

INFLUENCE OF FREQUENCY OF REPRODUCTION, DISCRIMINATION AND REPRESENTATION OF MUSICAL FRAGMENT IN PSYCHOLINGUISTIC SKILLS OF PRESCHOOL CHILDREN

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ABSTRACT

This work starts from the idea of the existence of interactions between the individuals and their environment that make their linguistic development easier. Amongst them, there are interactions with musical stimuli. On a first study, the presence of repetition, discrimination and musical extracts representation in kindergarten daily academic activities and its influence on psycholinguistic abilities was explored. Later on, three levels of frequency in those activities with third grade children at their school center were worked on. The results showed that these musical activities are slender and without a meaningful effect on psycholinguistic abilities. Nevertheless, if the frequency is increased and followed and appropriate feedback during the Rhythm, Chants and Games class, there is a meaningful influence on the linguistic abilities explored by the Illinois Test of Psycholinguistic Abilities.

Keywords: Psycholinguistic abilities, musical activities, preschool children

INTRODUCTION

In reading-writing learning different factors interact; one of them is the command children have over certain activities which have been generally called as prerequisites or precurrent activities of reading; additionally they have been associated with psycholinguistic skills. Generally, these skills are referred to auditive and visual stimulus discrimination, by considering if discrimination is performed successfully by the children, they will have acceptable and successful executions in school tasks implied in reading-writing learning. A question emerges from the above: How can the child perform appropriately such

discrimination? In this work, individuals are considered as being forming a conventional reactive group acquired by members' interaction from a particular social group (Ribes, 1990). So, it is the interaction with child's environment, particularly linguistic one, where he starts, in a way, to face diverse situations, and consequently he is developing the pertinent discriminated answers in reading-writing acquisition process.

These situations may happen naturally and other may be formally planned. Concerning natural ones, reports carried by language acquisition experts (Moerk, 1975 and 1976, Rondall, 1990) provide clear evidence that it is the adult, especially the mother, who is regulating the answers formulated by the children to different auditive stimuli coming from the environment, adults and even the child himself. Mothers' feedback to their children when they start to vocalize or utter words, either spontaneously or according to an auditive or visual model taken from their mothers are a clear proof of how a natural auditive and visual discrimination is being promoted. In such a way, it may be suggested that those children that have been developed appropriately their psycholinguistics skills, or that possess precurent abilities for reading-writing, have been exposed to different and frequent natural situations as the ones described previously or another similar ones (Scarborough, 1998; Weinberger, 1996).

Another example when there is interaction between parents and siblings, with written texts, like for example when the parents read tales loudly to children, and additionally they make questions about the content of them and respond to children questions. The way in which reading and kind of questions addressed to children are made is associated with a level reached in different indicators of linguistic development such as verbal comprehension, vocabulary and tales comprehension (Sénéchal, Thomas and Monker, 1995; Sénéchal, LeFevre, Hudson and Lawson, 1996; Senechal and LeFevre, 2002), indicators that at their turn, are related to the level of school performance concerning reading-writing (De la Cruz, 1989; Romero, Aragon and Silva, 2002)

Besides home, children attend different context that may facilitate them, by making a plan, activities in which they develop such skills. One of them is kindergarten, which must provide diverse experiences to children allowing them an integral development and preparation to face appropriately the activities implied in reading-writing learning to be needed in official schools during the first year of elementary school. It is difficult to determine at what extent this objective is achieved, since there are few studies aimed for such goal; however, there are some evidences that would suggest that activities accomplished in kindergarten do not encourage appropriately some psycholinguistic skills implied in reading-writing (Guevara and Macotela, 2000, Guevara, Hermosillo, Delgado, Lopez and Garcia, 2007, Galicia, Peña, Sanchez and Pavon, in press).

Another context in which activities addressed to children are formally planned are the artistic education classes, both those taught in the kindergarten itself and out-of-school classes. Music classes are considered somehow an influence in some linguistic skills, even though they do not have an explicit purpose to stimulate linguistics aspects. There are diverse studies proposing an interdependency between linguistic development and musical development of the children; interdependency allegedly attributed to auditive mechanisms implied in sounds segmentation and recognition and/or sounding units, regardless changes in timbre, duration, intensity and tone are implied both in linguistic decodification and musical one (Fassbender, 1996; Anvari, Trainor, Woodside and Levy, 2002, Schön, Boyer, Moreno, Besson, Peretz and Kolinsky, 2008).

Various studies have found that individuals performing musical activities have a higher linguistic development than those who do not have formal contact with music; for example Franklin, Moore, Yip, Jonides, Rattray and Moh (2008) report that practicing musical activities favors verbal memory in adults. In children's case, who face musical stimuli, they get a higher score in auditive memory, particularly in verbal memory, than those children who are not exposed to such stimuli (Ho, Cheung and Chan, 2003; Galicia 2001). Furthermore, there have been found positive effects in visual memory (Galicia and Pavon 2001, Galicia, 2001) and a better handling of receptive and active vocabulary (Don, Schellenberg and Rourke, 1999; Galicia and Pavon, 2001; Anvari, Traidor, Woodside and Levy, 2002; Galicia, Contreras and Peña, 2006), as well as in auditive reception and phonological conscience processes (Milovanov, Tervaniemi, Takio and Hämäläinen, 2007).

These evidences suggest that performance of formal musical activities is another source of stimulation providing to the child interaction to be effectuated appropriately fine visual and auditive discriminations which in some way affect another type of indexes that some authors have considered as associated with reading-writing learning.

However, this consideration is formulated in molar terms, reason why it is required to specify the kind of musical activities encouraging linguistic skills. In other words, it is necessary to delimitate which will be the functional relations among stimuli that have to be established in music class, conforming reactive system allowing the child to face another series of functional relations linked to activities academically implemented to acquire reading-writing.

Concerning the foregoing, there are some testimonies: in correlational type studies with pre-school children, without linguistic literacy nor musical one, it has been seen that those who possess high levels of performance in musical tasks, such as rhythmic reproduction, rhythmic, melodic and harmonic discrimination positively correlate with vocabulary and linguistic tasks, like phonological conscience, considered important to reading-writing (Anvari, Traidor, Woodside and Levy, 2002; Bolduc and Montesinos-Gelet, 2005). Similarly, works from Don, Schellenberg and Rourke (1999) have revealed there is a correlation between musical skills and linguistic ones in children, specifically between discrimination of pairs of rhythmic and melodic fragments and receptive vocabulary. Cited evidences presume that in classes where musical activities are taught and some interactions are present aimed for rhythmic reproduction and for rhythmic, melodic and harmonic discrimination favored children linguistic development.

To summarize the foregoing, in this research it is argued that one of the sources from promoting precurent skills of reading-writing could be found in musical activities, since in them it is feasible to find interactions in which auditive discriminations intervening in setting the reactive system that allows the child to face the other series of functional relations linked to academic activities established to acquire reading-writing. More specifically, based on evidences provided by researches previously referred, it is proposed to perform daily activities in which repetition and discrimination of rhythmic and melodic fragments are implied, could be part of reactive system that could influence linguistic skills development level, especially those that have been considered important when acquiring reading-writing.

So as to account for such presumptions, diverse analyses were performed. First of all, it was identified that if official kindergarten, formal activities including musical aspect are tasks aimed to repetition, discrimination and representation of auditive -musical stimuli. Later, with children registered in pre-school level, linguistic skills development level was compared,

according to presence and absence of such musical tasks in daily school tasks. Finally, with data obtained from these two actions, a musical activities program aimed for pre-school stage children was designed.

In this program, repetition, discrimination and representation of musical-auditive stimulus activities were privileged in this program. Such program was applied in official kindergartens with the purpose of analyzing its influence in psycholinguistic skills, and it was compared with the traditional program of Rhythm, Chants and Games subject, as well as absence of musical activities during school hours. It is important to mention that all the studies were carried out in natural scenarios.

Study 1

This study had two purposes, one of them was to identify if in curricular space in which musical activities are performed at pre-school level there are activities implying repetition, discrimination and representation of rhythmic, sound and melodic patterns. The second was oriented to examine if psycholinguistic skills development is influenced by the musical activities.

METHOD

Participants

6 teachers participated in Rhythms, Chants and Games subject, who worked in six official kindergartens of the North zone of the Distrito Federal. Additionally, 60 pre-school first graders; they were randomly chosen; 30 of them belong to two kindergartens of the professors participating, and the rest of the children attended other two official schools, in which Rhythms, Chants and Games subject was not taught.

Instruments

Illinois Test of Psycholinguistic Abilities (ITPA) was employed. Such instrument provides the evaluation of discrete and significant attitudes related to acquisition and use of language from an education point of view, and allows a specific linguistic aptitudes' diagnosis.

It is derived from behavioral orientation Osgood communication model, in which individual psychological function are considered in reception, interpretation or messages transmission, in such a way they provide three dimensions: communication channels, psycholinguistic processes and organization levels. Channels proposed are visuomotor and auditive-vocal.

Processes are receptive, expressive or understanding. Organization levels are automatic and representative. According to interrelation of these dimensions, ten basic tests are developed: auditive comprehension, visual comprehension, auditive association, visual association, oral expression, motor expression, grammar integration, visual integration, auditive sequential memory and visuomotor sequential memory.

Materials

Video Camera, Registry Sheets and the Instruments Themselves

Procedure. Authorization from participant kindergartens principals and teachers was requested, so as to carry out the vide of Rhythm, Chants and Games class (RCyJ) and the evaluation of children psycholinguistic skills. For recording, two groups of each school level were selected. The total of session filmed were 6, with an average duration of 30 minutes, in which it was identified if central purpose of activities proposed was the children repeat, discriminate and represent rhythms, sound and melodic patterns. From each group filmed, ten children were randomly chosen; instrument was applied in two sessions.

RESULTS

Musical activities analysis is represented in Table 1, in percentage term, proportionally to activities developed in six classes observed. There are no distinctions per level, because differences between them were minimal.

Table 1. Musical activities percentage

Musical elements	alone	visual	Motor action	total
Rhythm				
Repetition of rhythmic patterns	1.47		5	6.47
Discrimination of rhythmic patterns	1.47	2.94	4.62	9.03
Representation of rhythmic patterns		2.94	2.91	5.85
<i>Total Rhythmic</i>	<i>2.94</i>	<i>5.88</i>	<i>12.53</i>	<i>21.35</i>
Timbre				
Discrimination of timbres		3.35	5.35	8.7
Representation of timbres		2.41	2	4.41
<i>Total Timbre</i>		<i>5.76</i>	<i>7.35</i>	<i>13.11</i>
Melody				
Repetition of melodies		4.94	4.24	9.18
Discrimination of melodies		4.88	4.68	9.56
Representation of melodies		3.94	3.21	8.15
<i>Total Melody</i>		<i>13.76</i>	<i>12.13</i>	<i>25.89</i>
Others				
Absence/presence discrimination				6
Passive listening				10
Activity aftermath				14
Discipline				10.65
<i>Total Others</i>				<i>40.65</i>
TOTAL	2.94	25.4	31.01	100

In the first column, the three musical elements included are represented, and in each one of them, if repetition, discrimination and representation activities were performed. In the

second column, there is a registry if in this activities, auditive-musical stimuli are presented alone; in third column it was registered if such stimuli were together with some visual stimuli; in the fourth, there was the registry of motor activities associated with the stimulus in question. In the last column, the total is considered.

We need to emphasize there is a high percentage (40.65%) of activities carried out in the space of Rhythms, Chants and Games that were classified under the item "Others", and do not have as final purpose the reproduction, discrimination or representation of musical patterns. In general terms, it is observed that melodic element was the most demanded, (25.89%), and that auditive-musical elements are mainly associated with motor actions, (31.01%). Activities related to stimulus repetition are caused only in rhythmic and melodic aspect, with a very slim percentage in the first one.

Discrimination activities of such stimuli were those with higher percentage in each one of the three elements (its average is of 9.09%), meanwhile the activities aimed at representing the stimuli were those with lower percentage of occurrence.

Evaluation results accomplished by this instrument are reported through typical scores. In figure 1, it can be observed that the group using RCyJ obtained higher scores in eight of the skills evaluated, only in visual integration and motor expression. The group who did not take musical activities (S/M) obtained higher scores. Nonetheless, regarding skills, there were no significant differences between the groups.

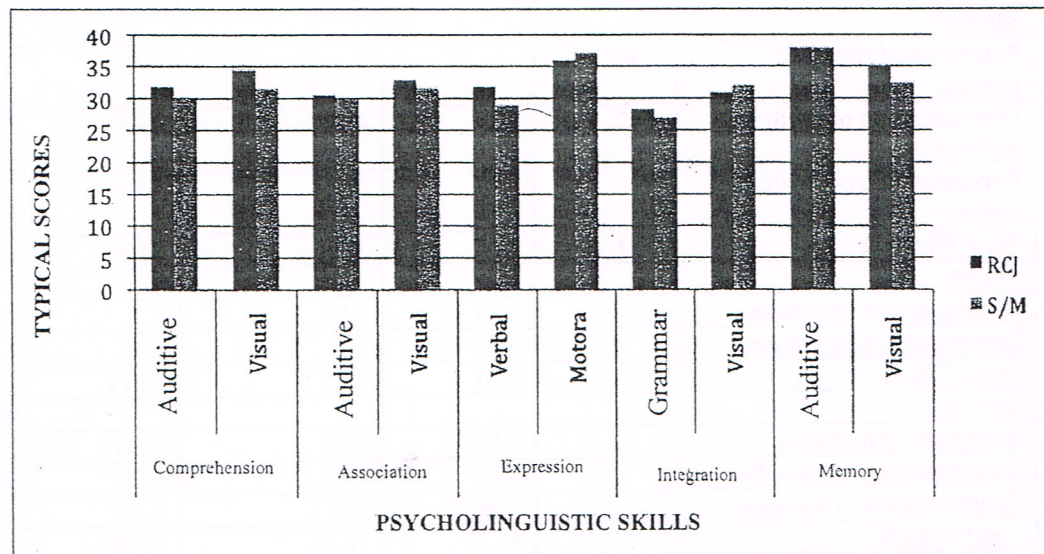


Figure 1. It shows typical scores obtained in ITPA diverse tests to the group that pursue Rhythm, Chants and Games class and the group which did not pursue such class.

DISCUSSION

High percentage of Others category is an evidence that in kindergarten classes aimed for Rhythm, Chants and Games subject, the activities mainly performed are not related to the promotion of repetition, discrimination and representation of rhythmic, melodic and sound stimuli, which according to literature, are activities associated with linguistic development of

pre-school children. So that the inexistence of significant differences in children evaluated of the two groups was not surprising. Alone with low frequency of such activities, there is a slim performance of tasks aimed to stimulate repetition, which does not facilitate children contact with stimuli presented, and consequently they do not obtain a frequent feedback about their performance, according to characteristics of stimulus model presented.

Consequently, even though discrimination of activities are little more frequent, it is feasible children do not develop them appropriately, since they are not familiar with practice of a musical pattern, they do not receive feedback and in consequence, the discrimination is not evaluated individually by kindergarten music teachers; they simply observe if most of the students perform them or not. This is due to different reasons, among them, that teachers present the stimulus through execution of musical instruments (generally the piano or guitar) and they can not stop playing the instrument, meaning, they can not interrupt musical stimulus, move toward the children so as to correct them, get back and present again the stimulus. Students require the help of the teacher, who generally is not present during RCyJ class, and when that happens, she is dedicated to control discipline. On the other hand, musical elements less favored were rhythmic and sound; this last one is particularly natural because the children will have difficulty to repeat different timbres, but no so in rhythmic aspect, since it is relatively easy to children. Rhythm is associated with motor actions that children may effectuate and in that way, to strengthen temporary and accentual structures of the word (Fraise, 1974, Hoskins, 1988). According to space of RCyJ activities, and to the considerations applied to them, it is feasible to presume that differences in psycholinguistic skills in both groups of children do not result to be significant. One of the presumptions of this work was that by exposing children to activities in which repetitions, discriminations and representations of musical stimuli were performed, the skill to carry out such discriminations would be promoted, and it could be reflected in a better performance of psycholinguistic skills.

In this exploration, in addition to find low frequency of musical activities of interests and lack of feedback about them, it was not evaluated children capacity to perform such musical tasks, preventing to accomplish a correlative analysis between musical and linguistic performance level. Such analysis would allow to find elements of analysis to account for the influence of musical activities in linguistic skills, like those from diverse authors, (Don, Schellenberg and Rourke, 1999; Anvari, Traidor, Woodside and Levy, 2002 and Milovanov, Tervaniemi, Takio and Hämäläinen, 2007) who found a correlation between scores obtained in rhythmic production tasks, rhythmic and melodic discrimination with phonologic conscience.

Study 2

It was considered the possibility that interactions carried out in RCyJ class do not influence importantly the psycholinguistic skills because activities were not sufficient to repetition, discrimination and representation of musical patterns. In order to prove this proposal, a program was prepared, being feasible to apply it in the space of RCyJ class, which includes a higher number of such activities, associated as well as to visual stimuli and to motor actions performed by the children. So that the objective of this work was to determine if there are differences in children psycholinguistic skills development, according to the exposition to three levels of frequency in repetition, discrimination and representation of

rhythmic, sound and melodic patterns in activities performed by pre-school stage children in their Kindergarten classes.

METHOD

Participants

60 individuals were selected, with an average age of 5 and a half years old, that belonged to six official kindergartens' groups, from 3rd level, whose family had a socioeconomic level between one and three minimum salaries, and maximum level of studies of the parents were secondary school.

Instrument

Illinois Test of Psycholinguistic Abilities was applied.

Procedure

It was applied in six kindergartens' groups (composed by an average number of 30 children), in which the principals, group teachers and music teachers wanted to participate. Two groups were assigned to each one of the following conditions: A1) The program used was the educational-musical intervention to promote the psycholinguistic skills development (PIMITL); A2) the activities proposed to the Rhythms, Chants and Games subject (RCyJ, in Spanish) were performed, and SM) normal activities which not included music were carried out; letter A labeled the groups having musical activities, and the kind of activities performed was marked by the number

It is important to mention that in A1 and A2 conditions, all the children of the assigned groups, exposed to musical activities corresponding to their classroom during school hours in the Schedule of Rhythms, Chants and Games subject, by achieving the intervention in a natural situation.

Evaluation instrument (ITPA) was applied before and after intervening only to ten children of each group, whose families had the characteristics already mentioned, reaching a total of sixty children.

The reason of such selection was to homogenize the sample in which education program would be observed, since there is evidence that socio-economic and educational level of the parents are variables that influence children linguistic development.

Conditions

PIMITLA1 Music: (84% of frequency) The program denominated PIMITL was applied twice per week by two of the researchers that possessed education as kindergarten and musical education teachers. One of them was dedicated to lead the class and to present the

stimuli; the other one was dedicated to modeling and feedback of proposed activities. These functions were taken in turns. Total sessions were 30, with an average time of 30 minutes, each one.

In each session, a topic was developed (for example, the journal, my family, the farm), and in the course of it, different activities were performed. Table 2 represents, in percentage terms, how actions carried out during all the sessions were distributed. Unlike RCyJ classes, PIMITL emphasized rhythmic elements, and it continued, in descending order, with melodic and sound. Regarding activities, even though discrimination continued being the most employed, its proportion was ranked equally with representation in PIMITL. In general, tasks searched mainly an association between musical stimuli and motor actions. It is necessary to mention that favorable actions of repetition, discrimination and representation of rhythmic, melodic and sound stimuli were presented in 84% of program activities.

RCyJ A2 Music: (60% of frequency) In this group, as in the previous one, we worked during fifteen weeks, 2 sessions per week, reaching 30 sessions. There, activities that normally occur in Rhythms, Chants and Games were carried out; their distribution is the same showed in Table 1, and where repetition, discrimination and representation of rhythmic, melodic and sound stimulus cover only 60%. Such activities were implemented by the kindergarten and music teachers assigned to that group.

Without SM B music: (0% of frequency). Children of the group had their daily kindergarten classes, without any musical activity, because their school had no professor assigned to effectuate such activities.

Table 2. It shows the percentage of musical activities of PIMITL

Musical elements	alone	visual	Motor action	total
Rhythmic				
Repetition of rhythmic patterns		3	7	10
Discrimination of rhythmic patterns		9	10	19
Representation of rhythmic patterns		5	5	10
<i>Total Rhythmic</i>		17	22	39
Timbre				
Discrimination of timbres		5	5	10
Representation of timbres		7	3	10
<i>Total Timbre</i>		12	8	20
Melody				
Repetition of melodies		3	4	7
Discrimination of melodies		5	5	10
Representation of melodies		5	3	8
<i>Total Melody</i>		13	12	25
Others				
Absence/presence discrimination	7			7
Passive listen	3			3
Activity aftermath	3			3
Discipline	3			3
<i>Total Others</i>	16			16
TOTAL	16	34	50	100

RESULTS

In order to analyze these results, we took into account typical normalized scores, providing by the instrument, both global and pertaining ones, to each one of the tests composing them.

By global scores, we looked for significant differences between the groups of first evaluation and as they do not exist, the three groups were considered homogeneous. Later, scores obtained between the first and second evaluation were compared for each one of the three groups in Figure 2, in which it can be seen as main characteristic, that Group A1 (PIMITL application, 84% of frequency) registers high increases in evaluations, and even it is the only one showing increases in all the tests, since the other groups (RCJ/60% and SM/0%) in addition to show less increases, show reduction in evaluated psycholinguistic skills¹.

Skills in which there were higher increases in A1 group (PIMITL/84%) were visual comprehension, visual-association, motor expression (which correspond to representative level) and sequential visuomotor memory pertaining to automatic level.

Higher differences between groups occurred in auditive comprehension, auditive and visual association, verbal and motor expression, grammar integration and vasomotor sequential memory.

Table 3.-It shows significance level obtained through Tukey analysis when comparing differences between means of the three groups in each one of ITPA tests.

	Comparison between groups		
	AI PIMITL A2 RCyJ	AI PIMITL B SM	A2 RCyJ B SM
ITPA tests			
Auditive comprehension	0.05	0.004	0.561
Visual comprehension	0.003	0.001	0.593
Visual memory	0.008	0.001	0.453
Auditive association	0.001	0.001	0.989
Auditive memory	0.018	0.001	0.971
Visual association	0.005	0.001	0.645
Visual integration	0.028	0.003	0.971
Verbal expression	0.001	0.001	0.908
Grammar integration	0.014	0.001	0.673
Motor expression	0.001	0.001	0.809

¹Such decreases could be attributed to transformation made from direct scores to typical scores. It is necessary to mention that in all the cases, direct scores increased in the second evaluation, but since they are converted into typical scores, according to chronological age (years and months) at the moment of the evaluation, different transformation tables have to be used. In some cases, it was necessary to evaluate them according to table corresponding to the next age from the age in which they were evaluated the first time. In such cases, the individuals obtained lower typical scores. In other cases, even though the children increased their age, it was not enough to change the table, and they were evaluated with the same table, obtaining high typical scores. The fact that A1 group average data do not show such decreases is because direct scores obtained in the second evaluation were higher, even in cases in which it was required to change the table, higher typical scores were obtained, and consequently the average from all the individuals was higher than that of other groups.

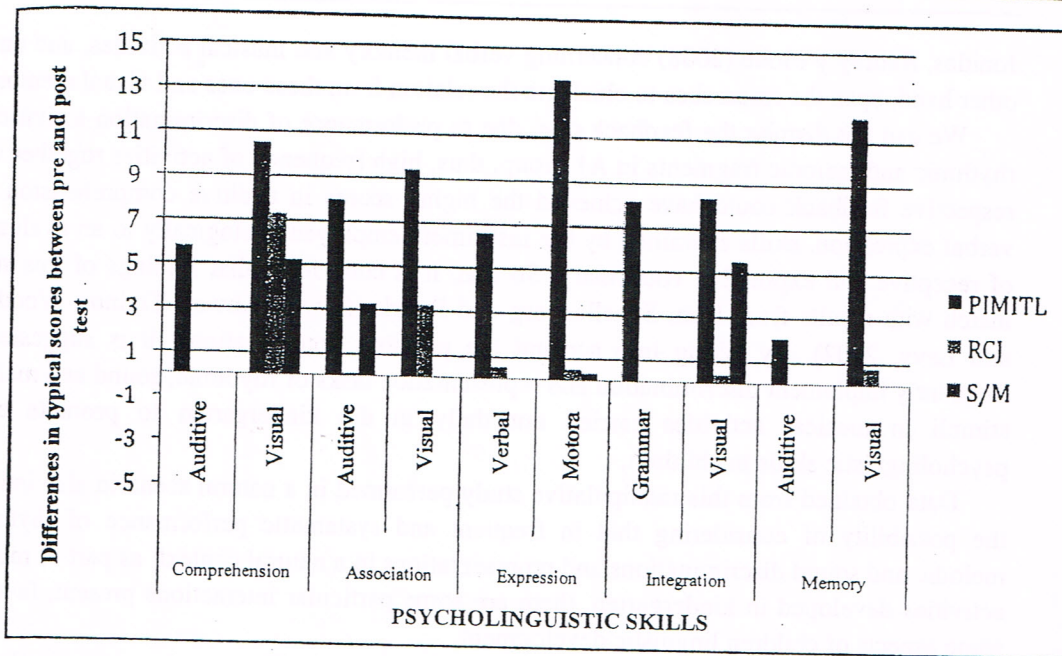


Figure 2. It shows differences in typical scores obtained in ITPA diverse tests between the first and second evaluation to groups that pursued PIMITL program, Rhythm, Chants and Games class, and those which did not pursued musical activities.

A variance analysis was carried out, by which significant differences between pre-test and post-test scores of the three groups were showed ($F_{(3,57)}=4.765$; $p<0.05$). Post hoc analyses effectuated (Tukey) displayed a clear tendency in groups' differences: scores from all ITPA tests from A1 group differed significantly regarding A2 and B groups (see table 3); meanwhile in A2 group scores, concerning B group, there no significant differences in none of the evaluated tests.

DISCUSSION

Absence of differences statistically significant between A2 (RCJ/60%) and B (SM/0%) groups reinforce the idea that RCyJ subject, the slim practice of musical activities that imply discrimination and representation of melodic and rhythmic stimuli is insufficient to influence psycholinguistic skills development. A1 group (PIMITL/84%) had such activities present in a higher percentage, mainly those related to development level in evaluated skills, and mainly auditive comprehension, auditive and visual association, verbal and motor expression, grammar integration and visuomotor sequential memory.

With respect to this last one, Galicia and Pavon 1997, Galicia, 2001 confirm the findings found in other researches. Even though verbal memory also increased significantly in the group which had more frequency of programmed activities (A1), it is feasible that higher increase in visual memory had been due since PIMITL had a 34% of musical stimuli associated with visual ones. In this way, these findings confirmed what was found by Anvari, Trainor, Woodside and Levy, 2002), Ho, Cheung and Chan (2003) and Franklin, Moore, Yip,

Jonides, Rattray y Mohe (2008) concerning verbal memory and musical activities, and on the other hand, open the researches to elucidate the relation from these ones and visual memory.

We can not dismiss the feedback role, due to performance of discrimination activities of rhythmic and melodic fragments in A1 group; thus, high frequency of activities together with respective feedback could have achieved the higher scores in auditive comprehension and verbal expression, skills examined by the instrument employed analogically to an evaluation of receptive and expressive vocabulary. So that, it is considered that findings of this study match with results from Don, Schellenberg and Rourke (1999), Anvari, Trainor, Woodside and Levy, (2002). By taking into account the previous considerations, it is suggested to frequently implement discrimination and representation tasks of rhythmic, sound and melodic stimuli in musical activities carried out daily in the kindergarten to promote some psycholinguistic skills in children.

Data obtained from this manipulative study performed in a natural scenario also indicate the possibility of considering that in frequent and systematic performance of rhythmic, melodic and sound discriminations and representations in a natural context, as part of musical activities developed in kindergarten, there are some particular interactions present, favoring some aspects of children linguistic development.

Since children with problems of none verbal auditive stimuli processing occurring briefly and quickly, show difficulty in reading (Reed, 1989; Tallal, 1980, Tallal, 1984), it is possible they have, at their turn, problems with rhythmic discrimination. In this research, regarding A1 group (PIMITL) which was exposed to more rhythmic activities of discrimination and representation, we obtained higher scores in auditive and visual memory, as well as in auditive comprehension and association. Thus, we may toy with the idea that these children could not have Reading problems as the ones found by Tallal (1984) and Reed (1989). However, in order to account for that, it will be needed to make other kind of researches. Continuation with studies in natural scenarios with manipulation, it would be appropriate a cross-sectional and longitudinal study in which a follow up of children exposed to activities as the proposed ones in PIMITL is done, covering from pre-school first graders, and to analyze how they develop the process of reading-writing acquisition, by comparing them with other group of children that had not taken such activities. Likewise, it is suggested to carry out a correlation between scores obtained from instrument used to evaluate psycholinguistic skills with scores of other instruments that measure phonological conscience, so as to provide diverse evidences to presumptions from Tallal (1984) and Reed (1989).

Since children performance in discrimination and representation activities of melodic and rhythmic stimuli was not evaluated in this work, it is suggested to carry out such evaluation before and after exposing musical program, and to effectuate different analysis with scores obtained; among them: correlation with psycholinguistic skills scores, studied in this research, as well as with other skills, such as identification, recount, omission and addition of syllables and phonemes in oral language, which are also considered as components of phonological conscience, and which, as we all know, are not only committed in the word acquisition process (Walley, 1993; Bowey, 1996), but also in the initial reading learning (Bruck and Treiman, 1990; Stahl and Murray, 1994). At this moment, results obtained suggest the probability of finding some positive evidences in proposed analysis since, for example, rhythmic aspect of repetition, discrimination and representation are involved when identifying and recounting syllables. If frequent musical activities are performed, with such particularities, and they were properly executed by the children, it could be feasible they

obtain an appropriate performance in skills included in phonological conscience, and possibly less difficulties regarding reading-writing acquisition process. To prove these assumptions would require researches both in natural scenarios and controlled ones, these last ones will be able to identify exactly the role of each of the stimulus (melodic and well-toned rhythms) in linguistic development, and specially in phonological conscience, since there is still a controversy if tones distinction or that of rhythmic motives, is the one correlating in a very important manner with phonological conscience (Anvari, Trainor, Woodside and Levy, 2002; Bretherton and Holmes, 2003; Bolduc and Montesinos-Gelet, 2005)

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