

# Influences of occupational therapy as curricular activity on to psycho-physical development of hearing-impaired students

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## Abstract

We intend to identify the effects of the occupational therapy means on self-esteem and on the psycho-motor development level for hearing-impaired students. Two instruments (test-retest at an 18-month interval) have been used for the hearing-impaired pupils of the “VasilePavelcu” Technological Special High School in Iasi: the scale of multidimensional attitudes for self-esteem E.T.E.S. (N=45 subjects, 24 boys and 21 girls, aged between 13 and 18) in elementary and high school, each groups of 15 subjects; the test Ozeretski – Guillmain (N= 45 de subjects: 25 boys and 20 girls, aged between 8 and 12) in primary and elementary school. Individual test applied for assessment of pshycho-motor development level. The subjects for whom we have assessed the self-esteem attended activities that included pantomime / puppet theater, manual and sports skills activities. The subjects for whom we have assessed the psycho-motor development level have attended the following activities: manual skills, painting, and sports activities. All activities were attended following a preset graph. There is a significant statistical difference to subjects in the phase of retesting to the testing phase for all the variables taken into account: social self-esteem, prospective self-esteem, total level of psycho-motor development. Self-esteem

and the level of psycho-motor development are two variables that can improve the psycho-physical state of children with hearing impairment through occupational therapy. Under its various forms, it can be a tool used by and in school to achieve socio-professional integration, but also training and personal development.

**Keywords** curricular activity • occupational therapy • self-esteem • psycho-motor development • p, hearing impaired students.

## Introduction

The interest for the study of children with special needs, in general, and with hearing impairment, especially, as well as for the optimization of the recovering process from a psychological and pedagogic perspective has begun only in the second half of the twentieth century. Starting with this period, when studies on surdology began to emerge, better instruments and methods for hearing measurements have been applied; they have been investigated from the perspective of the systems theory (cognitive, affective, volitional, motor, motivational); the issue of the optimal intervention period rose. The past decades have introduced new models to solve the problems of persons with special needs: the ecologic model (identification of the impairment causes also in the environment where the hearing-impaired develops and interacts) has replaced the medical model (where the child’s impairment was considered responsible for school failure) (Anca, 2001; Popa, 2002a).

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The issue of the hearing-impaired concerns the adaptation of the various intervention strategies to his particularities from several viewpoints: mental, physical, intellectual, socio-affective, development; the intervention takes into account the socio-economic context of his actions (Stănică, Popa, Popovici, 2001; Popescu, 2003; Anderson et.al., 2000; Kent, 2003).

The scholarship on the hearing-impaired underlines, on one side, the same psychophysical development stage as the person who hears normally, and, on the other side, a slight delay in the stages preceding the learning / acquisition of language. However, this delay is time-limited and remedied during the educational process (Popa, 2002b; Rozorea, 2003; Schlesinger & Acnee, 1984; Vaccari & Marschark, 1997; Calderon & Greenberg, 2011). The specialized literature also mentions the particularity of the psychic development in case of the hearing-impaired, caused precisely by the sign language (Pufan, 1972, 1982; Manolache, 1980; Anca, 2001; Florea, 2010; Napoli et.al., 2015).

From the perspective of intellectual development, the hearing-impaired does present a delay, even from early ages, with different shapes and to various degrees, caused by the lack of cognitive stimulation and training (Pufan, 1972, 1982; Rozorea, 2003).

The socio-affective and relational development of the deaf-and-dumb person is limited early on, given that communication (exploration of the environment, relationship determination etc) fall into the charge of the other valid senses (Theunissen et.al., 2014; Smith et.al., 2005). The type, gravity, and form of the hearing impairment limits the receptive-expressive function of language, the type and intensity of communication, the forms of relating (in many cases reduced to the sign language) and, not least, the behavioural models in the context of the various daily activities (Lillo, 1986; Lipianski, 1992; Florea, 2010; Stevenson et.al., 2014; Marschark, 2007; Yoshinaga-Itano, 2003).

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In the current context, self-knowledge represents an important element of the individual's success. Self-image is a psychosocial construct, a vector of

self-knowledge, of interacting, and of the interdependence with other social actors. It is even more difficult to model the self-image of persons with disabilities in general, and of the hearing-impaired in particular. Several studies have highlighted the influences of different variables (age, gender, culture, disabilities associated with deafness, temperament, quality of life, relationship with parents and other groups - friends, school) on the development of self-consciousness, self-esteem, self-image of hearing impaired and cochlear implant adolescents (Mousavi et. al., 2017; Limaye, 2004; Moog, et. al., 2011; van Gent et.al., 2012; Brice & Strauss, 2016; Warner-Czyz et.al., 2015).

Occupational therapy is a type of original, pleasant activity that contributes to consolidating the ego and, as such, to restoring the psychic balance of the child's personality. The level of the occupational performances determines the child's degree of independence and adaptability. The variety of the activities included within the therapeutic process can motivate children in their attempt to improve their results; it is able to make them develop their creativity and imagination, the trust in their own forces, the increase in self-esteem, the acceptance and tolerance in the relationship with the others. It can also help them co-operate better and identify professional skills with a (re)integration or (re)socialization value (Musu și Taflan, 1994; Bălțeanu, 2002; Dan, 2005). Sewpersad (2014) highlighted the fine and gross motor difficulties (delays and disorders) in preschool children with hearing loss.

### *Objectives*

This research proposes to identify the effects of the occupational therapy means on self-esteem and on the psychomotor development level for hearing-impaired students.

In order to reach the objectives proposed, three hypotheses were formulated:

Social self-esteem is significantly higher at the students within the study, after attending the occupational therapy program.

Prospective self-esteem is significantly higher at the students within the study, after attending the occupational therapy program.

The level of psychomotor development of the students within the study is significantly higher after attending the occupational therapy program.

## Method

For this study, (test-retest at an 18-month interval) two instruments have been used for the hearing-impaired pupils of the “V. Pavelcu” Technologic Special High School in Iași, Romania:

The scale of multidimensional attitudes for self-esteem (E.T.E.S.) (Oubrayrie, Safont și Léonardis, 1994, adapted to Romanian people by Crăciun, 1998) was applied to the pupils in the seventh and eighth form and to pupils within a technological special high school (first year, second year, and third year pupils) (N=45 subjects: 24 boys and 21 girls, aged between

13 and 18). The scale dimensions include as follows: emotional self (E), social self (So), physical self (F), school self (Sc), and prospective self (P).

The Ozeretski - Guillmain test was applied to pupils in primary school (first to fourth form) and in elementary school (fifth and sixth forms) (N=45 subjects: 25 boys and 20 girls, aged between 8 and 12). The purpose was to identify the main motor components from the perspective of five aspects: speed; force; endurance on the following coordinates: - dynamic hand coordination - D.H.C., general dynamic coordination – G.D.C.; balance - B; rapidity – R.).

**Table 1.** Characteristics of sample of subjects

Subjects features	Details	ETES (no. of subjects)	Ozeretski Test (no. of subjects)
Family type	- biparental families (with 2 or 3 brothers/sisters on average)	36	41
	- monoparental families with parents dead or divorced	9	4
Status within the family (unique member with hearing impairment or not)	- with normally-hearing parents and/or siblings	27	37
	- with deaf parents, as well as with siblings with hearing impairment	18	8
Background	- urban area	20	12
	- rural area	25	33
Deafness degree	- medium hearing impairment 40 – 70 db	13	13
	- severe hearing impairment	22	17
	- deep hearing impairment – peste 90 db	10	15

Characteristics of the sample investigated, under various aspects:

Family type: 77 of the subjects investigated come from biparental families (with 2 or 3 brothers/sisters on average); 13 of the subjects come from monoparental families with parents' dead or divorced (9 - E.T.E.S. Scale, 4 -Ozeretski Test).

Status within the family (unique member with hearing impairment or not): 64 of the subjects investigated come from families with normally-hearing parents and/or siblings and 26 of the subjects come from families with deaf parents, as well as with siblings with hearing impairment (18 - E.T.E.S. Scale, 8- Ozeretski Test).

Background: 58 of the subjects investigated come from a rural area, 32 belong to an urban area (20 - E.T.E.S. Scale, 12 - Ozeretski Test).

Deafness degree: 26 of the pupils present a medium hearing impairment 40 – 70 db (13 - E.T.E.S. Scale, 13 - Ozeretski Test); 39 of the subjects present severe hearing impairment (22 - E.T.E.S. Scale, 17 - Ozeretski Test); 25 of the subjects investigated present a deep hearing impairment – over 90 db (10 - E.T.E.S. Scale, 15 - Ozeretski Test).

Content of the intervention program: the pupils were divided into groups of 15 and the activities took place on an 18-month period, twice a week / 90 minutes per activity (excluding the holidays – approximately 4 months). All the subjects attended each activity to the same extent, following a preset graph.

The subjects for whom we have assessed the self-esteem attended activities that included pantomime / puppet theater, manual skills, and sports activities.

The subjects for whom we have assessed the psychomotor development level have attended the following activities: manual skills, painting, and sports activities.

## Results

The application of the t tests for paired samples for the variable social self-esteem ( $t = 13.19$ ;  $p < .01$ ; alpha coeph. = .87) shows that the mean of the subjects' retest scores ( $M = 8.26$ ,  $SD = 1.55$ ) is significantly different from the mean of the subjects' test scores ( $M = 6.17$ ,  $SD = 1.64$ ). Consequently, the activities that the subjects attended had positive influences of the students' social skills: the capacities to communicate and adapt to a collective have improved.

Concerning the variable prospective self-esteem ( $t = -4.35$ ;  $p < .01$ ; alpha coeph. = .87), the results show that the mean of the subjects' retest scores ( $M = 6.17$ ,  $SD = 1.21$ ) is significantly different from the mean of the subjects' test scores ( $M = 5.24$ ,  $SD = 1.58$ ). The analysis of the statistical results underlines that the subjects have improved their capacity of integrating in the adult world, thus opening the possibility of building their own future.

Significant differences are also seen in the scores recorded by subjects on retest ( $M = 55.75$ ,  $SD = 12.37$ ) versus the test ( $M = 61.33$ ,  $SD = 14.04$ ) for the total level of psychomotor development variable = -8.68;  $p < 0.01$ ; coef alpha = 0.97).

The data obtained confirm the hypotheses emitted. The subjects have significantly improved their self-esteem, regarding both their social and their prospective self, after attending the occupational therapy program. Moreover, the fact that they attended the activities within the occupation therapy led to a significant improvement of the psychomotor development for the students monitored within the study.

## Discussion

The use of the two tools allowed the analysis of some components on the group of subjects of the study. Thus, although the ETES – the multidimensional attitude scale for self-esteem evaluates five components, the study only focused on the analysis of two of them, social self-esteem and prospective self-esteem. We also took into account only the total

psychomotor development level of the Ozeretski-Guilman test.

Applying t tests for pairs of samples from the SPSS program provided a confirmation of the hypotheses formulated for each of them. The values of the re-test scores for the social self-esteem variable give us the possibility to consider that the activities in which the hearing-impaired students participated had positive influences on their social abilities: communication and adaptation capacities in college have improved.

In the same way, for the self-esteem variable, the values of the obtained scores are statistically different at the retest, the pupils improving their ability to integrate into the adult world. Acceptance and participation in the collective can be a step in what it means to raise awareness and direct efforts towards building your own future.

Positive results obtained at re-testing for the total psychomotor development level can provide information about the potential of occupational therapy activities performed as curricular activities for adolescents with hearing impairment. The multitude of its forms - those used in the study, manual skills, pantomime / puppet theater, painting, sports activities - can help to reduce the delays and disorders of fine and gross motor difficulties of these children.

## Conclusions

The hearing-impaired belong – out of all the categories of persons with disabilities – to the group of persons with the best chance to a social and professional integration.

However, their specific particularities make this process difficult and sometimes incomplete. This is why it is very important for the school to organize many activities – throughout the personality formation and development process for the hearing-impaired students – for the development of their self-esteem, of the trust in their own forces, as well as many skills useful in the socio-professional integration process.

In its various forms, occupational therapy can be a means to achieve the objectives mentioned above.

This study has demonstrated that occupational therapy can contribute to the improvement of the psychophysical state of children with hearing

impairment; self-esteem and the level of psychomotor development are only two of the numerous variables to follow in this sense.

The present study can be interpreted in a limited way, both in terms of the size of the group of subjects, its characteristics, and the complexity of the analysis. Further studies can be carried out more complex analyzes including both in terms of self-esteem and the psychometric development level on deaf adolescents for each of the dimensions of instruments used.

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