

## DANCE AS A RESOURCE FOR DEVELOPING THE NON-COGNITIVE SKILLS OF INSTITUTIONALISED CHILDREN

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**Abstract.** Institutionalisation involves specific conditions for the protection of children, providing an educational environment with important consequences for their growth and development. The state guarantees respect for children's rights in terms of access to education, proper nutrition, physical and emotional security. However, studies suggest that children raised in foster care have a slower or poorer development from a cognitive, linguistic, social, motor or behavioural point of view in comparison with those who grow up in a family. In the long run, these aspects influence children's ability to integrate both professionally and socially. The association of dance with the physical and mental development of children has been addressed in several studies whose conclusion is that body expression activities are beneficial for children with various motor, emotional or cognitive disorders. Based on these prerequisites, the current study aims to highlight the methodological features related to the inclusion of dance in educational programmes for institutionalised children and thus contribute to increasing their ability to adapt to the challenges of social and professional life. The main purpose of the study was to investigate the effects of dance programmes on children non-cognitive skills. The physical, psychomotor, visual, auditory, musical, artistic and interpersonal skills of a group of institutionalised children aged 11-12 years were assessed and compared with those of children of the same age from organised families, who practise modern dance.

**Keywords:** dance, institutionalised children, non-cognitive skills, multiple intelligence.

### Introduction

The development of institutionalised children is influenced by the traumatic experience caused by abandonment and lack of family warmth, intra- and interpersonal skills being reflected in their personality and attitude in society. For this reason, specialists in the field consider it necessary to implement curricula for the development of non-cognitive skills because education is insufficiently focused on stimulating self-confidence, management of emotions or social competencies, and the effect of an unmotivated educational system is reflected in the number of students who lose their concentration and interest in academic achievements during high school (Durlak et al., 2011).

The impact of these experiences is reflected in the level of physical, intellectual, emotional and social development. In a study conducted by Deambrosio et al. (2018), the situation of disadvantaged and abused children was analysed in comparison with that of non-institutionalised children. The results showed that institutionalised children had dramatically lower scores on IQ tests, early stressful experiences slowing down their neuro-development with major cognitive and emotional impairments. On the other hand, delays in their physical development were noticed. One reason for the poor physical development of institutionalised

children is that their opportunities for movement are limited, and leisure motor activities are not constant in their educational programme. However, the level of affection that a child receives from others has an impact on their achievements in everyday life. Attention and memory disorders may appear in the absence of parental care and when the child is more focused on problems at home. In institutionalised children, frustration and negative thoughts, feelings of loneliness and the thought that no one cares about them exacerbate their behavioural issues, and school performance is less important to them (Bettmann & Friedman, 2013).

Difficulties encountered in childhood aggravate negative emotional states in adolescence. Social rejection, unfulfilled desires, limited opportunities and lack of parental hugs worsen emotional disorders. From a social point of view, such children are either avoided or rejected by those around them or they themselves are afraid to approach others. Being deprived of certain needs, they feel different, marginalised and choose to stay away (Sabodini Herath, 2019). Some children benefit from a post-institutional assistance programme after the age of 18, through which they are helped to find a job, assimilate ethical norms in society and receive support if they need it. This programme enables them to face the reality outside the institution where they grew up, to assume the responsibilities and difficulties of an adult and thus gradually become independent (Gray, 2014). Adaptation to the demands of the social environment and professional integration depends on the development level of their non-cognitive skills: physical, sensory, self-regulation and relationship ones. Good relations with others are reflected in school or work-related achievements due to their positive impact on mental health, providing motivation for effective daily activities (Jones, Greenberg, & Crowley, 2015). Some authors conceptualise these aspects as types of intelligence starting from the theories of Gardner (1988) and Sternberg (1996), which were later extended by other specialists in the field.

This is the reason why educational interventions designed and implemented in programmes for institutionalised children verify the effectiveness of some complex means of instruction that can have a multidimensional influence on their personality. Dance has also been identified among these means. Dance is a form of non-verbal expression through body movements. It stimulates not only psychomotor skills by developing coordination, balance, spatiotemporal orientation, agility and rhythmicity but also artistic skills by developing aesthetic sense expressed through body posture during dance and daily activities. Therefore, the ability to communicate with others and oneself is much facilitated. Dancers manage to identify their emotional states and recognise, express and control them. Self-understanding involves a high level of understanding when someone else in the group encounters difficulties, empathising with those people. Art therapy is also applied to treat adult post-traumatic stress disorder, but it has a greater and faster positive impact at an early age (Schouten et al., 2014).

Lack of physical activity can affect mental health and quality of life, causing depression (Stănescu & Vasile, 2014). The association of dance with the physical and mental development of institutionalised children has been analysed by several specialists whose conclusion is that art and movement are beneficial activities for children with various motor or cognitive disorders. Music and dance seem to improve quality of life both physically and mentally, which is a very important aspect in the development and social integration of institutionalised children. This art not only acts on physical appearance or behaviour but also has a reparative role for the

victims of abuse or abandonment, being an activity that improves emotional state and can treat the traumatic effects of past experiences (Devereaux, 2008).

On the other hand, given that dance facilitates the expression of emotions, dance therapy aims to restore harmony between body and mind. Thus, dance can be approached from the perspective of an educational and therapeutic means with influence on self-control and self-confidence, regaining self-respect and appreciation of others (Acaron Rios, 2015). The therapeutic effects of music have been recognised since antiquity, its universality being present in human nature. Musicality is an intrinsic quality that springs from personal emotions and everyday demands. People with poorly developed emotional intelligence have a lower ability to express themselves, which entails a slower development of their musical skills (Robarts, 2006).

Research shows that dance develops coordination, rhythmicity, motor skills and spatiotemporal orientation (Zahiu et al., 2020). From this perspective, we aim to analyse the role of dance on the non-cognitive development of children from organised families, in comparison with institutionalised children of the same age.

## **Methodology**

### *Research hypothesis*

Starting from the prerequisites expressed in the literature on the developmental differences between children from organised families and institutionalised ones, we aim to highlight in this study that constant participation in dance programmes positively influence the non-cognitive skills of children.

### *Methods*

The instrument used to measure participants' abilities is the **School and professional guidance platform (CCIntranet)**, namely the Non-Cognitive Skills Scale (also called Non-Cognitive Abilities Scale) that consists of a questionnaire through which respondents assess at what level they can perform a certain type of activity on a scale of 1 (Very Low level) to 5 (Very Good level). The assessment is done on a 5-step Likert scale and, according to Galton's assumption, total scores follow the normal distribution. The score for each question is added together and thus a total score is obtained. Scores are different for each test depending on the number of questions, and the results obtained in each questionnaire are interpreted according to a scale where: level 1 – Very Poor, level 2 – Poor, level 3 – Medium, level 4 – Good, level 5 – Very Good.

In the taxonomy of Fleishman and Mumford (1998), the Non-Cognitive Skills Scale assesses the following aspects:

- Physical skills (9 items) – dynamic strength, explosive strength, static strength, truck strength, extent flexibility, dynamic flexibility, gross body coordination, gross body balance, stamina;

- Psychomotor skills (10 items) – control precision, multiple coordination, response orientation, rate control, reaction time, arm-hand steadiness, manual dexterity, finger dexterity, wrist-finger speed, speed of limb movement;
- Auditory skills (5 items) – general hearing, auditory attention, sound localisation, speech hearing, speech clarity;
- Visual skills (7 items) – near vision, far vision, visual colour discrimination, night vision, peripheral vision, depth perception/stereoscopic vision, glare sensitivity;
- Musical skills (8 items) – rhythm pattern, musical memory, sense of rhythm, sense of beats, sense of pitch, sensitivity to sound intensity, auditory imagery and music production, sense of harmony (consonance/dissonance);
- Artistic skills (8 items) – production skills, colour- and proportion-related skills, replication skills, ability to transpose the message into art, decorative skills, technical and artistic skills, aesthetic sense, ability to use art;
- Interpersonal skills (10 items) – collaboration skills, ability to develop (train) others, negotiation skills, persuasion skills, ability to orient oneself towards others, empathy, communication skills, solution-oriented skills, ability to establish and maintain relationships, appropriate self-assessment ability.

The results were processed with the help of two statistical indicators, namely *Chi-square* ( $X^2$ ) and *Phi* (Pearson's coefficients), which were used to explore the association between institutionalised children and dancers from organised families as regards the issues targeted by the **School and professional guidance platform (CCIntranet)**. In order to both highlight the similarities and differences between children according to the set of recorded variables (skills) and explain them, we used a descriptive method of multidimensional data analysis, namely the Main-Component Analysis (MCA), which is based on the Euclidean distance.

### *Target group*

Participants in this study were 54 children aged 11-12 years, of which 29 from foster care (13 boys and 16 girls) and 25 dancers from organised families (11 boys and 14 girls), who train constantly, for about two years, twice a week. Each dance lesson lasts 90 minutes, and those who participate in competitive activities train three times a week. Institutionalized children do not participate in systematic physical activities outside of the physical education classes included in the school curriculum. Their inclusion in the target group was made after consulting the specialized staff of four placement centres in Constanța county – “Antonio”, “Little Rotterdam”, “Dolphin” and “Callatis” who, moreover, applied personality tests and scales of non-cognitive skills.

### **Results**

According to the questionnaire responses, there are no Very Poor results in any of the assessment scales (Table 1). It is also noticed that there are differences between the two groups of children, a higher number of dancers (d) obtaining Good or Very Good scores in all tests compared to children in foster care (cc).

Table 1. Processing test results for non-cognitive skills

Skills	Level	Group		Total	
		cc	d		
Physical skills	Very Poor (1)	No.	0	0	0
		percentage	0,00%	0,00%	0,00%
	Poor (2)	No.	1	0	1
		percentage	3,40%	0,00%	1,90%
	Medium (3)	No.	12	3	15
		percentage	41,40%	12,00%	27,80%
	Good (4)	No.	14	14	28
		percentage	48,30%	56,00%	51,90%
	Very Good (5)	No.	2	8	10
		percentage	6,90%	32,00%	18,50%
Total		Total No.	29	25	54
		percentage	100,00%	100,00%	100,00%
Psychomotor skills	Very Poor (1)	No.	0	0	0
		percentage	0,00%	0,00%	0,00%
	Poor (2)	No.	0	0	0
		percentage	0,00%	0,00%	0,00%
	Medium (3)	No.	9	5	14
		percentage	31,00%	20,00%	25,90%
	Good (4)	No.	16	11	27
		percentage	55,20%	44,00%	50,00%
	Very Good (5)	No.	4	9	13
		percentage	13,80%	36,00%	24,10%
Total		Total No.	29	25	54
		percentage	100,00%	100,00%	100,00%
Auditory skills	Very Poor (1)	No.	0	0	0
		percentage	0,00%	0,00%	0,00%
	Poor (2)	No.	0	0	0
		percentage	0,00%	0,00%	0,00%
	Medium (3)	No.	5	1	6
		percentage	17,20%	4,00%	11,10%
	Good (4)	No.	20	13	33
		percentage	69,00%	52,00%	61,10%
	Very Good (5)	No.	4	11	15
		percentage	13,80%	44,00%	27,80%
Total		Total No.	29	25	54
		percentage	100,00%	100,00%	100,00%
Visual skills	Very Poor (1)	No.	0	0	0
		percentage	0,00%	0,00%	0,00%
	Poor (2)	No.	1	0	1
		percentage	3,40%	0,00%	1,90%
	Medium (3)	No.	3	4	7
		percentage	10,30%	16,00%	13,00%

<i>Total</i>	<b>Good (4)</b>	No.	21	15	36
		percentage	72,40%	60,00%	66,70%
	<b>Very Good (5)</b>	No.	4	6	10
		percentage	13,80%	24,00%	18,50%
		<i>Total No.</i>	29	25	54
		<i>percentage</i>	100,00%	100,00%	100,00%
<b>Musical skills</b>	<b>Very Poor (1)</b>	No.	0	0	0
		percentage	0,00%	0,00%	0,00%
	<b>Poor (2)</b>	No.	2	0	2
		percentage	6,90%	0,00%	3,70%
	<b>Medium (3)</b>	No.	15	5	20
		percentage	51,70%	20,00%	37,00%
	<b>Good (4)</b>	No.	10	9	19
		percentage	34,50%	36,00%	35,20%
	<b>Very Good (5)</b>	No.	2	11	13
		percentage	6,90%	44,00%	24,10%
		<i>Total No.</i>	29	25	54
		<i>percentage</i>	100,00%	100,00%	100,00%
<b>Artistic skills</b>	<b>Very Poor (1)</b>	No.	0	0	0
		percentage	0,00%	0,00%	0,00%
	<b>Poor (2)</b>	No.	6	0	6
		percentage	20,70%	0,00%	11,10%
	<b>Medium (3)</b>	No.	17	10	27
		percentage	58,60%	40,00%	50,00%
	<b>Good (4)</b>	No.	6	10	16
		percentage	20,70%	40,00%	29,60%
	<b>Very Good (5)</b>	No.	0	5	5
		percentage	0,00%	20,00%	9,30%
		<i>Total No.</i>	29	25	54
		<i>percentage</i>	100,00%	100,00%	100,00%
<b>Interpersonal skills</b>	<b>Very Poor (1)</b>	No.	0	0	0
		percentage	0,00%	0,00%	0,00%
	<b>Poor (2)</b>	No.	2	0	2
		percentage	6,90%	0,00%	3,70%
	<b>Medium (3)</b>	No.	13	4	17
		percentage	44,80%	16,00%	31,50%
	<b>Good (4)</b>	No.	14	9	23
		percentage	48,30%	36,00%	42,60%
	<b>Very Good (5)</b>	No.	0	12	12
		percentage	0,00%	48,00%	22,20%
		<i>Total No.</i>	29	25	54
		<i>percentage</i>	100,00%	100,00%	100,00%

From a physical point of view, dancers perceive themselves as much better prepared, 32% of them obtaining a Very Good score in this test compared to the percentage of 6.90% achieved by institutionalised children. In terms of psychomotor skills, they do not reach the performance

of athletes either, but there is a percentage of 55.20% with a Good score in this test. The lack of parental attention can also be noticed from the auditory and visual perspectives, these senses being diminished in institutionalised children. Whatever the cause that has led to the degradation of these skills, their remediation capabilities are limited according to the results obtained in the previous two tests where only 4 children have reached a Very Good score. More than half of the total number of children in this group have not developed their musical skills since it is difficult for them to perform movements to a musical rhythm, recognise sounds and instruments or interpret the rhythm. Along with musical skills, the artistic side is also stimulated through dance and thus dancers have the ability to express themselves freely, using their creativity not only for dance steps but also other activities and areas that involve imagination, originality and inventiveness. Aesthetic sense and inclination towards beauty becomes a defining aspect for dancers, which is why 20% of them have achieved a Very Good score in the test for artistic skills. Children in foster care do not benefit from stimulation programmes, most of them having a Poor or Medium level, 20.70% and 58.60%, respectively. All these skills have an impact on social life. A child who does not feel self-assured about some physical or psychological aspects becomes shy, loses self-confidence and avoids participating in some activities that might engage them, feeling inferior to other children. According to the test results, children raised in foster care have interpersonal skills of Medium or Good level, this score being obtained by 13 children, respectively 14 children, while 2 of them are rated with a Poor level; to note that no one achieved a maximum level in this test.

The following figures (1, 2 and 3) highlight the levels of children’s self-assessment for all types of non-cognitive skills that the school and professional guidance platform (CCIntranet) includes. The interpretation of the results reveals several differences between the scores obtained by the two groups of children.

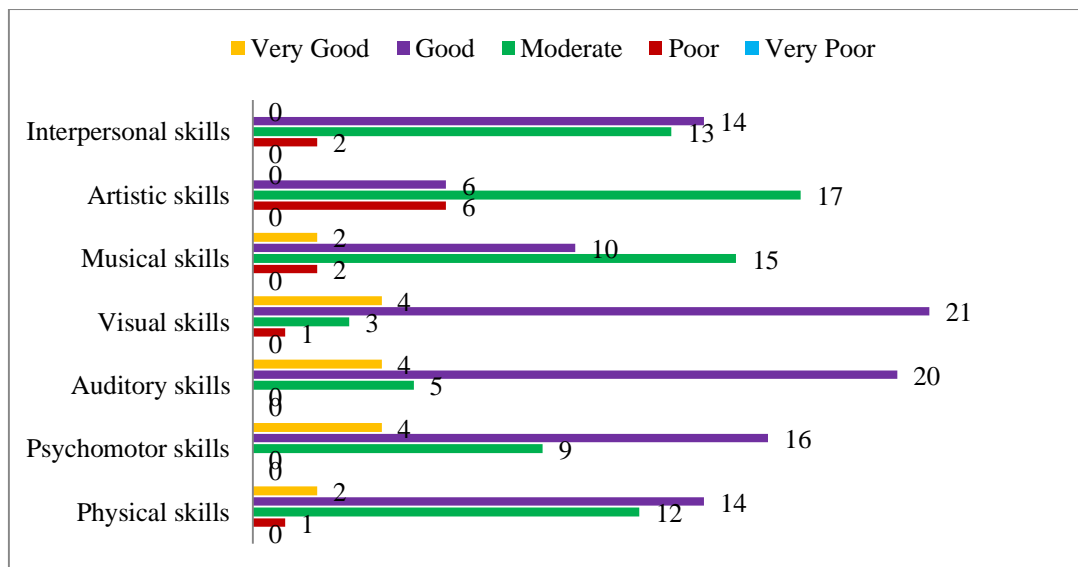


Figure 1. Diagram of the distribution of results on the self-assessment scales of non-cognitive skills for institutionalized children (frequency of answers)

For physical skills, it is found that institutionalised children mainly assess their motor skills at Good (48,30%) and Medium (41.40%) levels. The categories with the highest number of participants with a Poor level are related to artistic skills, with a percentage of 20.70%, and musical and interpersonal skills, with a percentage of 6.90%. It should be noted that no child believes that their relationship skills are very well developed, so the percentage of the Very Good level for interpersonal skills is 0%, its highest value being 13.80% for visual, auditory and psychomotor skills.

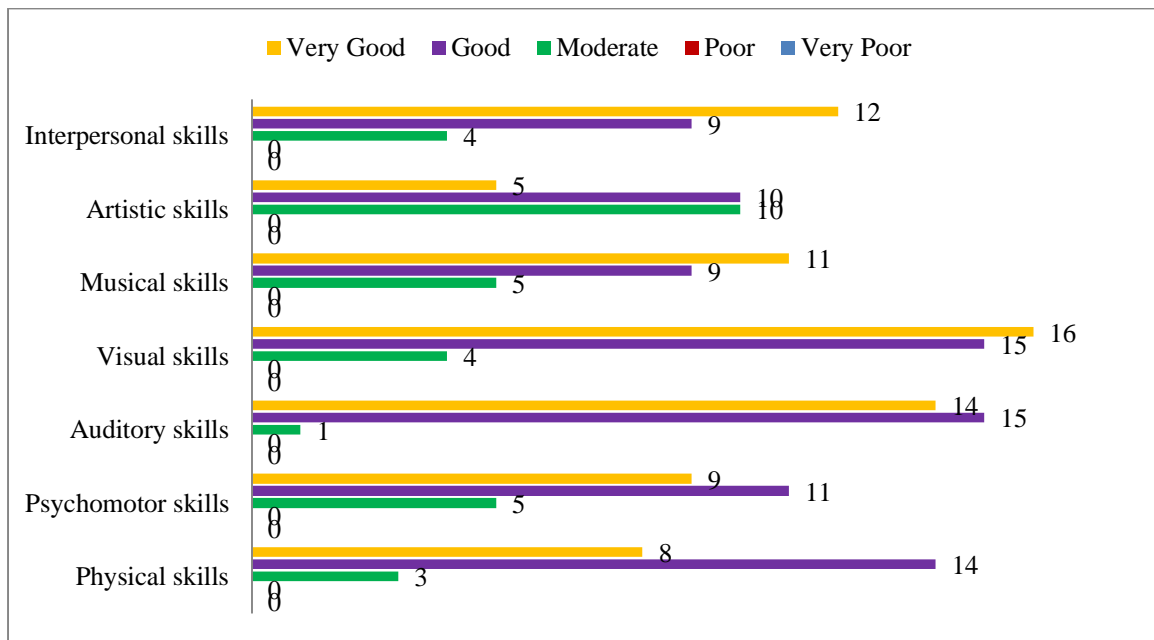


Figure 2. Diagram of the distribution of results to scales of non-cognitive skills for dancing children (frequency of answers)

In dancers, it can be seen that Good and Very Good levels are predominant in relation to their way of assessing personal skills, almost half of this group reaching the maximum for interpersonal skills (48%), musical and auditory skills (44%). In all non-cognitive skills, this category of children has recorded the percentage of 0% for the Poor level, which indicates their much more advanced stage of preparation compared to institutionalised children. From an artistic point of view, only 20% have a Very Good level of satisfaction with their skills, appreciating more the physical ones as follows: 32% give them a maximum score and 56% believe that they are at a Good level.

A comparison between the two analysed categories (cc – children in foster care and d – dancers) highlights that there are important differences in the Very Good level for each assessed skill, as can be seen in the following graph:



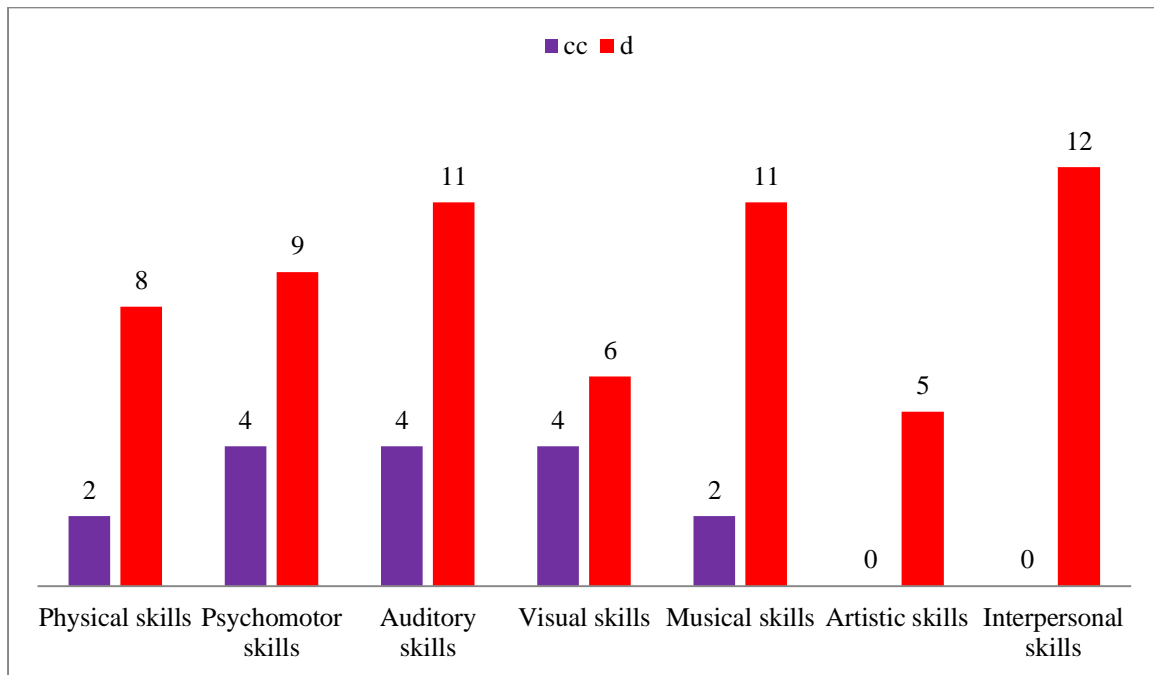


Figure 3. Comparative analysis of the Very Good level between the two categories (frequency of answers)

Children from organised families who practice dance have a clearly superior development level compared to children raised in foster care, from all points of view. The physical, social, artistic and psychomotor sides have obviously higher values for the Very Good level in the case of dancers as regards interpersonal skills, but no institutionalised child is assessed at the maximum level. The largest difference can be noticed in the case of interpersonal and musical skills, where 12, respectively 11 dancers obtained a Very Good score, and only two institutionalised children believe that they are very well prepared for their musical abilities. Regarding visual skills, the score is closer between the two categories, with 6 dancers and 4 institutionalised children reaching the maximum level.

*Chi-square* and *Phi* were used to explore the association between institutionalised children and dancers, for each type of skill pursued in the test (Table 2).

Table 2. *Chi-Square test results*

Skills	Chi-square	p	Phi
Physical skills	9,757	<b>0,021</b>	0,425
Psychomotor skills	3,716	0,156	0,262
Auditory skills	7,161	<b>0,028</b>	0,364
Visual skills	2,259	0,52	0,205
Musical skills	13,059	<b>0,005</b>	0,492
Artistic skills	13,593	<b>0,004</b>	0,502
Interpersonal skills	19,663	<b>0</b>	0,603

As can be seen in Table 2, psychomotor and visual skills are not significantly different between dancers and institutionalised children. However, significant differences are recorded for physical, auditory, musical, artistic and interpersonal skills.

As regards physical skills, there are significant differences between the two groups of children, a large number of dancers acquiring Good and Very Good physical skills ( $\chi^2 (3) = 9.757$ ,  $p < 0.021$ ) and developing clearly superior auditory skills compared to institutionalised children ( $\chi^2 (3) = 7.161$ ,  $p < 0.028$ ).

Musical and artistic aspects also recorded better results for athletes than the disadvantaged category, the practice of dance among children ensuring the development of musical ear, creativity, imagination and aesthetic sense. There is a higher percentage of dancers with Very Good musical skills ( $\chi^2 (3) = 13.059$ ,  $p < 0.005$ ).

In artistic terms, the differences are significant, institutionalised children recording Poor levels ( $\chi^2 (3) = 13.593$ ,  $p < 0.004$ ) compared to dancers. Thus, a low level of artistic skills was reported only in institutionalised children.

The efficiency of dance is also proven by the results in the last test, dancers being much more flexible and open to develop communication, socialisation and empathy skills, which is shown by their significantly better level of interpersonal skills ( $\chi^2 (3) = 19.663$ ,  $p < 0.000$ ) compared to the level of children raised in foster care.

Thus, from a physical, psychomotor, auditory, visual, musical, artistic and interpersonal point of view, children from organised families have Very Good scores in a significantly higher proportion than institutionalised children, especially for interpersonal and artistic skills where the differences are most obvious.

Applying the MCA method, visible differences between the two analysed groups can be graphically observed, with children in foster care (cc) on the left side of axis 1, while most dancers (d) are on the right side (Figure 1). This differentiation was made according to the set of variables introduced in this study, namely non-cognitive skills.

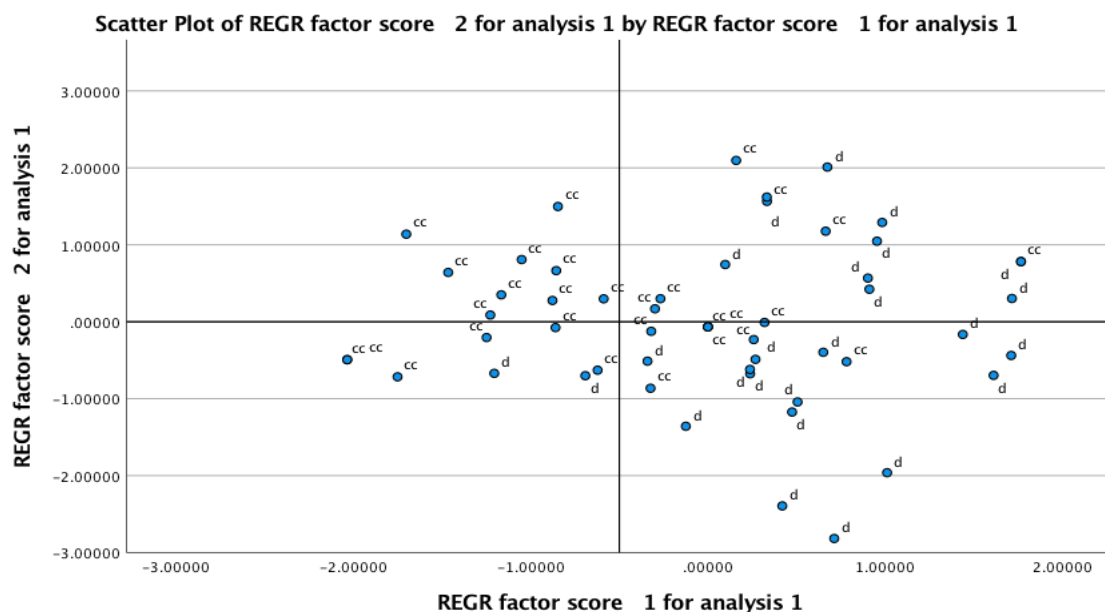


Figure 1. Diagram of the distribution of children in the two groups according to the set of skills using the MCA method

In addition to highlighting the similarities and differences between the two analysed groups of children (cc – children in foster care and d – dancers), MCA reveals the correlations between variables, in the case of our study, non-cognitive skills. Also known as the Hotelling transformation or Karhunen-Loeve transformation, MCA is the most simplified method of analysis based on eigenvectors (Figure 2). Through it, two groups of variables between which there are differences can be observed:

- artistic, interpersonal and musical skills, where dancers have the highest scores compared to institutionalised children;
- visual, physical, auditory and psychomotor skills, where the differences between the two categories are not as significant as in the case of the previous variables.

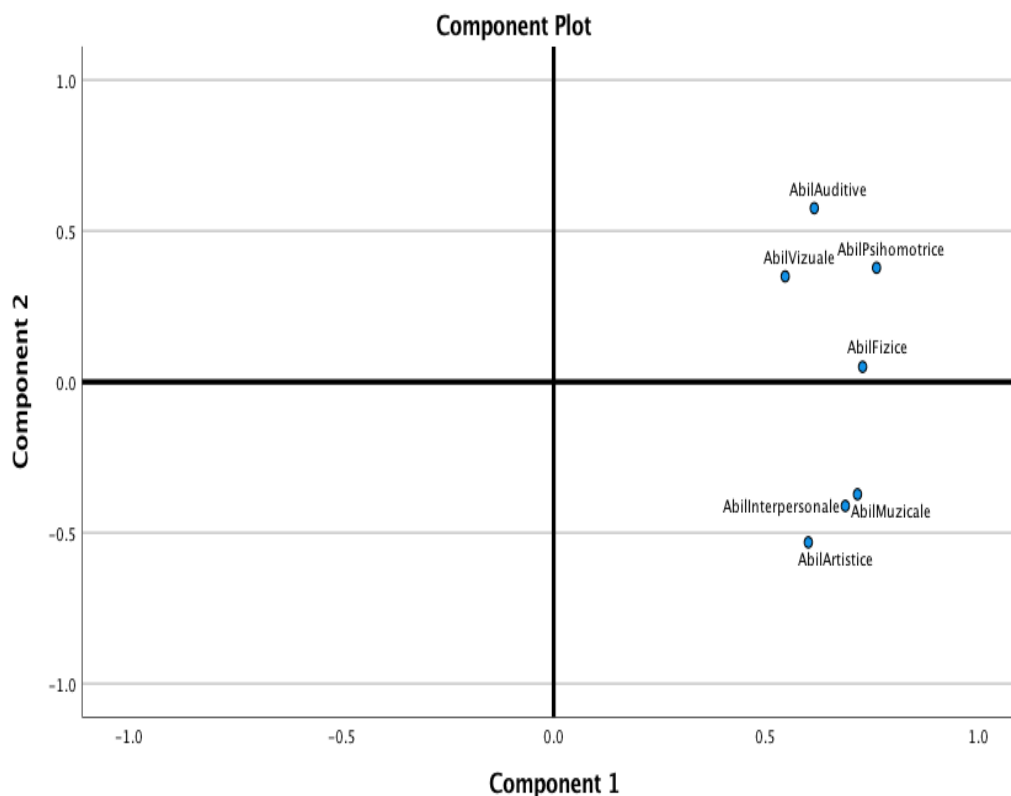


Figure 2. Representation of non-cognitive skills using the MCA method

According to the results of the test for non-cognitive skills, dancers have a higher development level than institutionalised children. The types of social, artistic and emotional intelligence have the poorest representation in institutionalised children. Also, no child in this category achieved a maximum score in the test for interpersonal skills, while 48% of dancers recorded a Very Good level. Although there are differences between all variables analysed in this study, physical, visual, auditory and psychomotor skills have the closest values between the two categories, the differences between dancers and institutionalised children being less obvious.

## Discussion and Conclusion

Dance has remarkable benefits especially from an emotional and psychological point of view, confirming similar results obtained by Sarid and Huss (2009), who have noticed in a study that dance can improve memory, being a technique as effective as the intervention of a psychologist on children whose mental state has been affected by trauma.

These results demonstrate that the lack of extracurricular activities and parental attention affects the child's development, as shown by Jones, Karoly, et al. (2015) in a research that highlights the importance of children's relationship with adults for their education and mental and cognitive development. These differences can be easily observed in society through their behaviour and way of interacting with others.

In conclusion, the results of this study demonstrate that dance can considerably improve the level of several types of non-cognitive skills. Some of the participating dancers do not practise this sport at a competitive level. However, their artistic and social skills are clear, the movements performed to music meaning precision but also bodily and emotional control.

Starting from the idea that dancers are obviously more socially developed, these aspects open new research perspectives on how dance positively influences the development and social integration of institutionalised children. We believe that this sport can help them solve emotional and social issues by educating them on the freedom of thought and expression of thoughts and feelings and the inclination towards beauty; in this regard, we aim to conduct further research to identify the behavioural problems of institutionalised children and how they can be addressed.

Following these results, we consider it appropriate to implement a dance programme for institutionalised children as a solution to enhance the types of intelligences, the bio-psycho-social development of children raised in foster care and their integration into society.

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