachers do not know the benefits of inclusion and they have a negative view about SSNs and their families. Al-Sharqawi (2019) recommended the necessity of holding courses and workshops for inclusion teachers in Egypt on an ongoing basis to learn about the most important educational developments regarding inclusion cases in general education schools. Choucair (2019) revealed that inclusion teachers need significant training in practical and cognitive competencies and competencies for preparing the individual educational plan. While the results of Méndez et al. (2023) indicated that the digital capabilities of inclusion teachers are low.

While other studies revealed training teacher is effective developing their professional competencies. Sharma and Sokal (2015) revealed that training teachers is effective in developing their professional competencies. Sharma et al. (2015) reported the effectiveness of a training course for teachers in developing their self-efficacy towards teaching SSNs in an inclusive environment. Navarro et al. (2016) found that a training program for inclusive teachers was effective for developing teachers' competencies towards designing inclusive educational experiences for their students. Chao et al. (2017) reported that one-week training course impacted teachers' self-efficacy, improving teaching, learning and classroom management strategies to support SSNs in mainstream schools in Hong Kong.

### *Teachers' attitudes towards SSNs*

Teachers' attitudes toward inclusive education influence on success implementation within inclusion schools (Ewing et al., 2018). However, the results of some studies revealed inclusion teachers had negative attitudes towards SSNs. Khalil et al. (2017) showed that negative attitudes affect the cooperation of general education teachers to the success of the comprehensive inclusion process.

Yada, and Savolainen (2017) found that teachers had some concerns about implementing inclusive education in their classrooms. Zagona et al. (2017) found that there was a link between teachers' attitudes toward inclusive education and receiving university courses or special training in inclusive education. Abdel Aziz, and Moussa (2022) concluded that there was a high negative behavioral component of education teachers towards SSNs, which causes excessive bullying in cases of people with disabilities. Atalay (2024) concluded that the most important factor influencing pre-school teachers' attitudes towards SSNs is receiving training in teaching SSNs.

Therefore, it is evident from the importance of digital education in educating students. Inclusion teachers need to develop their professional competencies for success of the inclusion process. Inclusion teachers who have received training have a positive attitude towards SSNs.

### *Hypotheses of the study*

In light of the problem of the study, its aims, its importance, the literature review, and the results of previous studies, the following hypotheses were formulated for the current study, which are as follows:

1. There are statistically significant differences between the mean rank of the experimental group in the pre/post -tests of professional competencies of inclusion teachers in favor of the post-test.
2. There are differences between the mean rank of the experimental and control groups after applying the training package on professional competencies of inclusion teachers in favor of experimental group.
3. There are no differences between the mean rank of the experimental group in the post/follow-up tests of professional competencies of inclusion teachers test.
4. There are statistically significant differences between the mean rank of the experimental group in the pre/post- tests of teachers' attitudes toward SSNs scale in favor of the post-test.
5. There are differences between the mean rank of the experimental and control groups after applying the training package on teachers' attitudes toward SSNs scale in favor of the experimental group.
6. There are no differences between the mean rank of the experimental group in the post / follow-up tests of teachers' attitudes toward SSNs scale.

## **Method and procedures**

The study aimed to develop the professional competencies of inclusion teachers and improve their attitudes towards SSNs through the training package based on digital education. Therefore, the method and procedures were followed:

## *Design*

The current study used the quasi-experimental approach, where a training package based on digital education was considered the independent variable. While developing the professional competencies of inclusion teachers and improving their attitudes towards SSNs were dependent variables.

## *The participants*

The participants of the study were as the following:

- a. **The participants of verify psychometric efficiency:** One hundred male and female teachers in the West Fayoum Administration were selected to verify the psychometric efficiency of the study tools
- b. **The main participants:** Thirty teachers from inclusion schools in the West Fayoum Administration participated in the study. They were divided into two groups:
  1. Experimental group consisted of (15) teachers in inclusion schools.
  2. Control group consisted of (15) teachers in inclusion schools.

## *Equivalence between the two groups in Professional competencies of inclusion teachers, and attitudes towards SSNs:*

Equivalence was made between the two groups. Table (1) shows the results of the equality of both groups in the professional competencies of inclusion teachers, and the attitudes towards SSNs using the Mann-Whitney test.

**Table 1***Equality of participants in professional competencies, and attitudes towards SSNs (n = 30)*

Scale	Group	N.	Mean rank	Sum of ranks	Z	Sig.
Professional competencies for inclusion teachers	experimental	15	13.93	209.00	-0.994	0.320
	control	15	17.07	256.00		
Attitudes towards SSNs	experimental	15	16.23	243.50	-0.458	0.647
	control	15	14.77	221.50		
Sig. (0.05) = 1.96			Sig. (0.01) = 2.58			

Table (1) showed that there were no statistically significant differences between the two groups, which indicates that the participants were equivalent in their professional competencies and their attitudes towards SSNs.

### *The tools of study*

To achieve the aim of the study the following tools were used:

#### **1. Professional competencies of inclusion teachers test (prepared by the researcher)**

The test aimed to identify the professional competencies of inclusion teachers before and after using the training package. It was also used as a follow -up test.

*The resources preparation:* Several sources were relied upon to prepare this test as follows:

- a. Literature review that dealt with the professional competencies of inclusion teachers.
- b. Previous studies that dealt with the professional competencies of inclusion teachers (e.g. Bailey et al.; Chao et al., 2017; Cherkawy, 2019; Choucair, 2019; Forlin et al., 2015; Navarro et al., 2016; Sharma et al., 2015).

*Description of the test:* Based on the previous sources, the test included (30) questions about the professional competencies of inclusion teachers. The teachers should read the questions carefully and then choose the correct answer for each question.

*Psychometric characteristic:*

- a. *Content validity:* Ten professors in special education and mental health revealed the veracity of test items, and in light of the jury members suggestions and comments, some amendments were made.

Content validity was calculated using the Lawche 
$$CVR = \frac{n_e - N_2}{N_2}$$
 equation (Lawche, 1975, 567).

- Where CVR (content validity ratio) is the content validity coefficient.
- $n_e$  (essential) is the number of arbitrators who consider the item essential to the topic studied.
- $N_2$  is the total number of arbitrators, divided by (2).

Any statement of the scale that reached 40.0 or less was deleted.

b. *The reliability*

- *Cronbach's alpha coefficient:* The reliability coefficient was (0.82), which was a high- reliability coefficient.
- *Split-half method:* The reliability coefficient was (0.85), which was a high- reliability coefficient.

- c. *Internal consistency of the test items:* Internal consistency was calculated by (Pearson correlation) between items and the total score. All items were significant at (0.01). This confirms the internal consistency of the test items.

## **2. A teachers' attitudes toward students with special needs scale (prepared by the researcher):**

The scale aimed to measure teachers' attitudes toward SSNs.

**Preparation sources:** Several sources were relied upon to prepare this scale as follows:

- a. Literature review that deals with teachers' attitudes toward SSNs.
- b. Previous studies that dealt with teachers' attitudes toward SSNs (eg, Abdel Aziz, & Moussa, 2022; Al-Shammari, 2015; Lee et al., 2015; Yada, & Savolainen, 2017; Zagona et al., 2017).

**Description of the scale:** Based on the previous sources, (30) items were formulated through which teachers' attitudes toward SSNs can be identified. The teachers should read the items carefully and then choose the appropriate responses (completely, a lot, sometimes, a little, not at all) taking (5-4-3-2-1) respectively.

### ***Psychometric properties:***

- a. ***Content validity:*** Ten professors in special education and mental health revealed the veracity of scale items, and in light of the jury members suggestions and comments, some amendments were made.

Any item of the scale that reached 40.0 or less was deleted.

- b. ***The reliability:***

- ***Cronbach's alpha coefficient:*** The reliability coefficient was (0.80), which was a high- reliability coefficient.
- ***Split-half method:*** The reliability coefficient was (0.82), which was a high- reliability coefficient.

- c. *Internal consistency of the scale items:* Internal consistency was calculated by (Pearson correlation) between items and the total score. All items were significant at (0.01). This confirms the internal consistency of the scale items.

### **3. The training package based on digital education (prepared by the researcher):**

A training package aimed to develop the professional competencies of inclusion teachers within a specific period.

A. *Sources for preparing the training package:* The researcher relied on a diverse set of sources, which were as follows:

1. Literature review that dealt with professional competencies of inclusion teachers.
2. Previous studies using a training package develop professional competencies of inclusion teachers and improve their attitudes towards SSNs (e.g. Al-Shammari, 2015; Chao et al., 2017; Lee et al., 2015; Navarro et al., 2016; Sharma, & Sokal, 2015)

B. *The techniques used in the training package:* Several techniques were used to achieve the objectives of the training package, such as; lectures, group discussions, brainstorming, modeling, blended learning, flipped classroom, written agency behavioral contracts, homework, and feedback.

C. *Evaluated methods used in the training package:* The training was evaluated through four methods:

- Pre-evaluation: to identify the participants' skills and knowledge about inclusion and applications of assistive technology.
- Post-evaluation: after applying the training package.
- Continuous evaluation: through observation during workshops (work groups), and practical application to measure the development of participants' skills in



addition to measuring the extent of participants' motivation to work with inclusion.

- Final evaluation: to measure the extent of participants' satisfaction with the training.

### *The procedural steps of study:*

The study took the following procedural steps:

1. Reviewing the literature related to digital education, inclusion of SSNs, the professional competencies of inclusion teachers, and teachers' attitudes towards SSNs.
2. Reviewing the previous studies about professional competencies of inclusion teachers, and teachers' attitudes toward SSNs.
3. Preparing the scales of study.
4. Preparing the training package based on digital education in developing the professional competencies of inclusion teachers.
5. Applying the tools of study (pre- test).
6. Selecting the participants and conducting equivalence between them using appropriate tools in the professional competencies of inclusion teachers, and teachers' attitudes towards SSNs.
7. Applying the training package to participants of the experimental group only.
8. Applying the post-test.
9. Re-apply the measures after the follow-up period to participants of the experimental group only to verify the extent of a training package's continued impact.
10. Statistical processing of data.
11. Writing and interpreting results.
12. Providing some recommendations that emerged from the results of the study.

### ***Statistical methods:***

The researcher used the following statistical packages for the social sciences (SPSS):

1. Pearson Correlation Coefficient.
2. Cronbach's Alpha.
3. Split-Half.
4. -Mann-Whitney test for independent samples.
5. Wilcoxon test for correlated samples.

In addition the Losch equation to calculate content validity, value of "r" to calculate the effect size of related groups, and independent groups.

### **Results of the study**

After applying the study tools, the following results were reached.

***The first hypothesis:*** "There are statistically significant differences between the mean rank of the experimental group in the pre/ post- tests of professional competencies of inclusion teachers test in favor of the post-test".

Wilcoxon test was used to identify the significance of differences between the mean rank of experimental group participants in the pre/post-tests. Table (2) shows the results of the study:



**Table 3**

*Mean rank of the experimental & control groups after applying the training package (n=30)*

<b>Group</b>	<b>N.</b>	<b>Mean rank</b>	<b>Sum of ranks</b>	<b>Z</b>	<b>Sig.</b>	<b>R</b>	<b>Effect size</b>
Experimental	15	23.00	345.00				
Control	15	8.00	120.00	-4.668	0.00**	-0.852	strong

Table (3) showed that there are statistically significant differences between the mean rank of the experimental and control groups after applying the training package on professional competencies of inclusion teachers test in favor of the experimental group. The mean rank of the experimental group was greater than the mean rank of the control group, which indicates that the second hypothesis of the study was verified.

The value of (r) is (-0.852), which is a high value. It indicates that the training package has a strong effect size on developing the professional competencies of inclusion teachers among the experimental group, which indicates that the training bag has high practical significance

***The third hypothesis:*** "There are no differences between the mean rank of the experimental group in the post/follow-up tests of professional competencies of inclusion teachers test".

Wilcoxon test was used to identify the significance of differences between the mean scores of the experimental group in post /follow-up tests on professional competencies of inclusion teachers. Table (4) shows the results of the study:

**Table 4**

*Post /follow-up tests of professional competencies inclusion teachers test (n=15)*

post/follow-up tests	N	Mean rank	Sum of ranks	Z	Sig.
Negative ranks	2	1.50	3.00		
positive ranks	0	00	00	-1.414	0.157
Tied ranks	13				
Total	15				

Table (4) showed that there are no statistically significant differences between the mean rank of the experimental group after applying the training package and the mean rank of the same group after one- month of applying the training package on professional competencies of inclusion teachers.

**The fourth hypothesis:** "There are statistically significant differences between the mean rank of the experimental group in the pre/post -tests of teachers' attitudes toward SSNs scale in favor of the post-test".

Wilcoxon test was used to identify the significance of differences between mean rank of the experimental group in pre/post- tests of teachers' attitudes toward SSNs. Table (5) shows the results of the study:

**Table 5**

*Pre /post- tests of teachers' attitudes toward SSNs (n= 15)*

pre/post- tests	N.	Mean rank	Sum of ranks	Z	Sig.	R	Effect size
Negative ranks	0	00	00				
positive ranks	15	8	120	-3.411	0.001**	-0.88	strong
Tied ranks	0						
Total	15						

Table (5) showed that there are statistically significant differences between the mean rank of the experimental group before and after applying the training package on teachers' attitudes towards SSNs in favor of the post-test. The positive mean rank was greater than the negative mean rank, which indicates that the fourth hypothesis of the study has been fulfilled.

The value of ( $r$ ) is (-0.88), which is a high value. It indicates that the training package has a strong effect size on improving teachers' attitudes towards SSNs among the experimental group, which indicates that the training bag has high practical significance.

**The fifth hypothesis:** "There are differences between the mean rank of the experimental and control groups after applying the training package on teachers' attitudes toward SSNs scale in favor of the experimental group".

Mann-Whitney test was used to identify the significance of differences between mean ranks of the experimental and control groups after using the training package. Table (6) shows the results of the study:

**Table 6**

*Mean rank of the experimental & control groups after applying the training package (n=30)*

Group	N.	Mean rank	Sum of ranks	Z	Sig.	R	Effect size
Experimental	15	23.00	345.00				
Control	15	8.00	120.00	-4.668	0.00**	-0.852	strong

Table (6) showed that there are statistically significant differences between the mean rank of the experimental and control groups after applying the training package on teachers' attitudes towards SSNs in favor of the experimental group. The mean rank of the

experimental group was greater than the mean rank of the control group, which indicates that the fifth hypothesis of study has been fulfilled.

The value of ( $r$ ) is (-0.852), which is a high value. It indicates that the training package has a strong effect size in improving teachers' attitudes towards SSNs among the experimental group, which indicates that the training bag has high practical significance.

***The sixth hypothesis:*** "There are no differences between the mean rank of the experimental group in the post / follow-up tests of teachers' attitudes toward SSNs scale".

Wilcoxon test was used to identify the significance of differences between mean rank of the experimental group on the post and follow-up tests. Table (7) shows the results of the study:

**Table 7**

*Post /follow-up tests on teachers' attitudes toward SSNs (n=15)*

post/follow-up tests	N.	Mean rank	Sum of ranks	Z	Sig.
Negative ranks	0	00	00		
positive ranks	1	1.00	1.00	-1.00	0.317
Tied ranks	14				
Total	15				

Table (7) showed that there are no statistically significant differences between the mean rank of the experimental group after applying the training package, and after one month of implementing the training package on teachers' attitudes toward SSNs, which indicates that the sixth hypothesis of the study has been fulfilled.

## Conclusions:

The results of the current study revealed that the training package based on digital education was effective in developing the professional competencies of inclusion teachers and improving their attitudes towards SSNs.

Developing the professional competencies of inclusion teachers and improving their attitudes toward SSNs are agree with many previous studies (e.g. Abdel Aziz, & Moussa, 2022; Al-Shammari, 2015; Lee et al., 2015; Sharma, & Sokal, 2015; Yada, & Savolainen, 2017; Zagona et al., 2017).

The researcher attributes the positive impact of the training package to use several techniques to achieve the aims of the study. The lecture technique helped to provide cognitive information to teachers about students with special needs. The group discussion and brainstorming techniques were used to explain the reasons of disability. The modeling technique helped teachers imitate models of using appropriate strategies in teaching SSNs. The feedback technique was also provided to the teacher about his performance level in the tasks immediately, with the aim of modifying the performance in the skill he is performing to reach the degree of optimal performance for the skill itself.

The researcher attributes the positive impact of the training package to use some methods based on digital education, such as blended learning, which helped to appropriately blend traditional and electronic methods according to the requirements of the educational situation, with the aim of improving educational objectives with lowest possible cost, and the flipped classroom helped to transfer content into videos that benefit the teacher in teaching SSNs.

Therefore, the positive results of the study in developing the professional competencies of inclusion teachers and improving their attitudes towards SSNs can be explained by exposing the experimental group to the training package based on digital



education, which includes several techniques such as (lectures, group discussions, brainstorming, modeling, homework, Written behavioral contracts and feedback), and some methods based on digital education such as (blended learning and flipped classrooms). The researcher's use of previous procedures justifies the continuation of the positive effect during the follow-up period.

### **Recommendations:**

In light of the results of the study, and the previous studies, the researcher recommends the following:

1. Preparing a guide for teachers about steps to use digital education for SSNs.
2. Producing digital curricula that suit the abilities of SSNs, because without them, digital education cannot be employed..
3. Activate the resource room and be equipped with modern technical equipment suitable for merging cases.
4. Adapting educational platforms so that they are suitable for use by SSNs.
5. Educational leaders must make an agreement with telecommunications companies on free access to educational materials on Ministry of Education websites.
6. Educational policy makers must develop new educational models that can reach everyone, such as digital learning, emergency preparedness, and making the educational system more flexible in the face of crises.
7. Training teachers to confront the linguistic and academic problems facing SSNs through using technology programs.

8. Conduct a comprehensive evaluation SSNs when they enter the integration program, including an evaluation of the various language skills in the primary stage.

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