

## Evaluating the effectiveness of kindergarten teaching methods and aids programs for children with hearing impairments (HIs) from the point view of workers in Jordan

**Inam Abu-Radwan, Ali M Alelaimat, Haitham Baibers, Hesham Alomyan**

Field Training Supervisor In The Department of Special Education,  
Queen Rania Faculty for Childhood, The Hashemite University, PO  
Box 330055, Zarqa 13133, Jordan

Department of Child Education, Queen Rania Faculty for Childhood,  
The Hashemite University, P.O. box 330127, Zarqa 13133, Jordan

Department of Child Education, Queen Rania Faculty for Childhood,  
The Hashemite University

Department of Educational Sciences, Faculty of Arts and Sciences,  
University of Petra, Jordan

**Corresponding author:** Inam Abu-Radwan

Field Training Supervisor In The Department of Special Education,  
Queen Rania Faculty for Childhood, The Hashemite University, PO  
Box 330055, Zarqa 13133, Jordan

ONOMÁZEIN 62 (December 2023): 477-490  
ISSN: 0718-5758



## Abstract

This study aims to detect the effectiveness of kindergarten teaching methods and aid programs for children with HIs in the central region of Jordan. The study has also investigated the effect of some selected demographic variables (academic qualification, specialization) to identify the competency level of kindergarten teaching programs and aid programs for children with HIs from the point of view of workers in Jordan. Data was collected from 34 workers using a questionnaire consisting of 11 paragraphs. The results of the study revealed that the competency level of the kindergarten teaching methods and aids programs from the point of view of workers was high. On the other hand, the study results indicated that there is a significant difference in terms of the effectiveness level of kindergarten teaching methods and aid programs for children with HIs from the point of view of workers attributed to the academic qualification variable in favor of Diploma degree holders. The study also found a significant difference attributed to the specialization variable in favor of Special Education. The study recommended carrying out a study about the effectiveness of kindergarten teaching methods and aid programs for children with other kinds of disabilities.

Keywords: Procedures for setting up and applying the scale

## 1. Introduction

The philosophy of HIs programs seeks to facilitate their later enrollment in classrooms along with their hearing peers, provide opportunities for participation and communication in real-life situations, develop expressive language and vocabulary, and provide opportunities for social interaction. The abilities of children with HIs are developed when their lingual, social, and communitive skills are enhanced within the context of children programs including total communication, and exposure to a natural environment with others.

The needs of children with HIs vary according to the level of their hearing impairment and the severity of hearing loss. Some of them can remain at a public school receiving their education alongside their hearing peers if they have minor hearing loss. When hearing loss increases, they become more in need of training, hearing and speech intervention, hearing rehabilitation, and various educational adjustments and adaptations. There is also a need for amplifiers and training on manual methods and vision in education with the development of spoken language as much as possible when the hearing loss reaches up to 90 dispel (Smith, 2007). The US law issued by the Joint Committee on Infant Hearing (JCIH) (2007) recognized the provision of early intervention services for children with HIs and their families by qualified employees and workers through providing appropriate and multi-disciplinary programs in HIs including early intervention specialists, teachers of children with HIs and language and Speech – Language and Hearing specialists. Rice & Linehan (2005) carried out a study that aimed at checking the competency of workers with children with HIs in early childhood on a sample consisting of 42 professionals and practitioners working with children with HIs. The results revealed that understanding the development of young children, evaluating and diagnosing children, developing effective curricula and plans, and preparing individual family plans are among the most important competencies that workers with children with HIS must possess. The study results also revealed that there are significant differences between the teachers of deaf children and speech and hearing specialists, early childhood teachers, special education teachers, workers at early intervention programs, and graduate students in terms of the academic preparation necessary to work with children with HIs in favor for specialized workers.

The workers must acquire skills in specialized areas including the ability to use sign language and develop hearing and speech skills, information about the impact of hearing loss on language, speech, and social and emotional development, and knowledge of learning methods and characteristics of children. The workers need to fully participate in early childhood programs to ensure high-quality intervention programs in the light of a multidisciplinary team including audiologists, early childhood specialists, speech and language specialists, teachers for the deaf, program managers, ENT doctors, social workers, psychologists, sign language interpreters and specialists trained in the field of hearing impairment and early intervention (Wilson, Nevine & Houston, 2010).

Most teacher preparation and training programs provide teaching strategies that can be used with children with HIs. The Council for Exceptional Children (CEC, 2015) considers that an efficient teacher should use various teaching methods and teaching aids when educating children with HIs (Guardino, 2015). Gentry, Chinn, and Moulton (2005) carried out a study on 28 students with

Hlsaged (6-18) years and reported that the children who were exposed to the method of telling stories by using the computer in the form of text, images, and sign language found this method interesting and exciting because they quickly understood the story, while presenting the stories using the text alone was a weak method. Davis and Florian (2004) note that there is a need to modify the typical teaching strategies to meet the educational needs of children with HIs. Teachers should vary in teaching, especially when preparing and presenting the lesson content, teaching adaptation, and providing assessment tools and classroom management (Scheetz, & Martin, 2008). Teachers can use a variety of classroom techniques with children with HIs, including facing the child when talking to them, using short and clear sentences, a normal tone of voice, moderate pace, along with providing emotions and facial expressions that indicate changing the subject, and focus on sensory experiences (Schirmer, Bailey & Lockman, 2004; Williams & Finnegan, 2003). Teachers can also communicate with children using sign language, oral communication, stimulation of residual hearing, the production of appropriate teaching aids, and the use of technology in teaching (NCATE, 2006; Rittenhouse, 2004). Teachers need to consider the diverse needs of children with HIs when developing special education aids, and providing visual information through visual aids such as videos, smart boards, iPads, posters, facial expressions, gestures, and body language (Erbas, 2017).

While research on children with HIs is receiving a major concern and progress worldwide, Jordan is also one of the countries that address people with HIs. This concern is represented by enacting the Law for the Welfare of Disabled Persons No. 31 (2007), which ensures the establishment of institutions that cater to the needs of this group and guarantee their rights. Hence, The Higher Council for the Rights of Persons with Disabilities was established, based on policy-making and coordination between the various bodies responsible for providing services to persons with disabilities. In this regard, the Council has achieved many objectives aimed at developing the human resources of persons with disabilities and achieving their social, educational, and functional inclusion to enjoy a dignified life and to empower them economically and socially in the light of their disabilities (The Higher Council for the Rights of Persons with Disabilities, 2016).

Educational development in Jordan represented the access of all children with no exceptions to education and the right of education for all, these developments and rights have recently included children with HIs through providing appropriate and supportive quality educational services and programs, including the development and vocational training of teachers and workers with children with HIs. For example, Melhem (2010) evaluated the quality of educational services supporting students with HIs in Jordan according to international standards on 260 male and female teachers of students with HIs. The results revealed that the development and training of teachers were ranked last. The study also showed that there are significant differences according to the variable of teachers' academic qualification in favor of degrees less than the Bachelor's. Within this framework, the Higher Council for the Rights of Persons with Disabilities, in collaboration with the Ministry of Education, seeks to provide a range of services to meet with the needs of people with HIs, including : holding a number of training courses to promote the efficiency of deaf students' teachers in Al Amal schools of the Ministry of Education, Special Education supervisors and classrooms of students with HIs ; training of male and female trainers on sign language to ensure the continuity of training new and current cadres of teachers of the deaf; the Councils issue of a "Sign Language License" for sign language interpreters to regulate the functioning of the sign language interpretation profession, to ensure a high level of interpretation for the deaf and to facilitate their

inclusion in the society(The Higher Council for the Rights of Persons with Disabilities, 2018); cadre training and qualification: The Ministry of Education supervises holding various training courses in various fields such as training of teachers working with students with HIs, training of teachers in typical schools on sign language,means of communication and modern methods of teaching, and the use of instruments and devices to conduct screening and diagnosis of deaf students in various public schools (Ministry of Education, 2018);providing the deaf and difficulty of hearing children including services in public schools through special classes and resource rooms in many public schools all over the Kingdom. The number of schools serving deaf and hard-of-hearing students reached up to 40 schools where 80 teachers working in these classrooms (Al-Dababneh, Al-Zboon, Alkour, 2016).

The programs of the students with HIS schools in the Ministry of Education aim at providing an appropriate educational environment for students, especially the deaf because they are difficult to be included in regular schools. They provide students with knowledge, concepts, and terminology appropriate for hearing impairment, along with providing support services such as speech therapy. The working mechanism of schools for students with HIs programs is determined by the use of the official curricula prepared by the Ministry of Education. The overall communication method is used to communicate with students through the use of sign language, lip reading, and finger spelling. Students are taught by teachers with different specializations. Moreover, teachers are trained in sign language courses and the methods of teaching the hearing impaired students. The students are qualified through holding sign language courses, and teaching methods for people with HIs. Students with HIs are provided with medical earpieces and FM devices, as well as support services such as speech therapy (Ministry of Education, 2018).

However, information on knowledge and research on the current situation of programs and services provided to children with HIs in Jordan is not available. El-Zraigat & Smadi (2012) conducted a study in which a review of the special education programs used for the deaf and hard of hearing students as well as the educational challenges for deaf and hard of hearing students was conducted in Jordan. The survey included 30 teachers of students with HIs. The survey reported that deaf and hard of hearing students encounter numerous challenges represented by the lack of adequate remedial and educational programs, inadequacy of teachers, inadequacy of schools, lack of equipment, and lack of appropriate educational and assessment tools.

As for the services provided to children with HIs in kindergarten in particular, the researcher reviewed the Higher Council for the Rights of Persons with Disabilities and asked about the programs that are provided for children with HIs at that stage for the age group (4-6 years). Unfortunately, neither programs nor services are provided for children with HIs at that stage (The Higher Council for the Rights of Persons with Disabilities, 2018). This was confirmed by a study conducted by the Higher Council for the Rights of Persons with Disabilities,2016, under the title "A survey of the reality of early intervention programs and services for children with disabilities in Jordan ".The main recommendations were to conduct a research study on the reality of programs and services provided to children with disabilities, including the category of children with HIs in the kindergarten stage (The Higher Council for the Rights of Persons with Disabilities, 2016). On the other hand, The Ministry of Education launched a five-year project in 2003 called" The Education Reform for the Knowledge Economy Project (ERfKEI). This project is the first of its kind in the Middle East. In 2004, the Ministry of Education also launched a proposed curriculum for kindergarten children under the name of "The National Interactive Curriculum: Modern Foundations

for Kindergarten Children Education and Learning". The general framework document and the general and private outcomes of the Kindergarten stage and the first to fifth grades were adapted to the needs of children with HIs, to be a tool to help teachers and educational supervisors achieve the learning outcomes following the specialties and the abilities of children with HIs. On the other hand, it enables teachers to design activities that fit the individual differences among children with HIs (Al-Zaboon, 2015).

Based on what is mentioned above, and in light of the limited availability of preschool programs for children with HIS in Jordan, and since this negatively affects 'children's learning and the later development of their abilities and skills, there must be adequate programs that are appropriate for that stage which effectiveness and suitability to the characteristics of children with HIs are validated (Zreigat & Smadi, 2012).

The two researchers' work in the field of Special Education in supervising the specialized schools and meeting with the workers at these schools who kept repeating their complaints that children with HIs do not receive appropriate programs and that they also face many difficulties and challenges that impact the way they deal with children, the use of appropriate teaching methods, and the lack of adequate educational aids appropriate for children with HIs. This led the two researchers to conduct a study to highlight the effectiveness of kindergarten teaching methods and aid programs for children with HIs from the point of view of workers. Thus, the main aim of the current study is to evaluate the effectiveness of kindergarten teaching methods and aids for children with HIs from the point of view of workers. In addition, this study aims to achieve the following objectives: To identify if there is a difference in the points of view among the workers on the effectiveness of kindergarten teaching methods and teaching aids for children with HIs, and to identify if there are statistically significant differences in evaluating the effectiveness of kindergarten teaching methods and teaching aids for children with HIs from the point of view of workers according to the variables of academic qualification and specialization. Hence, the present study attempts to answer the following questions:

What is the level of effectiveness of kindergarten teaching methods and teaching aids for children with HIs from the point of view of workers?

Are there significant differences at the level of ( $\alpha = .05$ ) in the level of kindergarten teaching methods and teaching aids effectiveness that can be attributed to the academic qualification and specialization variables?

## 1. Study Approach

Study Subjects: The study subjects of the present study consist of all those working with children with HIs in the schools of the Ministry of Education in the central region. There are five schools, three of which are public: Al-Amal School for the Deaf of the Ministry of Education in the region of Amman, Zarqa, and Russia, and two private schools: Al-Raja'a School for the Teaching Children with HIS and the Holy Land Institute for the Deaf in al-Salt. The total number of workers in the five schools is 34. Below are the demographic characteristics of the study subjects according to their academic qualification and specialization.

Table 1: Distribution of Sample Subjects in Light of the Study Variables

|          | Categories | Frequency | Rate |
|----------|------------|-----------|------|
| Academic | Diploma    | 13        | 38.2 |

|                |                   |    |       |
|----------------|-------------------|----|-------|
| Qualification  | BA+               | 21 | 61.8  |
|                | Total             | 34 | 100.0 |
| Specialization | Special Education | 14 | 41.2  |
|                | Hearing &Speech   | 6  | 17.6  |
|                | Others            | 14 | 41.2  |
|                | Total             | 34 | 100.0 |

## 2. Study Instrument

A scale was developed to measure the effectiveness of kindergarten teaching methods and aids for children with HIS from the point of view of the workers by reference to theoretical literature and previous studies (e.g.Ginry, Chinn & Moulton 2005; Rice & Lenihan, 2005; El-Zraigat & Smadi, 2012). The study scale consisted of two parts: Part 1 included the demographic information of the workers represented in the academic qualification and specialization, and Part II included (11) paragraphs, all of which are related to evaluating the effectiveness of kindergarten teaching methods and aids for children with HIs from the point of view of workers.

Procedures for setting up and applying the scale

The two researchers collected data on evaluating the effectiveness of the kindergarten programs for children with HIs through the following: Review of theoretical literature and previous studies and research related to the subject of the programs for children with HIs; translating and summarizing the standards of professional practice in the education of children with HIs from the American Council for Individuals with Special Needs (ECE); review of the accreditation standards of people with disabilities programs and institutions in Jordan(The Higher Council,2009); review of the programs, standards and accreditation documents presented for persons with HIs in the Jordanian schools, centers and institutions (Zraigat, 2008); review of educational programs for the deaf from the Council on the Education of the Deaf (CED). Based on the previous reviews, the researcher has concluded the components and dimensions of the kindergarten programs for children with HIs and derived the common elements of these references. The tool was prepared in its initial form, consisting of (11) items.

The process of applying the study has passed through the following stages: First, obtaining a task facilitation letter from the Ministry of Education addressed to the kindergartens of public and private schools for children with HIs to implement the study tool. Second, the scale was also reviewed by a group of competent reviewers, and the proposed modifications were made in light of their observations. Third, visiting schools and informing them about the aims of the study. Fourth, communicating with parents and asking them to participate in filling out the study tool to evaluate the effectiveness of kindergarten programs for children with HIs from their point of view. Finally, the researcher applied the study tool by clarifying some aspects related to the study, explaining its objectives and significance, and emphasizing the confidentiality of information that will be used for scientific research only, in addition to emphasizing the need for seriousness and accuracy in dealing with the measurement tool Afterwards, the study tool was distributed to the study sample (workers, represented in teachers, administrators and hearing and speech specialists) at the kindergartens of children with HIs. After implementing the study tool. The tools were collected, sorted, and classified accurately, with the exclusion of what is not valid for statistical analysis, such as incomplete responses, hanging over the questionnaire without being filled out, or unclear demographic

information as this impedes the process of statistical analysis and getting accurate results directly. After the questionnaires were sorted out, the responses were converted into raw grades, the data was entered into the computer and statistical processing was carried out using the SPSS program. The statistical analysis was carried out to answer the study questions and discuss the results that were found.

S

#### Study Tool Validity

The scale was presented in its initial form to 10 reviewers from the teaching staff of the Special Education Department at the Hashemite University, Balqa University, and specialists in early childhood, to express their opinions on the validity of the tool's content, the relevance of the paragraphs to the scale and how appropriate they are to measure what they are intended to measure and the clarity degree, and appropriate modifications were proposed accordingly. Based on the reviewers' opinions, some of the paragraphs were modified in terms of the use of wording to make them clearer, and others were deleted because of their semantic similarity to other paragraphs. Other paragraphs were deleted because they were unsuitable for the study purposes, while some of them were not suitable for the dimension they belonged to. The resulting scale consists of (11) paragraphs and the two researchers considered the views and modifications of the reviewers as an indication of the content validity of the study tool.

#### Study Tool Reliability

To verify the study tool's reliability, the scale was applied to an exploratory sample of 20 workers at kindergartens for children with HIS away from the study sample. The reliability factor of the paragraphs was obtained through the internal consistency method using the Cronbach alpha equation. The reliability coefficient was 0.942. Which is acceptable.

#### Scale Correction Key

The Likert scale used in the study was graded according to the rules and characteristics of the scales as follows:

| Always | Often | Sometimes | Rarely | Never |
|--------|-------|-----------|--------|-------|
| 5      | 4     | 3         | 2      | 1     |

Based on the above, the mean values of the study were treated according to the following equation:

High value - the low value of the response alternatives divided by the number of levels, i.e.:

$1.33 = \frac{4}{3} = \frac{(1-5)}{3}$ : This value represents the interval length.

33

In this way, the low level is from  $1.00 + 1.33 = 2.33$

The medium level is from  $2.34 + 1.33 = 3.67$

The high level is from  $3.68 - 5.00$

#### Statistical Processes

Descriptive statistics was used to answer the study questions as follows:

- Finding frequencies and percentages to describe the study sample subjects
- Use of Cronbach Alpha to validate the tool reliability
- Use of Means and Standard Deviations
- Use of Independent Sample T-test



- Use of LSD Test for post-comparisons

#### Design and Study Variables

This study survey aims to evaluate the effectiveness of kindergarten teaching methods and aid programs for children with HIs from the point of view of workers. It includes several variables:

- Workers' academic qualification (Diploma BA +
- Workers' specialization (Special Education, Hearing & Speech, Kindergarten, other specializations)

### 3. Results

This study aims to identify the level of effectiveness of kindergarten teaching methods and aid programs for children with HIs from the point of view of workers in Jordan, by answering the following questions:

Results of Question One. What is the level of effectiveness of kindergarten teaching methods and teaching aids programs for children with HIs from the point of view of workers?

The means and SDs were used to identify the level of effectiveness of kindergarten teaching methods and teaching aids for children with HIs from the point of view of workers. Table 1 illustrates the results:

Table 1: Means, SDs, and the level of effectiveness of kindergarten teaching methods and teaching aids programs for children with HIs from the point of view of workers arranged in descending order

| Rank | No. | Para.  | Mean | SD    | Level |
|------|-----|--|------|-------|-------|
| 1    | 11  | Visual aids such as models, pictures, and drawings are used in teaching children with HIs to illustrate activities for them. | 4.29 | 1.060 | High  |
| 2    | 8   | The talking method is used as a teaching method using facial and body gestures as one of the communication strategies.       | 4.24 | 1.046 | High  |
| 3    | 9   | Teaching methods teach sign language, lip reading, and total communication.  | 4.21 | .914  | High  |
| 4    | 3   | Teaching methods and aids take into consideration the needs, capabilities, and characteristics of children with HIs.         | 3.94 | 1.071 | High  |
| 5    | 4   | Teaching methods develop the motivation of children with HIs.  | 3.94 | 1.099 | High  |
| 6    | 7   | Teaching methods use the total communication approach as a communication strategy.   | 3.88 | 1.149 | High  |
| 7    | 2   | Teaching methods and aids take into consideration individual differences among children.                                     | 3.85 | 1.077 | High  |
| 8    | 6   | Teaching methods use the method of speech training as one of the communication   | 3.82 | 1.167 | High  |

| Rank        | No. | Para.  | Mean | SD    | Level  |
|-------------|-----|--|------|-------|--------|
|             |     | strategies.  |      |       |        |
| 9           | 1   | Teaching methods and aids vary according to the educational situation.                                 | 3.79 | 1.122 | High   |
| 10          | 5   | Teaching methods vary depending on the severity and degree of hearing impairment in children with HIs. | 3.74 | 1.109 | High   |
| 11          | 10  | Modern techniques such as computers, the internet, video, etc. are used in teaching children with HIs. | 3.38 | 1.393 | Medium |
| Total Means |     |  | 3.92 | 0.889 | High   |

Table (1) shows that the means for the level of effectiveness of the programs of kindergartens with HIs from the point of view of workers for the teaching methods and aids ranged between (3.38 and 4.29) with a total means of (3.92), which is a high level, whereas the paragraph which states "Visual aids such as models, pictures and drawings are used in teaching children with HIs to illustrate activities for children" was ranked first place with a mean of (4.29) and high level, while the paragraph which states: "Modern techniques such as computer, internet, video, etc. are used in teaching children with HIs" was ranked last with a mean of (3.38) and a medium level.

Results of Question Two: Are there significant differences at the level of ( $\alpha = .05$ ) in the level of effectiveness of kindergarten teaching methods and teaching aids programs for children with HIs from the point of view of the workers that can be attributed to the academic qualification and specialization variables?

First: Academic Qualification:

The means and SDs were obtained using the Independent Sample T-test to identify the differences in the level of effectiveness of kindergarten teaching methods and aid programs for children with HIs from the point of view of workers, according to the academic qualification variable. Table 2 illustrates these results:

Table 2: Independent Sample T-test to identify differences in the level of effectiveness of kindergarten teaching methods and programs for children with HIs from the point of view of workers, according to the academic qualification variable.

| Source                    | Academic Qualification | No. | Mean | SD   | Free Degree | (t) Value | Significance |
|---------------------------|------------------------|-----|------|------|-------------|-----------|--------------|
| Teaching Methods and Aids | Diploma                | 13  | 4.39 | 0.48 | 32          | 2.621     | *0.013       |
|                           | BA +                   | 21  | 3.63 | 0.97 |             |           |              |

\*Significant at (0.05) or less

Table (2) shows that there are significant differences at the level of (0.05) for the level of effectiveness of the kindergarten teaching methods and aid programs for children with HIs from the point of view of workers according to the academic qualification variable. The t-test value is (2.62), which is significant at the level of (0.05) or less. The source of difference was in favor of the Diploma degree holders.

Third: Specialization

The means and SDs were obtained, along with the LSD test for the post-comparisons to identify the dimension level of the scale of the effectiveness of kindergarten teaching methods and aids programs for children with HIs according to the specialization variable. Table 3 illustrates these results:

Table 3: Means and SDs of the scale dimensions of the effectiveness of kindergarten teaching methods and aids programs for children with HIs according to the specialization variable

| Dimensions              | Specialization    | No. | Mean | SD   |
|-------------------------|-------------------|-----|------|------|
| Teaching Methods & Aids | Special Education | 14  | 4.45 | .518 |
|                         | Hearing/Speech    | 6   | 3.77 | .923 |
|                         | Others            | 14  | 3.44 | .919 |
|                         | Total             | 34  | 3.92 | .889 |

Table 3 shows that there is a variety between the means of the subject's responses to the dimension level of the scale of the effectiveness of kindergarten teaching methods and aids programs for children with HIs in light of the workers' specialization variable. This explains that there are pronounced differences between the responses. To identify the source of difference in the paragraph on the scale of the effectiveness of kindergarten teaching methods and aids programs for children with HIs according to the specialization variable, the LSD test was used for post-comparisons, as shown in Table (4).

Table (4): LSD test for post-comparisons to identify the differences in the level of effectiveness of the kindergarten teaching methods and aids programs for children with HIs according to the specialization variable

| Dependent Variables     | (I) Specialization    | (J) Specialization    | Difference in means (I-J) | Significance |
|-------------------------|-----------------------|-----------------------|---------------------------|--------------|
| Teaching Methods & Aids | Special Education     | Hearing & Speech      | .6823810                  | .082         |
|                         |                       | Other Specializations | 1.0150000*                | .002         |
|                         | Hearing & Speech      | Special Education     | -.6823810                 | .082         |
|                         |                       | Other Specializations | .3326190                  | .387         |
|                         | Other Specializations | Special Education     | -1.0150000*               | .002         |
|                         |                       | Hearing & Speech      | -.3326190                 | .387         |

Table (4) shows that the source of differences in the level of effectiveness of kindergarten educational methods and aids for children with HIs from the point of view of the workers was in favor of Special Education specialization.

#### 4. Discussion

The main aim of the current study is to identify the effectiveness of kindergarten teaching methods and aid programs for children with HIS from the point of view of workers in Jordan and to identify if there is a significant difference in the points of view of workers on the effectiveness of the kindergarten teaching methods and aids programs for children with HIS that can be attributed to the variables of academic qualification and specialization. The results showed that the level of effectiveness of kindergarten teaching methods and aid programs for children with HIS from the point of view of workers was high. The high level of the teaching methods and aids from the point of view of workers is attributed to the fact that kindergarten teachers care about using diverse, teaching methods and providing multiple and appropriate aids to work with children, since teachers evaluate themselves as being competent, which is reflected on the methods and aids they use at content preparation, content presentation, teaching modification, focus on sensory experiences and providing the reinforcement that is appropriate for children (Davis & Florian, 2004; Scheetz, Martin, 2008). The results of this study are consistent with the results of (Gentry, Chinn & Moulton, 2005) which showed that reading stories through presenting the text with images and sign language was interesting and exciting leading to students' quick understanding and comprehension, but when the text displayed alone proved it to be a weak method.

Upon considering the reality of teachers' use of teaching methods specifically for children with HIs, we see that teachers need to diversify their teaching methods by using the total communication method with children. The researcher met some female teachers of children with HIs and asked them about the teaching methods they use. Teachers use sign language as the only teaching method with no variation at all. Through their visits for implementation, the two researchers observed that the Raja School for Teaching the HIs is the only school to use a variety of teaching methods, including total communication. In terms of having appropriate teaching tools for children with HIs, schools generally lack such teaching tools and aids for children with HIs (El-Zraigat & Smadi, 2012).

The results revealed that there are significant differences in the level of effectiveness of the kindergarten teaching methods and programs for children with HIs attributed to the variable of academic qualification in favor of diploma holders. This result is due to the nature of the diploma academic qualification, compared to other academic qualifications (bachelor's and postgraduate) since this qualification has some knowledge that may be superficial and shallow, in addition to not receiving ongoing training programs during service and so the results were good from their point of view (Joint Committee on Infant Hearing- JCIH, 2007). The results of this study are similar to the results of Melham's study (2010), which found differences between the qualifications of teachers in favor of the academic qualification of less than a bachelor's degree.

According to the specialization variable, the results showed that there are significant differences in the level of effectiveness of Kindergarten teaching methods and aid programs for children with HI that is attributed to the specialization variable in favor of Special Education. These differences

are attributed to the fact that the teachers of special education receive pre-service preparation by studying various courses on the curricula and methods of teaching children with HIs and how to deal with them, and other courses on early childhood, and on the design and production of teaching aids. The theoretical knowledge they obtain is applied and linked to practical experience through a Pre-service training course in the field, as well as training and qualification programs for teachers to work with children with HIS (Wilson, Nevine Houston, 2010). The results of this study are consistent with the results of (Rice & Lenihan, 2005), which showed significant differences between deaf children's teachers, hearing and speech specialists, early childhood teachers, special education teachers, and workers in favor of specialized teachers.

## 5. Recommendations

The results of this study indicate that the teaching methods and aids used with children with HIs are effective from the point of view of workers with children with HIs and that they evaluate themselves as being effective in using these programs. However, there is still an urgent need to use appropriate and multiple teaching methods and tools for children with HIs because of the lack of appropriate teaching tools and the lack of diversification of teaching methods. Davis & Florian (2004) pointed out that there is a need to diversify the teaching methods when preparing and presenting the teaching content along with providing multiple teaching methods and aids.

Based on the results of this study, we suggest that the teacher preparation and qualification programs for children with HIs should focus on holding training courses in the field of educational methods and the design of teaching aids for children with HIs at the kindergarten stage.

Moreover, the results of the study indicate that teachers play a critical role in the programs of children with HIs. Therefore, teachers with lower educational qualifications than a BA degree should be enrolled in training courses for contemporary issues in the programs of children with HIs, including methods of teaching this category and how to prepare the appropriate educational means for them.

On the other hand, the results of this study provide decision-makers and workers with information on the effectiveness of the kindergarten teaching methods and teaching aids programs for children with HI and inform them of the usefulness of services provided to children with HIs in kindergartens from the point of view of workers which paves the way to conduct further studies based on such results.

Because of the scarcity of research conducted on the effectiveness of teaching methods and teaching aids in Jordan's kindergarten programs for children with HIs, similar studies may be needed to explore the effectiveness of other programs for children with HIs in other cities of Jordan and other disability groups. Future research can expand our knowledge of the parents' perspectives in Jordan by exploring and comparing perceptions of parents and teachers about the effectiveness of teaching methods and teaching aids in kindergarten programs for children with HIs. Researchers can also aim to obtain more in-depth information on the effectiveness of kindergarten programs for children with HIs in Jordan by conducting a study on the reality of services and programs provided to children with HIS in the kindergarten stage in Jordan.

## References

- Al-Dababneh, K. A., Al-Zboon, E. K., & Akour, M. M. (2016). Competencies that teachers need for teaching children who are deaf and hard of hearing (DHH) in Jordan. *Deafness & Education International*, 18(4), 172-188. <https://doi.org/10.1080/14643154.2016.1249173>
- Al-Zboon, E. (2016). Kindergarten curriculum for children with hearing impairments: Jordanian teachers' perspectives. *Deafness & Education International*, 18(1), 38-46. <https://doi.org/10.1080/14643154.2015.1133006>
- Council on Exceptional Children. (CEC). (2015). *CEC initial and advanced specialty sets*. Retrieved from <http://www.cec.sped.org/Standards/Special-Educator-Professional-Preparation/CEC-Initial-and-Advanced-Specialty-Sets>.
- Davis, P., & Florian, L. (2004). Searching the literature on teaching strategies and approaches for pupils with special educational needs: Knowledge production and synthesis. *Journal of Research in Special Educational Needs*, 4(3), 142-147. <https://doi.org/10.1111/j.1471-3802.2004.00029.x>
- A. El-Zraigat, I. (2012). Assessing special needs of students with hearing impairment in Jordan and its relation to some variables. *International Education Studies*, 6(2). <https://doi.org/10.5539/ies.v6n2p63>
- El-Zraigat, I., & Smadi, Y., (2012). Challenges of Educating Students Who are Deaf and Hard-Of-Hearing in Jordan. *International Journal of Humanities and Social Science*. Vol. 2 (8).
- Erbas, E., (2017). *Strategies That Teachers Use to Support the Inclusion of Students Who are Deaf and Hard of Hearing*, Submitted to the faculty of the School of Education in partial fulfillment of the requirements for the degree Master of Science in Education in the Department of Curriculum and Instruction- Special Education Indiana University
- Gentry, M. M., Chinn, K. M., & Moulton, R. D. (2004). Effectiveness of multimedia reading materials when used with children who are deaf. *American Annals of the Deaf*, 149(5), 394-403. <https://doi.org/10.1353/aad.2005.0012>
- Guardino, C. (2015). Evaluating teachers' preparedness to work with students who are deaf and hard of hearing with disabilities. *American Annals of the Deaf*, 160(4), 415-426. <https://doi.org/10.1353/aad.2015.0030>
- Joint Committee on Infant Hearing (JCIH) (2007). *Joint Committee on Infant Hearing Statement*, [www.Jcih.org/default.htm](http://www.Jcih.org/default.htm)
- Melhem, Ahmad (2010). *Evaluation of the Quality of Special Education Services Supporting Students with Hearing Impairments in the Hashemite Kingdom of Jordan According to International Standards*, Unpublished PhD Dissertation,
- Ministry of Education (MOE). (2018), Motor and Sensory Challenge [www.moe2bluerayjo.com](http://www.moe2bluerayjo.com)
- NCATE Policies. Washington, DC. *National Council for Accreditation of Teacher Education (2006). What makes a Teacher Effective? A Summary of Key Research Findings on Teacher Preparation.*
- Rice, G., & Lenihan, S., (2005). Early Intervention in Auditory/Oral Deaf Education: Parent and Professional Perspectives. *Early Intervention in Deaf Education*, 105(1), 73-96.
- Rittenhouse, R. (2004). *The Beginning Teacher of the Deaf in the United States*. In: R. K. Rittenhouse, ed. *Deaf Education at the Dawn of the 21st Century*. Hillsboro, OR: Butte Publications, pp. 180-199.
- Nanci A. Scheetz, & David S. Martin. (2008). The national study of master teachers in deaf education: Implications for teacher education. *American Annals of the Deaf*, 153(3), 328-343. <https://doi.org/10.1353/aad.0.0051>
- Schirmer, B. R., Bailey, J., & Lockman, A. S. (2004). What verbal protocols reveal about the reading strategies of deaf students: A replication study. *American Annals of the Deaf*, 149(1), 5-16. <https://doi.org/10.1353/aad.2004.0016>

Smith, D., (2007). *Introduction to Special Education: Making a Difference*. (6th end). Boston: Allyn and Bacon.

The Higher Council for the Rights of Persons with Disabilities (2018) [www.hcd.gov.jo](http://www.hcd.gov.jo).

The Higher Council for the Rights of Persons with Disabilities (2016). A survey of the reality of early intervention programs and services for children with disabilities in Jordan for the age range of 2-5 years, Amman, Jordan

Williams, C. B., & Finnegan, M. (2003). From myth to reality: Sound information for teachers about students who are deaf. *TEACHING Exceptional Children*, 35(3), 40-45. <https://doi.org/10.1177/004005990303500306>

Wilson, K., Nevins, M. E., & Houston, K. T. (2010). Professional development for in-service practitioners serving children who are deaf and hard of hearing. *The Volta Review*, 110(2), 231-247. <https://doi.org/10.17955/tvr.110.2.m.642>