

The Efficacy of Musical activities program to develop phonemic awareness skill for toddlers

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Abstract

Introduction: The purpose of this study was to investigate the effectiveness of the musical activities program on the development of the toddlers' phonemic awareness skills. and also ensuring the continuity of the effectiveness of a musical activities program to develop the phonemic awareness among toddlers after a period of time has passed.

Methodology: The researcher used the semi- experimental method based on two groups (experimental& control) group.

Sample: The sample consisted of (30) toddlers (18 males, 12 females) between the ages (2.5- 3.5) years enrolled in Baby Academic Nursery, and Marshmallow. Cairo City (El- Giza). They were divided randomly into two groups. The experimental group (7 girls, 8 boys) and the control group (5 girls, 10 boys).

Tools: The researcher used The following tools in the research: Stanford Binet fifth edition (Abu El Neel, Taha& Abd El sameea, 2011), A scale of Phonemic awareness (the Researcher's preparation), Musical activities program to develop phonemic awareness (the Researcher's preparation). The musical activities program was applied to the experimental group, 3 days per week, 45 minutes per session for three months. The control participation carried out the curricular activities of their nursery program receiving a different type of instruction and the same level of attention.

Results: The results showed that the musical activities program significantly developed the phonemic awareness skills of toddlers on the experimental group and this positive impact of the program continued during the follow up period. The results indicate that most toddlers in the experimental group develop their phonemic awareness more than the toddlers in control group. The discussion focuses on the importance of developing phonemic awareness in early childhood age, which may help to reduce the chances of children being exposed to reading difficulties in the next academic learning stages.

Keywords: Toddlers, Musical activities program, Phonemic awareness, early childhood education, reading difficulties.

فاعلية برنامج قائم على الأنشطة الموسيقية في تنمية مهارة الوعي الصوتي لأطفال الحضانة

مقدمة: تعد القراءة مهمة في حياة الأطفال فهي من أهم الوسائل الضرورية لتنمية القدرات اللغوية والفكرية والوجدانية لديهم. وللقراءة دورا رئيسي في إثراء خيال الأطفال، واكتسابهم العديد من الأفكار والسلوكيات والقيم. فتعلم مهارات القراءة واكتسابها في وقت مبكر يساعد على سرعة وفهم المادة المقروءة ويكون احد اهم الاسباب في النجاح في المراحل التعليمية الاكاديمية للأطفال فيما بعد والحياتية أيضا ومن ثم يعتبر التدخل المبكر باكتساب الأطفال في مرحلة الحضانة مهارة الوعي الصوتي قد يساهم بشكل كبير في تعلم مهارات القراءة في وقت مبكر.

الاهداف: ولقد هدف البحث الحالي إلى التحقق من فاعلية برنامج قائم على الأنشطة الموسيقية لتنمية الوعي الصوتي لدى أطفال الحضانة من (٢,٥ : ٣,٥) سنوات، وكذلك التأكد من استمرارية فاعليته لتنمية الوعي الصوتي لدى أطفال الحضانة بعد مرور فترة زمنية من التطبيق البعدي.

المنهج: استخدم البحث الحالي المنهج الشبه تجريبي ذو المجموعتين التجريبي والضابطة. **العينة:** تكونت عينة البحث من ٣٠ (طفل وطفلة) (١٨ ذكور، ١٢ إناث) ترواحت اعمارهم من (٢,٥ : ٣,٥) سنوات تم تقسيمهم ١٥ (طفل وطفلة) يمثلون المجموعة التجريبية و ١٥ (طفل وطفلة) يمثلون المجموعة الضابطة، تم اختيار العينة من حضانتى بيبي اكاديمي، مارشملو بمنطقة حدائق الأهرام محافظة الجيزة، تعرض اطفال المجموعة الضابطة للبرنامج المعتاد المعد من قبل ادارة الحضانة للمجموعة الضابطة، استغرق تطبيق البرنامج ٣ شهور بواقع ثلاث جلسات اسبوعيا بإجمالي ٣٦ جلسة، مدة الجلسة ٤٥ دقيقة.

الأدوات: اعتمد البحث على استخدام مجموعة متنوعة من الأدوات للتحقق من فروض البحث مثل: أداة لضبط العينة وتكافؤها (اختبار ستانفورد بينيه الصورة الخامسة) إعداد (محمد طه و عبدالموجود عبدالمسمع ومحمود ابوالنيل، ٢٠١١)، وأداة لقياس الوعي الصوتي (إعداد الباحثة)، وبرنامج أنشطة موسيقية لتنمية الوعي الصوتي (إعداد الباحثة).

النتائج: ولقد كشف نتائج البحث عن أهمية الأنشطة الموسيقية في تنمية الوعي الصوتي لدى أطفال الحضانة واستمرارية فعالية البرنامج بعد مرور شهر من انتهاء البرنامج.

Introduction:

The most important phase in every child's life is when they are in their early childhood years, so it is necessary to give effort to develop their skills. Despite of the facts that the toddlers' stage is important, most of the effort is directed to the preschool age range, but now this is beginning to change and the early childhood learning and developing their skills became as an important part in the puzzle of human development. The first three years are distinct by a rapid growth for various aspects of children's cognitive language, and social development, So experiences in these first three years of life have many strong impacts on their learning skills and their future lives (Hoff, 2006) (Bernier, Carlson, Deschênes and Matte- Gagné, 2012) Reading is important in the lives of children, as it is one of the most important means that is necessary to develop their intellectual of language, capabilities, emotional abilities and it has a major role in increasing the children's imagination and giving them many ideas and behaviors. (Mol and Bus, 2011) Learning and gaining early reading skills helps to expand their knowledge and leads to a quicker understanding. Many theoretical frameworks and studies have confirmed that reading is one of the most important reasons to succeed in the academic educational stages for children later on. (Adams, 1990; Gredler2002; Whitehurst and Lonigan, 1998; Moats 2009)

In order for children to reach the stage of reading without assistance, it takes a great effort and multiple strategies that start from the birth of the child, because reading is one of the complex mental skills that basically link the language of speaking to the language of writing. (Cunningham and Stanovich, 1998).

Reading mainly depends on the processes of phonemic processing, from recognizing the sounds in the word, to translating the written symbols into the sounds they represent in the written word, and merging them to reach the correct Pronunciation. working memory helps children to remember the voices of the word and prevents them from forgetting. Grofčíková and Máčajová (2017); Phillips, Clancy- Menchetti and Lonigan (2008) stressed on the existence of a causal relationship between developing the skill of phonemic awareness in children and their acquisition of reading and writing skills, the child understood that the word is made up of sounds represented by syllables and phonemes, which will later help him in translating the written symbols into those sounds, that is, the ability to link the letter with his voice. The current research considers that early intervention in the acquisition of reading skills is a prerequisite for the growth of cognitive skills, as the failure of children to learn this skill leads to learning difficulties in subsequent academic education stages. (Ball and Blachman, 1991); (Moats, 2009); (Gillon, 2000).

Review of the Literature and its theories:

Phonemic awareness is the basis of the children's understanding of grammar and the application of language skills that help them to understand texts and read fluently. Phonemic awareness is defined as the ability to analyze sound units that make up the word. (NRP, 2000) or

blend the phonemes into word. (Chapman, 2003) Although phonemic awareness is a part from phonological awareness sometimes the concepts of phonemic awareness and phonological awareness are used interchangeably. There are differences between the two concept, phonological awareness is the ability hear and manipulate Units of sound in spoken language for example the word apple we hear ap/ and/ ple, there are two syllables in the word apple. Phonemic awareness involves being able to hear and manipulate phonemic, the smallest units of sound. forexample, word cat we hear C/a/t the smallest unit of sound. Phonological awareness including (syllable, onset, rime, phonemes) phonemic awareness including (blending sound, segmenting sound, add sound, Deleting sound). Both of them are important to develop the Metalinguistic awareness. (Gillon, 2000); (Chapman, 2003). Children begin acquiring phonemic awareness as soon as they learn how to speak. They begin to make sounds like P/ P/ M /M and then combine these sounds to form words such as Papa and Mama. (Wasik, 2001); (Zeece, 2006). When they reach the age of two years, they can repeat songs that depend on the rhyme and begin to make syllables and words. They are able to move their bodies with the beat of the song when they reach the two and half age. (Ho, Cheung and Chan, 2003). The previous researches have shown that phonemic awareness can be successfully taught to children as young as kindergarten especially when specific instructions on phonemic skills and practice with related activities are provided (Adams, 1990); (Phillips, et.al. 2008). Most of the results of the studies and researches have paid attention to the importance of developing phonemic awareness for children in the Kindergarten stage, for e.g studies of (Qi and O'Connor, 2000) (Gillon, 2000) (Schuele and Boudreau, 2008 (Perez, 2008). And She also stressed that training children on phonemic awareness will have positive effects to succeed in acquiring reading skills in the following academic stages. Despite the importance of phonemic awareness, few studies were interested to study phonemic awareness in toddlers. (Kenner, Terry, Friehling and Namy, 2017).

Study explained the causes of that referring to that there are no phonemic awareness measures appropriate for toddlers. The result of their study also stressed on the importance of preparing measures to evaluate phonemic awareness skills of toddlers. Study also provided evidence that phonemic awareness appears at an early age. Based on the findings of the (Kenner, et.al, 2017) the early intervention is important to develop phonemic awareness to reduce reading difficulties in later academic learning stages. When Jean Piaget supported the Constructivist theory, which is extremely important in teaching phonemic awareness and phonics, he stated that when kids deal with other kids or adults, they learn much more better which totally supports the constructive theory. Referring to this constructivist approach, the time spent in the classroom should be spent in playing, exploring, and using language. Enable for children to understand the alphabetic principle and gain phonics knowledge, they should have time to explore and expose language and text.

The Constructivist theory assures that that child should use "curiosity, inquisitiveness and spontaneity to help themselves learn" Another Theorist Lev Vygotsky states that children learn by "internalizing activities and language of others into their world" (Morrow, 2009).

As what this theory states, when a more knowledgeable person supports children to learn, they gain much more knowledge. As a result, teachers amazingly succeed when they support children in the form of modeling and scaffolding, which is also important when teaching phonemic awareness and phonics skills. Finally the Emergent literacy theory, which assures that literacy development in children begins early in life and keeps developing in every day's meaningful and purposeful contexts (Morrow, 2009). Emergent literacy theory also supports teaching phonemic awareness and phonics deliberately and within the context of a larger literacy program (Yopp& Yopp, 2000).

As result of these theories, the present study aimed to develop phonemic awareness among toddlers by using a program based on songs and musical activities.

Musical activities are defined as a group of works based on the use of basic musical elements (melody, rhythm, and harmonic) according to specific art formulas and templates. Musical activities are the most effective way to engage toddlers in learning. Music stimulates memory, attention, gross and fine motor skills, language and mathematic skills and communication skills. (Du Sautoy, 2004) (Henriksson Macaulay, 2014)& (McMullen and Saffran, 2004) confirm that language and music share relevant processing mechanisms, especially in childhood. Empirical evidence has supported idea that music and language have a common basis in the early years of development. (Fujioka, Trainor, Ross, Kakigi and Pantev, 2004). (Koelsch and Siebel, 2005) confirmed that the early developing brain processes language as a type of music. Many studies e.g. (Paquette and Rieg, 2008) (Cooper, 2010) recommended the importance of using songs and musical activities in training and teaching young children phonemic awareness and developing reading skills. Despite of this fact, there are a few studies that have examined the effect of using music activities to develop phonemic awareness skill especially in the toddlers. Music helps children to express their feelings and emotions freely and fluently and help them also to develop sensory perception and develop attention and motor skills through rhythm and toning. There is a relationship between language and music, as music contains language, especially in poetry. Also, the language is containing music, especially in songs. Songs help children to gain new words and remember them. (Walton and Walton, 2002).

Songs that segment words or include rhyming words help young children to discriminate language, which leads to develop the skill of phonemic awareness. What supports the effectiveness of musical activities in training young children on the skill of phonemic awareness is that it stimulates the activity of the phonemic apparatus for expressing sounds, which results in memorizing toning words. Musical activities have a magic that attracts children to practice many language activities and tasks

related to reading and we can say, music is their first language. (Walton, 2014).

Goals Of Current Study:

Assessment of the effectiveness of the musical activities- based program to develop phonemic awareness for toddlers.

Hypotheses Of Study

1. There are statistically significant differences between the experimental and control group in the post test in favor of the experimental group.
2. There are statistically significant differences between the pre- and post- test of the phonemic awareness in favor of the post- test.
3. There are no statistically significant differences between the post and the follow up test of phonemic awareness.

Methods:

Participants: A total of 30 toddlers (18 males, 12 females) 2.5- to 3.5- year old (mean age 2.54 years, SD 0.194), were selected from Baby Academic Nursery, and Marshmallow nursery Cairo City (El- Giza). They were divided non- random into two groups. The experimental group (7 girls, 8 boys) and the control group (5 girls, 10 boys). The foundations for selecting the sample were based on two main tendencies, one is general and the other is private. The general tendency in the sample selection was to choose children aged from 2.5- 3.5 years. The private tendency in selecting the sample depended on the necessity of having several conditions in order to increase the current research control. These conditions are:

1. Children should not be accompanied by physical, motor or Sensory disabilities.
2. They should not have language disorders.
3. The IQ of the children should not be less than the average. A pretest of phonemic awareness and Stanford Binet Fifth edition was applied on both groups. Table (1) showed the matching data between the two groups.

Table (1) Group differences between experimental and control group in the pre- test phonemic awareness skills, Age, and IQ. (N= 30).

| Outcome Group | Mean Rank | Total Rank | N | Mean Rank | Total Rank | N | (U) | (Z) | Sig |
|-------------------------|-----------|------------|----|-----------|------------|----|--------|-------|------|
| Experimental Control | | | | | | | | | |
| Distinguishing Sound | 13.70 | 205.5 | 15 | 17.30 | 259.5 | 15 | 85.50 | 1.245 | N. S |
| Sound Recognition | 16.30 | 244.5 | 15 | 14.70 | 220.5 | 15 | 100.50 | 0.535 | N. S |
| Determining First Sound | 16.70 | 250.50 | 15 | 14.30 | 214.5 | 15 | 94.50 | 0.836 | N. S |
| Determine Last Sound | 13.83 | 207.50 | 15 | 17.17 | 257.5 | 15 | 87.50 | 1.180 | N. S |
| Linking Sound To Shape | 14.47 | 217.0 | 15 | 16.53 | 248.0 | 15 | 97.00 | 0.692 | N. S |
| Rhyming Words | 15.97 | 239.50 | 15 | 15.03 | 225.5 | 15 | 105.50 | 0.323 | N. S |
| Total Score | 14.80 | 222.0 | 15 | 16.20 | 243.0 | 15 | 102.00 | 0.443 | N. S |
| Age | 13.03 | 195.50 | 15 | 17.97 | 269.50 | 15 | 95.50 | 1.556 | N. S |
| IQ | 16.23 | 243.50 | 15 | 14.77 | 221.50 | 15 | 85.50 | 0.462 | N. S |

A Mann- Whitney test indicated that this differences were not statistically significant, (U) (N experimental group= 15, N control= 15)= 85.50, (Z)= 1.245, p 0.267 for distinguishing sound, (U)= 100.50, (Z)= 0.535, p 0.624 for sound recognition; (U)= 94.50, (Z)= 0.836, p 0.461 for determining first sound; (U)= 87.50, (Z)= 1.180, p 0.305 for determining the last sound; (U)= 97.00, (Z)= 0.692, p 0.539 for linking sound to shape; (U)= 105.50, (Z)= 0.323, p 0.775 for Rhyming words; (U)= 102.00, (Z)=

0.443, $p = 0.683$ for Total Score; $(U) = 75.50$, $(Z) = 1.556$, $p = 0.126$ for Age; $(U) = 101.50$, $(Z) = 0.462$, $p = 0.653$ for IQ. The results showed that there were no statistically significant differences between the two groups in phonemic awareness skills, age, and IQ. Table (1).

Instruments:

The study used a variety of tools to obtain data for sample members and those tools were:

- ☒ Data Collection Tools: Preferred child support form (Researcher preparation).
- ☒ Stanford Binet fifth edition (Abu El Neel, Taha& Abd El sameea, 2011).
- ☒ Measurement Tools: A scale of Phonemic awareness, (the Researcher’s preparation). The phonemic awareness scale has been prepared appropriately to the phonemic awareness skills that grow in children before the age of four, such as the skill of distinguishing sounds and perception of rhythm and awareness of the word. (Adams, 1990). Skills that require deletion or addition have been excluded, because they may exceed the children’s abilities in this early age. The researcher also reviewed several measures that were used in the field of phonemic awareness for e.g (Josep and Brian, 2013) (Kenner, et.al, 2017) The scale of phonemic awareness skills consists of six skills. (Distinguishing sound, sound recognition, rhyming words, determining the first sound of the word; determining the last sound of the word and linking between the letter sound and its shape). Each of the previous skills includes five questions. The correct answer is rated two marks and the wrong answer is one mark. The total score for the scale is estimated at sixty marks.

- ☒ The psychometric properties of the phonemic awareness scale: Reliability of the phonemic awareness skills scale was carried out using Cronbach’s alpha on a sample of 30 participants. (Cronbach’s alpha) were 0.91 for distinguishing sound, 0.92 for sound recognition, and 0.94 for determining first sound, 0.85 for determining last sound, 0.83 for linking sound to shape, 0.78 for Rhyming words, 0.75 for total score respectively. Validity analysis was done using correlation coefficients for the total score of the dimensions and items. Two- week test- retest correlations range from 0.72 to 0.84. Also correlation coefficients were done between items and the total score of the scale. All correlation coefficients were statistically significant, which asserted the validity of the scale.

Experimental Teatment: Musical activities program (Researcher’s preparation). The program aims to develop phonemic awareness in toddlers. In order to prepare this program several studies on the subject have been reviewed like. (Schuele and Boudreau, 2008) (Salmon, 2010) (Kenner, et.al, 2017) (Walton, 2014).

Before applying the program to the experimental group, the program was presented to five Egyptian arbitrators professors in the field of psychology and music in order to verify the appropriateness of the program for the individuals of the experimental sample and the

correctness of the application procedures for the program. The required adjustments were made and the final image of the phonemic awareness program was prepared. The program consisted of 36 sessions. The music activities program was applied to the experimental group, 3 days per week, 45 minutes per session for three months. The program includes many different musical activities like (songs, music games, playing musical instrument, and dance) These activities aimed to: Training the children of the experimental group to distinguish between sounds: long-short, low- high by using Flute, whistle or drum. Learn about the different types of sounds for musical instruments (drum, piano, flute, ...), recognition sounds of musical instruments (drum, piano, flute, ...), and Recognizing and distinguishing letter sounds. The program relied on the use of a range of techniques such as reinforcement, modeling, prompting and feedback. The program included different activities aimed to train the children on recognizing sounds. An example of these activities is that the children wear masks of different animals, then the trainer plays each time a different animal’s sound and the kid who wears the mask of the animal that he/ she hears should stand up. Another game is that the trainer distributes the pictures of different musical instruments on the children, then she plays each time the sound of a different instrument. Each time the child who hears the sound of the instrument he/ she has he/ she should stand up. The program also included teaching the children how to differentiate between loud and low sounds, short and long sounds, and slow and fast sounds (a rabbit running in the garden and the turtle walking slowly). The program included musical songs that introduces the sounds of the Arabic letters, some songs included rhyming words.

Procedures:

- ☒ The study employed quasi- experimental methodology specifically, a pre- test, post- test, and follow test repeated measures design with control group. The researcher got help from music teacher. The pre-measurement was performed in the end of August then the experimental group participated in the musical activities program which consisted of three weekly 45 Minute activities, for total 36 sessions. These activates were implemented by the teacher and a music instructor assigned to that class. The program was implemented from 1/ 9/ 2019 to 1/ 12/ 2019 The control participation carried out the curriculum activities of their nursery program receiving a different type of instruction and the same level of attention. The posttest instrument was applied after 3 months on the control and experimental groups, the follow test applied on the experimental group a month after the end of the program.

- ☒ Pilot Study: The researcher conducted a pilot study on 10 toddlers sample out of the basic research sample from 21/ 7/ 2019 to 21 /8/ 2019 aiming to:

1. Determine The Sample’s Size.
2. Determine the types of musical activities that toddlers can perform it.
3. Determine the number of program sessions.

4. Select the time that could be spent on each session.
5. Identify the method used to apply each activity in the program.
6. Determine the appropriate musical instruments and games for each session.
7. Identify any difficulties and try to avoid them.

Results:

Data were analysis to answer the questions of the study using the SPSS Data Analysis Software. The results are shown according the hypotheses of the study:

✎ The first Hypothesis: There are statistically significant differences between the experimental were statistically significant, (U) (N experimental group= 15, N control=s 15)= 0.00, (Z)= 5.019, p 0.001 for distinguishing sound, (U)= 0.00, (Z)= 5.019, p 0.00 for sound recognition; (U)= 0.00, (Z)= 4.839, p 0.00 for determining first sound; (U)= 0.00, (Z)= 4.294, p 0.001 for determining the last sound; (U)= 0.00, (Z)= 0.5051 p 0.001 for linking sound to shape; (U)= 0.001, (Z)= 4.832, p 0.00 for Rhyming words; (U)= 0.00, (Z)= 4.846, p 0.001 for Total Score.

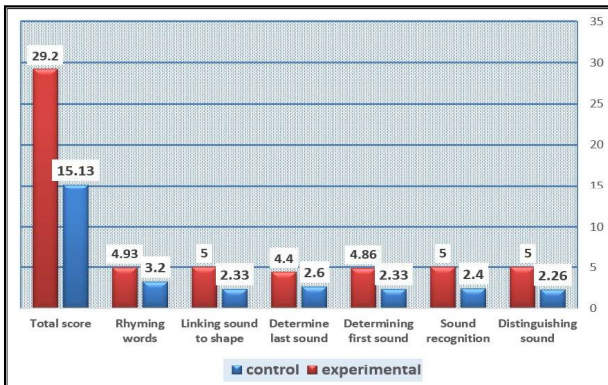


Figure (1) show the differences between two groups after applied program.

Table (2) Group differences between experimental and control group in the post test phonemic awareness skills (N= 30).

| Outcome Group | Mean Rank | Total Rank | n | Mean Rank | Total Rank | N | (U) | (Z) | Sig |
|-------------------------|-----------|------------|----|-----------|------------|----|------|-------|-------|
| Experimental Control | | | | | | | | | |
| Distinguishing Sound | 23 | 345 | 15 | 8.00 | 120.0 | 15 | 0.00 | 5.019 | 0.001 |
| Sound Recognition | 23 | 345 | 15 | 8.00 | 120.0 | 15 | 0.00 | 5.019 | 0.001 |
| Determining First Sound | 22.87 | 343.0 | 15 | 8.13 | 122.0 | 15 | 2.00 | 4.839 | 0.001 |
| Determine Last Sound | 22.10 | 331.50 | 15 | 8.90 | 133.50 | 15 | 0.00 | 4.295 | 0.001 |
| Linking Sound To Shape | 23.0 | 345.0 | 5 | 8.00 | 120.0 | 15 | 0.00 | 5.051 | 0.001 |
| Rhyming Words | 22.77 | 341.50 | 15 | 8.23 | 123.50 | 15 | 3.50 | 4.832 | 0.001 |
| Total Score | 23.0 | 345.0 | 15 | 8.00 | 120.0 | 15 | 0.00 | 4.846 | 0.001 |

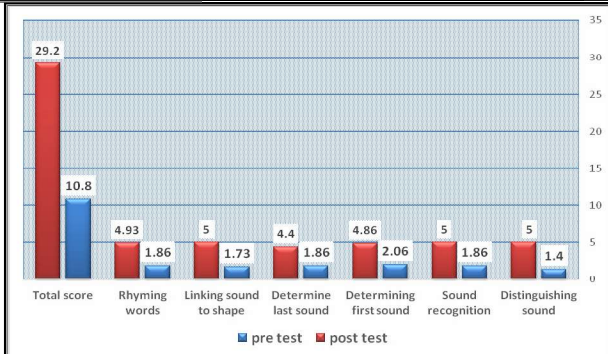


Figure (2) Comparison between the two studied groups in phonemic awareness at at the end of treatment.

✎ The second Hypothesis: There are statistically significant differences between the pre and posttest of the phonemic awareness in favor of the post- test:

Table (3) Group differences between the pre and the post test of phonemic awareness skills (N= 15).

| Outcome | Group | | | | | | (Z) | Sig |
|-------------------------|----------------|------------|----|----------------|------------|---|-------|-------|
| | Positive Ranks | | | Negative Ranks | | | | |
| | Mean Rank | Total Rank | n | Mean Rank | Total Rank | n | | |
| Distinguishing Sound | 8.00 | 120.0 | 15 | 0.00 | 0.00 | 0 | 3.250 | 0.001 |
| Sound Recognition | 8.00 | 120.0 | 15 | 0.00 | 0.00 | 0 | 3.464 | 0.001 |
| Determining First Sound | 8.00 | 120.0 | 15 | 0.00 | 0.00 | 0 | 3.529 | 0.001 |
| Determine Last Sound | 8.00 | 120.0 | 15 | 0.00 | 0.00 | 0 | 3.472 | 0.001 |
| Linking Sound To Shape | 8.00 | 120.0 | 15 | 0.00 | 0.00 | 0 | 3.473 | 0.001 |
| Rhyming Words | 8.00 | 120.0 | 15 | 0.00 | 0.00 | 0 | 3.453 | 0.001 |
| Total Score | 8.00 | 120.0 | 15 | 0.00 | 0.00 | 0 | 3.422 | 0.001 |

Phonemic awareness scores were compared before and after musical activities program. On average the experimental group performed worse before than after the musical activities programs.

A Wilcoxon signed- rank test indicated that this differences were statistically significant, T=120, (Z)= 3.520 p 0.001 for distinguishing sound, T= 120, (Z)=3.464, p 0.00 for sound recognition; T= 120, (Z)= 4.839, p 0.00 for determining first sound; T= 120, (Z)= 4.294, p 0.001 for determining the last sound; T= 120, (Z)= 3.473 p 0.001 for linking sound to shape; T= 120, (Z)= 3.453, p 0.00 for Rhyming words; T= 120, (Z)= 3.422, p 0.001 for Total Score.

✎ The Third Hypothesis: there are no statistically significant differences between the post and the follow up test of phonemic awareness test:

Table (4) Group differences between the post test and follow up test in phonemic awareness skills (N= 15).

| Outcome | Group | | | | | | (Z) | sig |
|-------------------------|----------------|------------|---|----------------|------------|---|-------|-------|
| | Positive Ranks | | | Negative Ranks | | | | |
| | Mean Rank | Total Rank | n | Mean Rank | Total Rank | n | | |
| Distinguishing Sound | 0.00 | 0.00 | 0 | 1.00 | 1.00 | 1 | 1.000 | N. S |
| Sound Recognition | 0.00 | 0.00 | 0 | 4.00 | 28.00 | 0 | 2.646 | 0.001 |
| Determining First Sound | 2.50 | 2.50 | 1 | 2.50 | 7.50 | 3 | 1.000 | N. S |
| Determine Last Sound | 4.50 | 36.00 | 8 | 0.00 | 0.00 | 0 | 2.828 | 0.001 |
| Linking Sound To Shape | 0.00 | 0.00 | 0 | 2.00 | 6.00 | 3 | 1.732 | N. S |
| Rhyming Words | 2.50 | 2.50 | 1 | 2.50 | 7.50 | 3 | 1.000 | N. S |
| Total Score | 4.00 | 16.00 | 4 | 7.14 | 50.0 | 7 | 1.563 | N. S |

Phonemic awareness scores were compared at the post test and follow up test. There were no statistically significant differences except in distinguishing sound and determining the last sound which were statistically significant differences in favor of the follow up test.

A Wilcoxon signed- rank test indicated that this differences were not statistically significant, T= 0.00, (Z)= 1.000 p 0.317 for distinguishing sound, T= 28.00, (Z)=2.646, p 0.05 for sound recognition; T= 7.50, (Z)= 1.00, p 0.05 for determining first sound; T= 36.00, (Z)= 2.828, p 0.001 for determining the last sound; T= 6.00, (Z)= 1.732 p 0.083 for linking sound to shape; T= 7.50, (Z)= 1.000, p 3.17 for Rhyming words; T= 50, (Z)= 1.563, p 0.116 for Total Score.

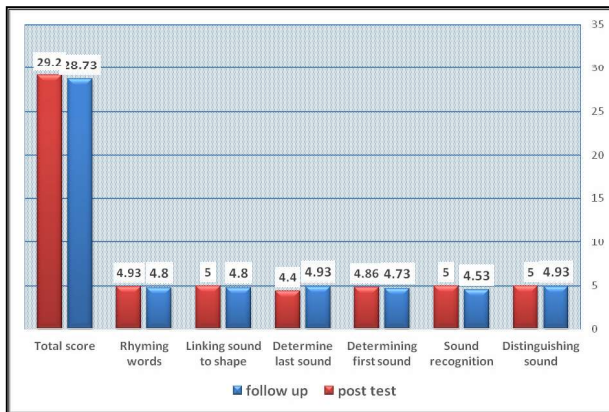


Figure (3) Comparison between the two studied groups in phonemic awareness at baseline, at the end of treatment.

Discussion:

The purpose of this study was to evaluate the effectiveness of the musical activities program to develop phonemic awareness on toddlers. The results indicate that most toddlers in the experimental group develop their phonemic awareness more than the toddlers in control group. The toddlers of the experimental group were able to acquire the skill of distinguishing sounds and identifying the sounds of letters, and they were able to identify some words that included rhyming, as well as identifying the first and the last sound in the words, and they also gained the ability to link the sound of some letters and their forms. This result indicates that songs and musical games which included movement are excellent methods to teach phonemic awareness skills to toddlers. This result can be explained according to the songs that were included in the program which helped toddlers to develop their memory and enhance their oral expressions. Dancing, music games and rhyming movement help young children to learn the sound of the letter in an atmosphere of joy and pleasure, this is appropriate for their needs in that early stage of life. These data show that learning phonemic awareness by singing a song is quite easy for toddlers specially if the songs end with words rhyme, and have few words and strong rhythm to help them to remember. Also, other music activities like dancing and games helped them to stimulate their minds and emotions to think and to realize the phonemic of the letter and also help them to repeat the rhyming words. The content of the program depended on the gradient of tasks from easy to difficult. Starting the introduction of the program by training children in the skills of auditory discrimination by using musical instruments and motor games accompanied by music, which helped to develop their skills of auditory discrimination and auditory memory. (Ho& et.al2003) Also the children were able to understand the meaning of sounds, words and the talk directed to them. This was the first step that supports the acquisition of phonemic awareness skill. The use of music activities can create a balance between the language processes that occur in the left hemisphere of the brain and the music processes which occur in the right hemisphere. (Salmon, 2010) The program included musical games that helped toddlers to acquire the skill of linking between the letter and its sound and the perception of the rhythm and toning of the word's sounds.

The program also adopted the use of reinforcement and induction techniques, which agrees with Skinner's theory which emphasizes that language is a skill that is acquired through reward, encouragement, and support by those around the child. (Lightbown and Spada, 2013). The results also showed the continuation of the effect of the program after the end of the application. The results revealed also an increase in the degrees of distinguishing sound and determining the last sound in follow up test, and this confirms that the musical activities develop long- term memory. (Gosvvarni, 2011) Although the control group was practicing musical activities associated with the nursery curriculum, there were statistically significant differences on the phonemic awareness scale in favor of the experimental group. which indicates that musical activities and songs must be prepared to train children on gaining phonemic awareness skills, so using songs and music activities without setting goals may not help to develop phonemic awareness in toddlers. This result is consistent with what was confirmed by Vygotsky's theory, which emphasized that the process of acquiring children to read and write depends on providing them with opportunities for training by participating in activities that help them to acquire the skills of recognizing the sounds of letters and verbal words, as well as linking between the sound of words and their symbolic forms. (Vygotsky, 1978). The results of this research agreed with the results of research. (Kenner, et.al, 2017) on that phonemic awareness develops in children before the age of three years. She also agreed with the result of the research (Degé and Schwarzer, 2011) (Walton, 2014) which said that musical activities have a positive effect on the development of children's phonemic awareness skill. overall, the results of this research confirm that the development of phonemic awareness in the early stages of life particularly in the nursery stage, may help to reduce the reading difficulties that children faces up in the following academic stages.

References:

1. Adams MJ (1990) Beginning to read: Thinking and learning about print. cambridge, MA: Bolt, Beranek, and Newman. Inc. ED 317: 950.
2. Ball EW and Blachman BA (1991) Does phoneme awareness training in kindergarten make a difference in early word recognition and developmental spelling? *Reading research quarterly*: 49- 66.
3. Bashir and AH Jahh Matar (2015) Arabic version of the woodcock johnson knowledge and achievement tests. *Journal of Studies and Educational Sciences* 42(2): 499- 515.
4. Bernier A, Carlson SM, Deschênes M and Matte- Gagné C (2012) Social factors in the development of early executive functioning: A closer look at the caregiving environment. *Developmental science* 15(1): 12- 24.
5. Chapman ML (2003) Phonemic awareness: Clarifying what we know. *Literacy Teaching and Learning* 7: 91- 114.
6. Cooper S (2010) Lighting up the brain with songs and stories. *General Music Today* 23(2): 24- 30.
7. Cunningham AE and Stanovich KE (1998) What reading does for the mind. *American Educator* 22: 8- 17.

8. Degé F and Schwarzer G (2011) The effect of a music program on phonological awareness in preschoolers. **Frontiers in psychology** 2: 124.
9. Du Sautoy M (2004) Universal language of math and music. **Times Educational Supplement** (4574) 24.
10. Fujioka T, Trainor LJ, Ross B, Kakigi R and Pantev C (2004) Musical training enhances automatic encoding of melodic contour and interval structure. **Journal of cognitive neuroscience** 16(6): 1010- 1021.
11. Gillon GT (2000) The efficacy of phonological awareness intervention for children with spoken language impairment. **Language, speech, and hearing services in schools** 31(2): 126- 141.
12. Gosvvarni U. (2011) Language, music, and children's brains: a rhythmic timing perspective on language and music as cognitive systems. **Language and music as cognitive systems**: 292.
13. Gredler G (2002) Snow, CE, Burns, MS& Griffin, P. (eds.) (1998). Preventing reading difficulties in young children. Washington, DC: National Academy Press.
14. Hayes, BL (1991). Effective strategies for teaching reading. Boston: Allyn& Bacon. Hengari, JU (2007). **Identification of reading difficulties amongst grade 4**: 191- 209.
15. Grofčíková S. and Máčajová M (2017) Abilities of phonological awareness in the context of cognitive development in preschool age. **Journal of Language and Cultural Education** 5(3): 46- 56.
16. Henriksen- Macaulay L (2014) **The Music Miracle: The Scientific Secret to Unlocking Your Child's Full Potential**. Earnest House Publishing.
17. Ho YC, Cheung MC and Chan AS (2003) Music training improves verbal but not visual memory: cross- sectional and longitudinal explorations in children. **Neuropsychology** 17(3): 439.
18. Hoff E (2006) How social contexts support and shape language development. **Developmental review** 26(1): 55- 88.
19. Josep T and Brian B (2013) **Test of phonological awareness**.
20. Kenner BB, Terry NP, Friehling AH and Namy LL (2017) Phonemic awareness development in 2.5 and 3.5 year old children: an examination of emergent, receptive, Knowledge and Skills. **Reading and Writing** 30(7): 1575- 1594.
21. Koelsch S and Siebel WA (2005) Towards a neural basis of music perception. **Trends in cognitive sciences** 9(12): 578- 584.
22. Lightbown PM and Spada N (2013) **How languages are learned 4th edition- Oxford Handbooks for Language Teachers**. Oxford university press.
23. McMullen E and Saffran JR (2004) Music and language: A developmental comparison. **Music Perception: An Interdisciplinary Journal** 21(3): 289- 311.
24. Moats L (2009) Knowledge foundations for teaching reading and spelling. **Reading and Writing** 22(4): 379- 399.
25. Mol SE and Bus AG (2011) To read or not to read: a meta- analysis of print exposure from infancy to early adulthood. **Psychological bulletin** 137(2): 267.
26. of Health UD, Services H et.al. (2015) **Head start early learning outcomes framework: Ages birth to five**. Washington, DC: Administration for Children and Families Office of Head Start.
27. Paquette KR and Rieg SA (2008) Using music to support the literacy development of youngenglish language learners. **Early Childhood Education Journal** 36(3): 227- 232.
28. Perez IR (2008) Phonemic awareness: A step by step approach for success in early reading. **Rowman& Littlefield Education**.
29. Morrow, L. M. (2009). **Literacy development in the early years: Helping children read and write** (6th ed.). Boston, MA: Allyn and Bacon.
30. Phillips BM, Clancy- Menchetti J. and Lonigan CJ (2008) Successful phonological awareness instruction with preschool children: Lessons from the classroom. **Topics in early childhood special education** 28(1): 3- 17.
31. Qi S and O'Connor R (2000) Comparison of phonological training procedures in kindergarten classrooms. **The Journal of Educational Research** 93(4): 226- 233.
32. Salmon A (2010) Using music to promote children's thinking and enhance their literacy development. **Early child development and care** 180(7): 937- 945.
33. Schuele CM and Boudreau D (2008) Phonological awareness intervention: Beyond the basics. **Language, Speech, and hearing services in schools**.
34. Vygotsky L (1978) **Mind in Society: The development of higher psychological processes** Harvard university press. Cambridge, MA.
35. Walton P (2014) Using singing and movement to teach prereading skills and word reading to kindergarten children: An exploratory study. **Language and Literacy** 16(3): 54- 77.
36. Walton PD and Walton LM (2002) Beginning reading by teaching in rime analogy: Effects on phonological skills, letter- sound knowledge, working memory, and wordreading strategies. **Scientific Studies of Reading** 6(1): 79- 115.
37. Walton, P. (2014). Using singing and movement to teach pre- reading skills and word reading to kindergarten children: An exploratory study. **Language and Literacy**, 16(3), 54- 77.
38. Wasik BA (2001) **Phonemic awareness and young children**. **Childhood Education** 77(3): 128- 133.
39. Whitehurst GJ and Lonigan CJ (1998) Child development and emergent literacy. **Child development** 69(3): 848- 872.
40. Zeece PD (2006) Sound reading and reading sounds: The case for phonemic awareness. **Early Childhood Education Journal** 34(2): 169- 175.

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