

Preschool Education: Development of Multiple Skills in Children under 6 Years of Age in Urban-marginal Zones of Huánuco

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Resumen

El estudio estuvo orientado a verificar los efectos en niños menores de 6 años de las zonas urbano-marginales de la ciudad de Huánuco, del Programa de Habilidades Múltiples, adaptado del Proyecto Spectrum, basado este último en las teorías de Howard Gardner y Feeldman. El tipo de estudio es el explicativo; y el diseño, el cuasi experimental. Los sujetos fueron 90 familias a quienes se les aplicó el cuestionario psicosocial para identificar las características psicosociales, y 90 niños menores de 6 años, para lo cual se han elaborado y validado el programa y las fichas de inteligencias múltiples en concordancia con el patrón de desarrollo de cada edad según la teoría de Howard Gardner. Los resultados constataron que las características psicosociales de las familias de zonas urbano-marginales de Huánuco son desfavorables por el bajo nivel educativo, relaciones conyugales generalmente conflictivas, miembros de familia poco afectivos, crianza autoritaria, comunicación inadecuada, pobreza y pocas oportunidades laborales. En cuanto a los efectos del programa, este tuvo influencia en el desarrollo de las inteligencias múltiples de los niños menores de 6 años de estas zonas urbano-marginales, y se logró que el 50% de los niños se encuentren en un nivel promedio. Las inteligencias cenestésico-corporales e intrapersonales fueron las más desarrolladas; y la inteligencia lógico-matemática, la menos desarrollada.

Abstract

The study was orientated to verify the effects of multiple skills program adapted from Spectrum Project based on the theories of Howard Gardner and Feeldman in 90 children under 6 years of marginal urban areas of the city of Huánuco. The type of explanatory study and quasi experimental design. The subjects were 90 families who were administered the psychosocial questionnaire to identify the psychosocial characteristics and 90 children under 6 years which have been developed and validated the program and Sheet Multiple Intelligences, considering the pattern of development each of these ages based on Howard Gardner's theory, validated by experts. The results found that psychosocial characteristics of families in poor urban areas of Huánuco are unfavorable, the low educational level, usually conflicting couple relationships, little emotional, types of authoritarian parenting, poor communication, poor and with few job opportunities. As for the impact of the program had influenced the development of multiple intelligences of children under 3 years of these marginal urban areas achieving that 50% of children are at an average level, with the kinesthetic-corporal intelligence and intrapersonal more developed and less developed logical mathematical intelligence.

Palabras Claves:Habilidades Múltiples, Niños.

Keywords:Child, Multiple Skills

Introduction

If we start from the contributions of Developmental Psychology and Neuroscience, we see that the first stages of development of the individual are determinants in the integral formation of children, so it is necessary to pay attention to opportunities and factors that optimize, make difficult or interfere with development. Vygotsky emphasizes social and cultural influences on intellectual growth; On the other hand, Shoffer (1999) argues that each context conveys beliefs, values and teaching to children about what to think and how to do it; In this sense, the influences and opportunities offered by the family and education are very important, so they must be intervened in a timely manner so that they are favorable.

Models, opportunities, parenting styles and the type of environment where children interact are very important. Favored and healthy family dynamics will allow optimal

development, while family relationships, characterized by parental conflicts, discriminated treatment among siblings, inadequate communication between members in the home, excessive overprotection or permissiveness with children, no they only interfere in the development in the first stages, but during their development process they will be determining factors in shaping unstable personalities, full of frustrations and, even, with personality alterations.

D. Papalia (1997) points out that the development of the child is subject to many influences: the characteristics with which people are born, plus the effects of the experiences they have. Some of these are exclusively personal, while others are common to certain age groups, generations or people who live or grew up in particular societies and cultures; Personal behavior and lifestyle also influence their development. In this sense, the immediate environment of the home includes relationships with parents, who not only provide care, but basically are the first trainers of their

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children's personality; At home, relationships are bidirectional and affect each other not only the personalities, the attitudes, the value system of parents that influence the development of their children, but also that each child affects their parents and siblings at the same time.

On the other hand, the unfavorable social conditions of poverty, low educational levels, lack of job opportunities, among others, characterize the families of marginal areas, specifically in the city of Huánuco, where parents are forced to search for resources to through informal commerce or, in other contexts, leaving their minor children alone or in the care of siblings, neighbors or grandparents who do not guarantee the safety and welfare of children.

It is important to note that the child's integral development covers the following areas: physical-biological area, which promotes the internalization of the child's body structure, seeks the development of the body through exercise and the formation of hygiene and health habits, as well as the development of spatial and temporal location. The affective-emotional area, which seeks for the child to build a personal identity based on knowledge about himself, his physical appearance and his capacities for the development of an adequate self-esteem; develops the sense of belonging of the child to his school through cooperation and participation in group activities, develops the expression of emotions, feelings and moods. The area of social relations, which encourages the child to feel part of a family, a school or a country; recognizing the need to actively participate in each of these environments, allows the child to relate to others in an environment of respect, strengthens moral values by practicing their experience at home and transmitting them as an active agent of their environment.

The cognitive area, which develops in children thinking schemes that allow them to develop skills for problem solving and decision making, and it is in the school context where the construction of meaningful learning that will be the basis of later knowledge is promoted.

H. Gardner (1995), in his theory on Multiple Intelligences, points out that children demonstrate their abilities in the various intelligences through the acquisition they make of the various symbolic systems and, as development progresses, each intelligence, accompanied by its symbolic system, through a notational system that will then come to be mastered in the context of a formal educational structure.

In this sense, the teaching must take into account that the opportunities that must be given to them should be given during these first years, when the children begin to discover something about their own interests and peculiar abilities, and not only the cognitive aspects as Prioritizes in preschool education. Each child is a unique human being and, therefore, exhibits particular strength in one of the skills, and Gardner's theory of multiple intelligences provides a solid foundation on which to identify and develop a broad spectrum of skills in each child.

Gardner (1995) defines intelligence as the ability to solve problems and create products that have a cultural value. He argues that psychology and education have invested too much time in the study of intelligence in the classroom, when they should be observing more of the real world in search

of examples of how people solve problems and create products that modify the culture. After observing many kinds of skills, talents and ways of being competent, Gardner finally developed a list of basic intelligences that, according to him, constitute a functional relationship of the various kinds of intelligence.

The infant can build a model of reality that serves as the basis for an abstract learning only from seeing, touching, tasting, smelling, listening to the objects of the outside world. Before age 5, most children do not experience the five senses clearly dissociable, but the senses tend to intermingle with each other. The world of the little boy is of a lot of vital energy, of purpose and of encouragement; but, as children grow up, they generally abandon this rich sensory experience.

Children who have unique combinations of their multiple intelligences often perceive the world in a multisectorial, kinesthetic, or physiognomic way. This sensory apparatus is not fragmented into separate perception channels; each child has his original style of perception. Independent of each individual's concrete pattern, most children have their senses organized in a way that differs from society's expectations, and often parents do not have a clear idea of how to reach them to teach them in their own way.

Gardner took his pluralist vision of cognitive science and neuroscience, and concludes that most people have a wide spectrum of intelligences and each person has different ways of knowing. He maintains that we all have the eight intelligences to a greater or lesser extent, and we develop them according to our needs and the opportunities that the context offers us.

Likewise, he points out that we are not only born with different abilities, but that we need them for our daily life, and we develop some more than the others as they are more useful to us or we recognize them as our greatest strengths. It considers the intelligences as potential or psychobiological productivities that can be realized or not in significant adult activities, depending on diverse cultural and environmental factors. Although all human beings show the complete set of intelligences, individuals differ both for genetic and environmental reasons insofar as different competencies are manifested.

The evolutionary trajectories, information processing capabilities, and problem-solving characteristics of each intelligence are largely independent of each other; nevertheless, intelligences do not function in isolation; almost any cultural role or product of a certain complexity requires a combination of skills and intelligences. From this conception, Gardner and Feldman (1987) developed the Spectrum Project, where they argue that cognitive ability is specific to a field and domain; that in order to be able to evaluate the capacities and cognitive potentials of a person sufficiently, it is necessary to get in contact with the materials and information in different domains. It is from this contribution that the study was conducted to offer the opportunity to children from marginal areas, who have not had the opportunity to attend the initial education centers, to participate in educational experiences with the intervention of their mothers in their own contexts to develop the different domains (movement, language, mathematics, natural sciences, social, visual arts and music).

The domain of movement: Children use their bodies to express emotions and ideas from the first year of life; his reflexes evolve towards simple acts, directed to objectives as he acquires a greater control of his movements and articulates his intentions. Thick and gross motor skills develop rapidly as the child becomes more aware of his own body and begins to explore what he can do.

At 2 years, they love to run anywhere, they enjoy the challenge of climbing a new group of steps. Children of 3 years enjoy similar activities, but enjoy greater physical competition and improve their climbing skills in different structures. At age 4, most children want to take risks and experiment jumping from different heights, perform stunts and swing. At age 5, they improve both their fine motor skills and their eye-hand coordination.

Our conceptualization is based on different final states. The domain of the body has to do with the use of space, balance, coordination and intensity; through the accompaniment of music it is combined with grace, strength, coordination, speed and teamwork, with sports, dances and all kinds of movements. Likewise, creative movement sessions focus on the components of rhythm and expressiveness, taking into account the quality of the movements rather than the quality or the use of the body.

The domain of language: Language is one of the most valued cognitive and social skills and is an auxiliary element to act in almost all domains. Most children learn to speak in a few years, beginning with the babbling of the baby and progressing to the first spoken words of the one-year-old child; towards the end of the second year, children begin to combine words to form simple expressions, and by age 3, most have acquired an important vocabulary and the basic rules of grammar and syntax. The language of children of 4 and 5 years is increasingly similar to that of adult models; the majority show a wide range of linguistic capacities, from the use of figurative language and the invention of rhymes to the narration of short stories that describe their experiences.

The activities to develop this domain were oriented to the use of linguistic tools through storytelling, story board; they were offered opportunities to practice remembering and reflecting on what they had already done, as well as the description of special events: walks, parties, etc. This has allowed the development of narrative coherence, expansion of main events, vocabulary complexity, level of detail, relationships between events and use of connectors and the structure of the sentence.

The mathematical domain: Mathematical knowledge begins with the world of objects and actions executed on those objects, which are becoming increasingly abstract and separated from the referent of the real world. For the child of early childhood, logical-mathematical competence ranges from the first skills of calculation and increase (the ability to increase and decrease an amount in a unit) to the ability to record and organize numerical information through a system of notation.

The activity of counting begins in a social context in which children learn to recognize small quantities while playing with objects and numbers. By age 4 and 5, most children

have acquired one-to-one correspondence, but still do not care if they make mistakes or do not know the word that designates the next number.

To stimulate children's different ways of thinking about numbers, mathematical activities were developed through games that consisted of finding shortcuts for calculations, solving problems, making reasonable estimates, discovering relationships between numbers, comprehension, generalization, and inventing and using notations.

The domain of the natural sciences. Children are spontaneously interested in many aspects of their environment: people, plants, animals and characteristics of their own immediate physical environment; they discover simple causal relationships around them, from turning on a light or pushing a swing until blowing a whistle.

From observation and manipulation of objects, the preschool child begins to identify predictable patterns of interaction and behavior; the capacity is based on real-world experience and takes longer to manifest. The skills in this domain manifest themselves in different ways: some children want to discover how things work; others are more concerned about how they grow, some are interested above all in classifying them into categories, as well as relating and comparing information, assigning meaning to observations and formulating and testing hypotheses.

For this domain we focus on three final states: interest in natural phenomena and their understanding of them, development of highly sensitive observation skills and use of the data presented to infer governing rules, a key element of scientific thought; also the development of mechanical skills, with the recognition of causal and functional relationships, so that children are interested in the way things work and enjoy trying to fix what they break.

The social domain: The social domain presents an interest for children, parents and teachers. Regarding children, most researchers and educators define this domain taking into account the social development or learning to be with others: share with others, wait the turn, control the aggression, etc. ; however, we direct this definition to include self-understanding.

The social conscience has its origin in the bonds that are established between a child and his caregivers; by age 2, the child becomes aware of his or her independent identity. At 3 he enjoys watching other people and playing by his side and participates in simple group activities. Between 2 and 5 years, the child continues to develop the ability to differentiate more clearly from others and begins to manifest a sense of autonomy and initiative (Erickson, 1963).

For the preschool child, peer relationships become more important as the child's care center moves from adults to peers of the same age. Learning alongside other children is a central aspect of the children's experience: they want to interact with their friends, but, because of the relative egocentricity of this age, it is difficult for them to take into account the feelings or the point of view of others. Cooperative and organized play becomes more frequent as children participate in joint efforts aimed at a common goal or product.

For the development of this domain the activities were aimed at increasing children's abilities to observe social events and experiences, reflect on them through short stories or images. Likewise, other activities related to the domain were used, such as songs, dynamics, exhibitions and dialogues with puppets, which allowed them to have opportunities for solving social problems.

The domain of the visual arts: Although the arts are often considered as issues related to feeling and inspiration, it actually involves a broad set of cognitive skills and abilities (Gardner, 1990). The one-year-old boy makes many stripes, but is even more interested in holding the marker with his hand and moving it. Between 18 months and 2 years, the child begins to consider the pen as a tool to explore their environment, although he still focuses more on physical movements than on the stripes he makes on the page. The stage of scribbling covers between 2 and 4 years, when random stripes give way to more organized and controlled (Lowenfeld, 1982). By age 3 or 4, most children are more interested in exploring the special qualities of line, shape and color than the motor actions that worried them at 2 and 3 years; However, for the young child the process of creation is more important, often, than the concrete product. Children enjoy physically manipulating materials with which they can communicate and express ideas about themselves and their world. The means of expression, such as drawing, storytelling and dramatic play, facilitate the approach of children to these concepts.

For the development of this domain, artistic works were carried out that allowed them to explore interesting visual forms, attention to detail, the ability to represent and the ability to use the various elements of artistic expression, such as line, form and color to reflect the emotions, produce certain effects and adorn the work of art.

The mastery of music: From a very young age, children hear music on radio, television; even the very young have a rudimentary sense of music. In his babbling, melodic experimentation is included and responds to different rhythmic and tonal patterns (Davidson and Scripp, 1991). Young children sing and sing songs spontaneously while playing, creating simple songs that accompany their

activities. They also respond frequently to the music of their body, keeping the beat with taps and giving expression to a song with movement. By 3 or 4 years old, spontaneous songs are usually replaced by traditional songs of each culture; also towards this age most children can reproduce the basic features of a song: they can grasp general relationships, such as warning if the sentences are fast or slow, if they go up or down or include long or short pauses between tones.

For this, the activities were aimed at collecting the different sensitivities and skills that children presented, in such a way that a very broad aspect of abilities was covered, such as musical perception through musical discriminations, song recognition, sound matching, musical performance, to play different musical instruments, which has allowed the children to develop the rhythm, the tone, the production of small songs and the general musical capacity.

Method

The quasi-experimental study was aimed at verifying the effects of the Multiple Skills Program, adapted from the Spectrum Project, and based on the theories of Howard Gardner and Feeldman, in 90 children under 6 years of the urban-marginal zones of the city of Huánuco.

The instrument used was the Multiple Skills Assessment Card (see Annex A) for children from 2 to 5 years old, which was elaborated and validated through the criterion of judges, taking into account the multiple intelligences and the development characteristics of the children. Likewise, the program has been prepared based on the aspects considered in the Spectrum Project, considering the theoretical foundations, the objectives, the areas developed, strategies to apply and materials for each of the activities of the domain to be developed and their respective evaluation indicators that were applied during eight months.

Results

In the present study, the domains were evaluated according to the indicators indicated in the Multiple Skills Development Program for children of 3, 4 and 5 years of age in the urban-marginal zones of Huánuco.

Table 1: Percentage of children by age who have achieved the development of kinesthetic intelligence-creative movement

Age	Sensib. to the rhythm	Expressivity	Body control	Generation of ideas from mov.	Reply to music
3 years	60	65	45	68	58
4 years	64	68	54	72	61
5 years	71	70	68	74	69

As we can see in table 1, in the kinesthetic development, the highest percentage of children in the three ages has achieved mastery of movement, body control, rhythm, expressiveness and response to music. Likewise, it has allowed the development of balance, strength, agility and speed related to the corporal domain.

We can see that the results are progressive according to age, with less achievements in relation to thematic coherence,

and this is also influenced by the family environment, where the low educational levels of parents do not favor the linguistic development of children.

In the mathematical domain we observed that the highest percentage of children has managed to develop the discrimination of colors, shapes, sizes, as well as classify, relate; and, to a lesser extent, the ability to solve problems and logical games.

In the development of the domain in Natural Sciences children stood out in relation to the interest in the natural world, direct observation and knowledge of the real world.

With the application of the program the children developed their identity better and in a smaller percentage the leadership among them.

In relation to the spatial domain, the children developed better the use of colors, expressiveness in their drawings, spatial integration and use of lines and forms. In the musical domain, the children of the sample developed better the singing and recognition of musical instruments, as well as the auditory discrimination through the recognition of rhythms and melodies.

Table 2: Percentage of children who have achieved the development of language intelligence by age

Age	Use of dialogue	Expressivity	vocabulary	Thematic coherence.	Sentence structure
3 years	40	45	46	38	38
4 years	63	58	53	42	46
5 years	70	60	65	44	61

n = 90

Table 3: Percentage of children who have achieved mathematical proficiency

Age	Discrimination shapes and colors	Classification relation	Numerical notion	Focuses on the problem	Logical games	Solves problems
3 years	60	75	42	45	35	38
4 years	80	84	57	55	59	48
5 years	91	93	69	78	62	70

n = 90

Table 4: Percentage of children who have achieved mastery in Natural Sciences

Age	Direct observation	Hypothesis formation	Experimentation	Interest in the world nat.	Real world knowledge
3 years	60	30	35	70	65
4 years	80	60	75	85	84
5 years	95	80	90	91	89

Table 5: Percentage of children who have achieved social dominance

Age	Self-concept	Autonomy	Identity	Integration	Socialization	Leadership
3 years	30	45	52	31	35	28
4 years	65	62	77	47	69	37
5 years	80	81	89	58	75	65

Table 6: Percentage of children who have achieved spatial mastery

Age	Imagination	Use of forms	Use of color	Spatial integration	Representation	Expressivity
3 years	30	42	52	33	31	28
4 years	45	67	74	53	69	41
5 years	60	89	92	86	79	80

Table 7: Percentage of children who have achieved musical mastery

Age	Tone	Rhythm	Discrimination aud Sound	Sound reproduction	Recognize Sound	Singing	Composition
3 years	30	36	35	25	41	27	15
4 years	45	43	54	57	69	37	24
5 years	64	74	67	63	84	47	48

Table 8: Percentage results of the beginning and the end of the application of the Multiple Intelligences Program in children under 6 years of urban-marginal zones of Huánuco

Intelligence	kick-off			Exit		
	3 years	4 years	5 years	3 years	4 years	5 years
Linguistics	64	60	58	75	80	75
Space	59	61	64	80	85	90
Mathematical logician	49	50	55	85	90	87
Intrapersonal	47	55	57	69	83	79
Interpersonal	62	60	64	87	80	85
Musical	30	48	52	75	70	82
Naturalist	32	40	35	65	68	67
Cenesthetic	52	72	59	70	85	73
Total Media	47	56	55	76	80	80

As we can see in table 8, related to the development of multiple intelligences in children of 3, 4 and 5 years, the results before the application of the program give us an average of 47%, 56% and 55%, of according to the respective ages, and there is a significant increase of 76% in children of 3 years and 80% in children of 4 and 5 years in the test after having applied the program. This is almost the same level of development, since only the activities have been graded according to their degree of development, and there has been improvement in the logical-mathematical, interpersonal and spatial skills, and to a lesser extent in naturalistic intelligence, because the conditions in which they develop do not allow them to be in direct contact with nature.

Discussion

The results obtained show that the Program of Development of Multiple Intelligences has been effective; however, family and environmental conditions have in some cases allowed for a greater development of some skills, while in others it has been unfavorable. Thus, in linguistic intelligence, the various activities that have been carried out have allowed the development of language skills in children and have served as a stimulus to dialogue, since the lack of stimulation and direct communication with their parents and siblings do not allow for a proper development of his verbal repertoire; also in the logical-mathematical skills, in which initially they showed very low levels of development, it was significantly improved with the use of stimulating teaching materials. This is explained in the theory Gardner and Feeldman (1987) who argue that cognitive ability is specific to a field and domain, and that in order to empower them, it is necessary for children to come into contact with materials and opportunities, as well as with information of the different domains. For this reason we have based on final states, and for the evaluation instruments constructed according to the age of each child have been used.

In relation to the kinesthetic abilities, its development has been better. This is favored by the opportunities that the environment provides them, since from a very young age the parents allow them to move around the neighborhood alone, and there is not much overprotection in comparison with children from urban areas, and also takes into account the spaces and the experiential experiences that allow them

to develop their motor skills. In terms of intrapersonal intelligence, they also develop their autonomy and security better; likewise in the naturalistic intelligence, since they have greater opportunities to interact in their context, with nature, the animals, so it has been more familiar to them to learn cleaning skills and care for the environment.

Heinz Werner spoke of the holistic sensory experience or physiognomic perception, because the world of the young child is of a lot of vital energy, of purpose and of encouragement, which has been demonstrated in the present study: the disposition and flexibility of the children to relate all sensory forms, only require opportunities to develop them properly. Likewise, it has been proven that a planned activity, not only allows to develop a specific skill, but at the same time it allows to develop the other intelligences, only that it should take maximum advantage and guide a more integral development in children. We can also point out that cognitive development is differentiated, since all the children who in themselves have areas of outstanding ability plus the enriching opportunities and experiences that have been offered with the application of the program, have allowed, as well as other experiences in other contexts proposed by Gardner, the significant development of multiple intelligences, which would be a curricular option in the formal education of preschool children.

Conclusions

1. The Program for the Development of Multiple Intelligences, adapted from the Spectrum Project, has been effective in the development or increase of skills in children under 6 years of age in the urban-marginal zones of the city of Huánuco.
2. The program developed for the development of multiple intelligences in children has responded to the ages, socio-cultural characteristics, as well as to the adaptation of means and materials for their application, and is expressed in the increase of the levels of development of the children.
3. The skills that children developed best were spatial intelligence, logical-mathematical and interpersonal,

while naturalistic, kinesthetic and musical intelligences developed less.

4. Children of 2 and 3 years had more development in intrapersonal skills, followed by kinesthetic and interpersonal skills.
5. The children of 4 and 5 years developed better their linguistic and interpersonal skills. Finally, we must point out that the curricula for the stimulation and preparation of children under 6 years must be adapted based on the theory of multiple intelligences because it favors the integral development of children.

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