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AUTHOR Bika, Anastasia
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ABSTRACT

This research examined the extent to which 2.5- to 5-year-old children in three Kindergarten classrooms in Thessaloniki, Greece could be taught about the use of classroom space and equipment. The study combined the theoretical perspectives of Piaget, Vygotsky, Bruner, and Frangos with the views of theater director Peter Brook. Mixed-age groups of children participated in play sessions where they drew each others' body outlines in various postures on white paper. Children then placed the cutout body outlines next to architectural or equipment features of the classroom. Observations and comparison were made between children and between child and doors, for example. The researcher placed reproductions of daVinci's drawing "Proportion of the Human Figure," Dreyfuss' drawings of male and female children, and other drawings on the walls as examples to show how the human body may be used to judge the size of objects in comparison with its size. The researcher answered children's questions and recorded their spontaneous comments. The researcher also had a play-dialogue with children regarding table and chair size differences between adults and children. Results indicated that: (1) preschoolers are capable of receiving scientific knowledge through personal discovery of basic concepts; (2) children have vague ideas about space but these ideas can become concrete after dialectical instigation; (3) kindergarten teachers' participation in discussing space was limited, although they were positive toward the research; (4) parents' response to the research was hesitant; and (5) equipment should be designed using both adult and child criteria. (KDFB)

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Anastasia Bika
Diplom Designer HdK Berlin
Lecturer
Aristotle University of Thessaloniki
Department of Early Childhood Education

54 006 Thessaloniki
GREECE

Redefinition of space and equipment in the Kindergarten and involving the children in the process of designing

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Redefinition of space and equimpent in the kindergarten and involving the children in the process of designing

The title of my presentation reflects the ultimate goal of my recent research work.

I am using the term **redefinition** not with the intention to redefine the conceptual significance of space but, rather, with the intention to render the content of the word **remake** or, better, of the Greek word **anamorphosis** as this was used by Leonardo da Vinci in his quests into the world of perspective.

"*Leonardo was fascinated by looking at what happens when closely observed objects seen from oblique or wide angles; he noted that a phenomenon known as* ***anamorposis*** *took place, where the illusion of a solid body, apparently in relief, appears on a flat surface.*"

Thus, a dimension of **regeneration**, of **recreation** and the intention of making innovation is given to the notion of space and especially the space of the kindergarten.

This intention is easily understood when one considers the kindergarten beyond and beside the necessary and indispensable uses: playing, moving, eating, sitting, exercising, setting up a copmany of friends, listening and skimming through books, participating in - and watching - a puppetshow, performing, masquerading, reflecting oneself in the mirror. When, that is, one focuses on the conditions that space should provide for children in early childhood, so as to facilitate their taking-on-initiatives, excitement of imagination, creation of emotion, personal or group-discovery, sense of creativity and of exploration. And, it is even more understandable, when one looks at the reciprocity between space and the child's ability for sensory appraisal as a prerequisite for development; when one looks at the contact and the fmiliarization of the child with the material world through the **bipolar oppositions**: luminous - dark, high - low, even - uneven, smooth - rough, loud - quiet, adventurous - tedious, proportionate - disproportionate, beautiful - ugly, symmetric - assymetric. Therefore, space becomes part of the view of the holistic climate inside the school.

I am in a position to be in almost daily contact with the Child-Centre under the supervision of the Aristotle University of Thessaloniki, and to experience the "being" and the "becoming" inside this Centre for the

development of the preschool age child; a centre which is in cooperation with other kindergarten schools in the area of Thessaloniki, where students do their practice. It is in this context that I identified the necessity to research another - alternative - option of a school that will be a vehicle for the transfer of certain new experiences to the fundamental and determinative relation of the development of the child within appropriately arranged spaces, the furnishing of these spaces with functional equipment and the close cooperation between educators and children to the creation of the proper environment for the schools of the future.

In the course of my reflection on the method that I would have to follow in this research, as well as during the practical application of its results, it became clear to me that I had to find ways such that would enable me to integrate the modern theses, counter-theses, points of view and theories of Education into the approach of researching children and Kindergarten teachers, on issues of space. An approach that would be so much from the point of view of the correct utilisation and adaptation of space to the requirements of the children, as from the point of the aesthetic arrangement of space, which reinforces the sense of **harmony**, of **beauty**, and of **well-being**.

From within this point of view, however, new parameters were being posed for me, in the form of questions demanding imperatively an answer:"

a. In what manner can and should the kindergarten teachers become, fisrt of all, initiated into the subject matters of other scientific disciplines such as Architecture, Interior Design, Ergonomy, Anthropometry, Aesthetics?
b. How would the Educators be encouraged to approach these scientific areas and how would they become able to impart to the children the enthusiasm and the disposition to take an active interest in the space within which they move, play and learn?
c. By what means could the basic and essential knowledge, regarding the use of space in relation to the child's body, its proportions, movement and user-needs, be transferred and transmitted?
d. How would children in early childhood grasp the "Unity of Being", in other words, the need-instict for survival and the necessity for assertion - self-fulfilment in which both the physiological-organic as well as the psycho-intellectual dimensions are embeded?

With respect to the Padagogical aspect of my considerations, the

answers were given from within the Pedagogical theses according to which: *"Kindergarten and the subsequent levels do not offer simply preliminary-to-University knowledge, but, also, structure, concepts and foundations particular to the children's age (constructivism, Piaget). On these concepts and foundations a* ***scaffolding*** *is built for upward progress (Piaget, Bruner, Vygotsky, Frangos) or teachers offer the Zone of proximal development (Vygotsky) through communicative exchanges (Frangos)".*

I have been based on Davidov's determination of the **rules of contemporary teaching** (Moscow, 1970). That is, on: *"1.Primacy; 2.the acquisition of some knowledge which is of a general and abstract character, and which precedes the acquaintance with the specialized and concrete knowledge: 3.the examination of the objective-material, rudimentary origins of the concept; 4.the step-by-step and timely progress of the pupils from object-related acts to intellectual-level design."*

Special and careful attention has been given to the view concerning the creation of a more general system of teaching principles; one based on the standpoint of Psychopedagogics, which, in turn, aims at the investigation of the nature of the child and of school-learning. In particular, I examined the **principle of discovery** (J. Piaget and, mainly, J. Bruner), the **principle of problem-coping-and-solving**, the **principle of creativity** (itself based on the development of critical thought (Montaigne) and on the **principle of the unity**, or, in other words, the holistic perception of things and, especially, of forms): holistic views, supported by the proponents of Gestalt Psychology.

The same thesis, according to which the child perceives things as having a unified and not an analytic form, was also supported by O. Wallon.

I have given serious thought to *"Vygotsky's program the purpose of which was to investigate the development of concepts actually learned by a child in school and to compare them with those spontaneously acquired through everyday activity. This study has been based theoretically on the distinction between so-called* ***scientific*** *concepts and spontaneous,* ***everyday*** *concepts. (Alex Kozulin, 1990)."*

No matter how uncommon it appear, at this stage of my research, I also examined the views of the theatre-director Peter Brook, regarding the deeper meaning of the concept of space. *"Space is anything that has not yet acquired form, and everything that does not yet have a form is open to possibilities. This goes to say that the possibility of birth, of creation, depends*

on space that is not, as yet, filled and that is not yet fixed. Empty space signifies the intrinsic, even before creation, truth, which is in existence before the great explosion and which embraces all meanings, though still indeterminate. When the great explosion comes, there comes the moment of creation. If the aspect that comes into sight reveals its true nature, it necessarily reveals all the versions, all the interpretations that carries within it."

I have associated these views of Peter Brook with the theses regarding *"the manner in which we receive information, the creative teaching and learning of M. Ambercombie whose interests concentrate on a)sensory perception, b)communication, c)human interaction and d)-and foremost-identifying ways that can render information about human behaviour comprehensible to the students, so that will become able to learn* ***to see*** *and* ***to think*** *more clearly and to act more effectively on a variety of occurring events."*

Thus, through all the above, I decided to rely on the power of observing the child's position vis-a-vis the surrounding space as well as the environment-related associations that he/she makes depending on his/her interpersonal relationships and experiences in the kindergarten and at home.

I have founded my investigative and scientific quest on a co-operative basis - work-play with the children and the kindergarten teachers in three kindergartens. I was primarily interested in the manner of the mutual, educator-child, appoaching, the goal of which had been, for the educators, to become fascinated with the process and, for the children, to become able to retain their attention to what was to take place.

However, in the course of the research, I was able to notice the extent of the importance of recording the children's discourses, taking snap-shots of their spontaneous or conscious acts and movements, and observing, correspondingly, the educators' reactions to this process.

As you can see on the transparencies, the play-procedure that was unfolded had been the following: On a big roll of white paper, there would lie, in turns, younger and older children. One child would take a lying position on the paper and another, with the help of a thick-pointed marker pen, would draw the outline of the lying-down child's body, in various postures. That is, with the legs wide apart, the arms stretched-out, uplifted, with straight or bent elbows; postures already known to the children from gymnastics.

The total group was composed of children in various ages - from two

and a half to five years old - who participated on a mixed-age basis.

What followed was that the children's paper-figures (body-outlines) were cut by the children themselves with the help of a pair of scissors, they were partly coloured and they were placed, first, next to doors, windows and walls (architectural aspects of the space) and, then, next to tables, chairs, the "SUPER MARKET" corner (furniture and equipment arranged within the space). In this way, and holding his/her own paper-figure in hand, each child would make his/her own personal comparisons and observations, as well as parallelisms, with the figures of friends, of the taller or shorter in height and younger or older in age companions.

Of special interest, in this phase of the research, are the spontaneous comments of the children regarding the way in which their figures related to the space, its equipment and functions: "-My figure reaches half the height of the door, - Nikos, with his arms stretched open, cannot pass through the door, - Costas, with the tray loaded with dishes and with his eldows bent, cannot pass through the tables during lunch time". I have also recorder exclamations such as "Oh! Maria (addressing her own self) should you be so tall? You cut, you don't finish while the others have already finished". Here, 5 year-old Maria relates her height to the time it took her to cut the outline of her body on the paper. Conversing with me, 4 year-old Alexandros concluded that his own paper-figure fits 3 times into the space between the floor and the ceiling and he exclamed: "Oh! If it were for ants we would need fleet of them from the floor to the ceiling!".

During my presence in the kindergartens, I placed, on central points of the classrooms, reproductions of **Leonardo da Vinci's** famous drawing of the **Proportion of the Human Figure** (c.1492); **The Moduler, Le Corbusier's Figure** (1946) (which pin down the human body at the decisive points of the occupation of space: they are, therefore, anthropocentric); and **Henry Dreyfuss'** (1966) **anthropometric data** - male and female children (The measure of man: Human factors in Design).

These drawings concern the geometry of the Human body as an exemplary harmonious system, which, as a theory, had been based in Ancient Greece (coined by Protagoras) and in the view that *"man is the scale and measure of all things. In other words, human beings should learn to observe and judge the size of objects by comparison with their own size, for instance, a person's height might be half the height of a room and twice the height of a stool".*

While in the kindergartens, I did not make any reference to these drawings but I did answer to questions when the children noticed them and wished to find out why the manikins were designed in such positions and in this way.

When I explained to them that, for example, the proportion of an adult´s head to his/her body is 1 to 6 or 1 to 7, that, in other words, the head fits seven times on the body, I was amazed at the way in which they trying to acknowledge this analogy on their own bodies or the bodies of their companions, either using their hands - or balls - or by observing their images into the mirror.

The first phase of my research was completed by means of a play-dialogue with the children about the functions of tables and chairs, for the purpose of drawing the contrast of "adult - chairs, placed next to children's tables. At this point, my aim was for the children to discover on their own the comfort of a chair designed especially for their own size when eating, sitting, drawing. The orientations of the answers offered to the question "for what purposes do we use a chair?" were mostly of the type: "as a sailing-boat", "as a tunnel", "to climb on it and jump down". Most characteristic was the answer of a child who climbed charmingly on a chair and said to me: "and now I can see you in the eye".

Before I manage to weary you completely, I would like to refer to the first conclusions of this phase of the research - conclusions reached very carefully and after serious thought - in order to place them under your own judgment.

- Children of preschool age are capable of receiving scientific knowledge, provided that there can be found a method and a manner to reach, to this knowledge through personal discoveries of basic objects and concepts.

- Children have vague and indefinite ideas with respect to space and its layout, which, however, after a dialectical instigation, can become concrete and capable of being expressed in the form of opinions or suggestions.

- The participation of kindergarten teachers in endeavours of this type was rather limited and hesitant.

- The interest of the kindergarten teachers in the scientific areas to which I

have refered earlier had been great and they had a positive attitude towards the ultimate goal of the research: That is, the joint participation of the children and of themselves in the decision-making process regarding the arrangement of school-space.

- The contact with parents -intended to provide me with information on the responses of children at home, after our joint work in the kindergarten, was rather hesitant because they associated their answers with the possibility of judging their children's intelligence.

  Therefore, I came to the conclusion that parents should also be included in my research project inside the kindergarten for the purpose of my being able to, on the one hand, achieve the strengthening of the relationships among children, kindergarten teachers and parents in the context of the information and learning process and, on the other, sensitize the parents on issues related to space and to Aesthetics.

- The equipment should be designed not only on the basis of "adult-criteria" regarding its functioning, comfort and easiness to use but, also, on the basis of the criteria of the children, who see the objects through a logical irrationality and through an emotional exaltation and an imagination that moves between dream and reality.

RESEARCH KEY POINTS

a. In what manner can and should the kindergarten teachers become, fisrt of all, initiated into the subject matters of other scientific disciplines such as Architecture, Interior Design, Ergonomy, Anthropometry, Aesthetics?

b. How would the Educators be encouraged to approach these scientific areas and how would they become able to impart to the children the enthusiasm and the disposition to take an active interest in the space within which they move, play and learn?

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RESULTS

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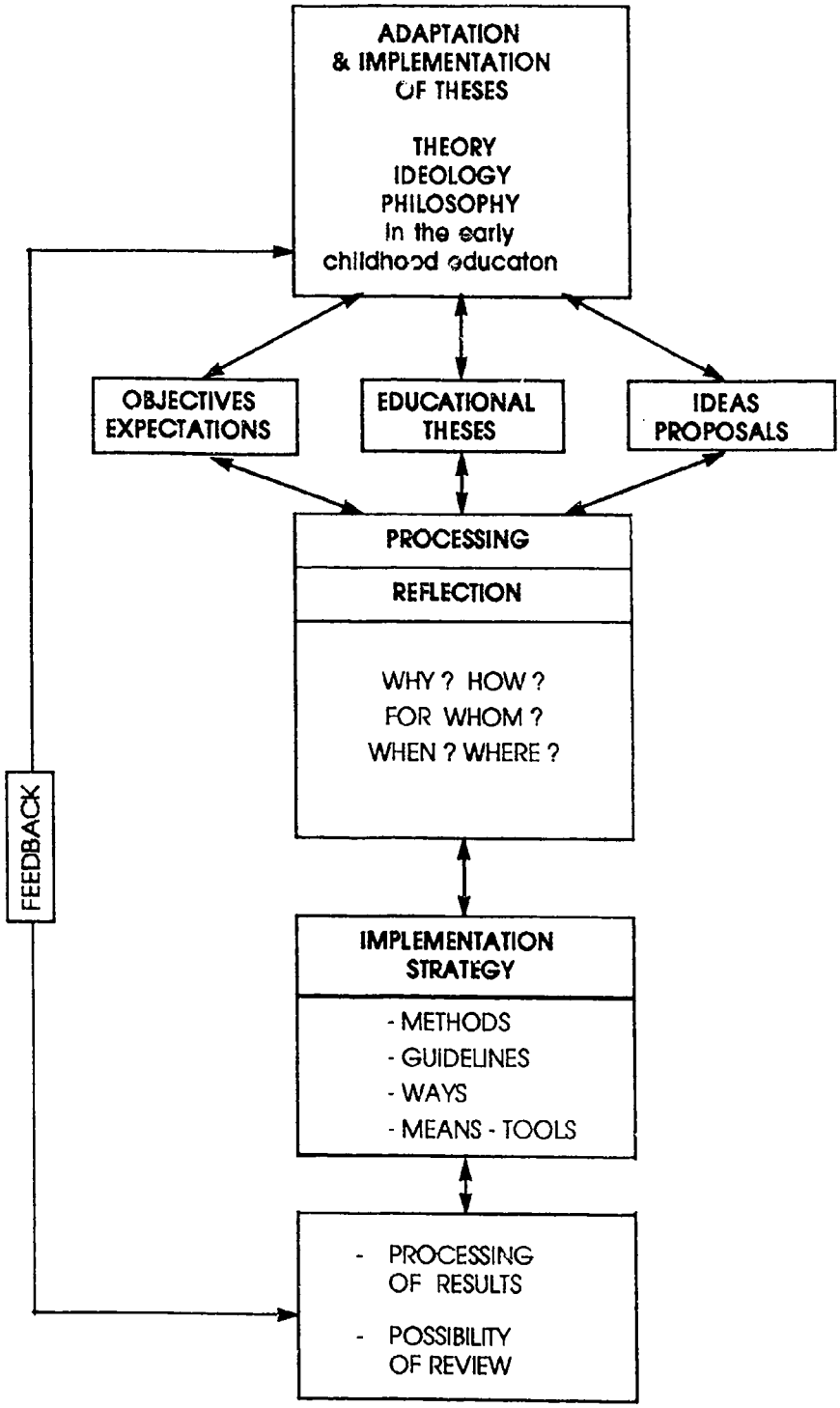
ADAPTATION
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in the early
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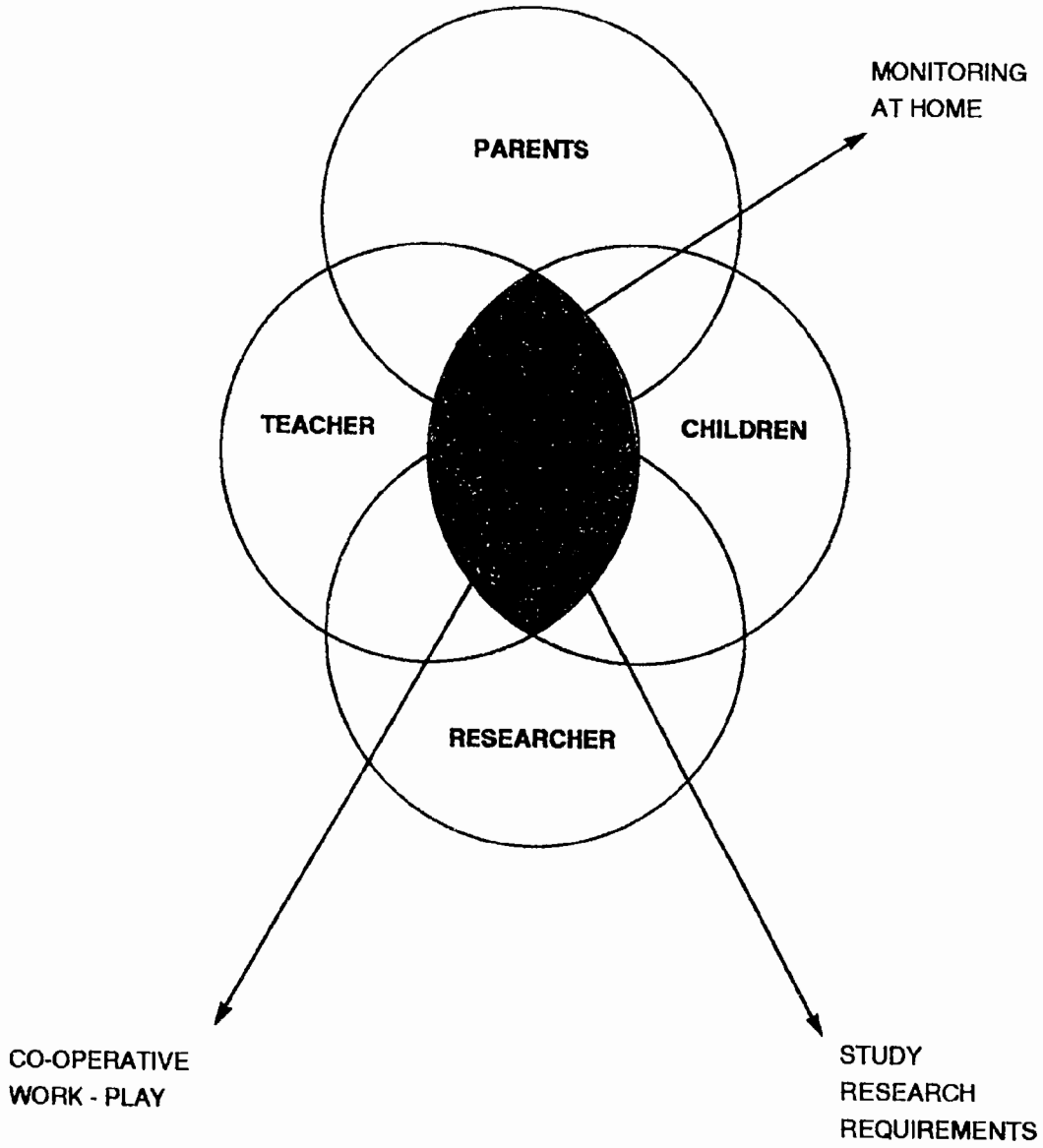

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