Alternative education approaches and their effects on the learning space

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Abstract

Today, the training method called 'traditional education system' is uniform, teacher-centered, connected to the book, and has a penalty–reward system. This has led to criticism of traditional education and the emergence of alternative perspectives in education. The 'alternative education approaches' are called new educational approaches. The spatial arrangements of these educational approaches are the most noticeable points. In this study, three alternative education approaches are discussed. These three approaches focus on spatial arrangements caused by educational philosophies. The main purpose of the study is to examine the close relationship between educational philosophies and educational spaces. In this study, education philosophy of each of these alternative education approaches was first explained and educational principles were determined. Then discussed about the sort of arrangements made on the space and how the space organisation was shaped. It has emerged that the 'spaces' and 'space organisations' in which education is given are shaped according to the basic philosophy of the center of education.

Keywords: Alternative education approaches, educational space, learning space, educational methods.

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1. Introduction

Education has been recognised as important in every moment of history by all societies. The importance given to education and human development method has led to the criticism of the solid, uniform and teacher-centered education concepts of 'traditional education system' and has caused to seek alternative methods in the field of education. Alternative teaching methods are libertarian and child-centered. They are also the approaches based on experimental teaching and approving each child as a different individual. The most conspicuous features of these approaches are accepting that the most powerful relationship in the education is between child and environment and that using the environment as an educator.

In this study, three alternative education methods named Montessori, Waldorf and Reggio Emilia, which are the frequently mentioned in the literature and commonly used, are discussed. In the scope of study, the main philosophies of these approaches and the effects of the methods on the education environments were emphasised. In the study, first the main education approaches of each method were explained and educational principles were determined. Then, the effects and reflections of the principles on the learning environment and the forms in the space organisation were analysed.

1.1. Montessori method

The Montessori method was developed by Maria Montessori, being the first female doctor of Italy. The method aims to improve the child's senses. Therefore, materials, activities and arrangements that stimulate sensory organs are the main features. Montessori focuses on the individuality of the child, self-fulfillment and offers freedom within limits for the child. Montessori developed many of her ideas while working with mentally challenged children. After the achievement in a short time, the method is experienced over children with normal intelligence level and has achieved success (Asher, 2010; Topbas, 2004; Wilbrandt, 2011).

According to Montessori, child is an active individual who tries to gain independence from the birth, learns from concrete examples of real life and has distinctive and specific characteristics from each other. As a consequence, a great importance is given to independence, individuality and education via real life.

The main principles that define the method can be listed as follows (Dundar, 2007; Durakoglu, 2010; Korkmaz, 2005; Pollard, 1996; Tepeli, 2012; Wilbrandt, 2011).

- Being free is one of the most stimulation of the children. Even if they need the help of an adult, they want to do as much as they can by themselves.
- The game is meant an occupation but only when the better effort is not found for the child as well as for the adult. So, children are allowed to help with everyday tasks such as preparing meals, setting and washing dishes, and sweeping, weeding, planting, feeding animals.
- Every child has different individual characteristics at different ages. So, it is important to provide an environment according to the child's age and characteristics.
- Education should help to socialise the child and to interfere with social life.
- There are mixed age groups in the school. Working with children in mixed age groups strengthens their social interaction with each other and helps them learn to respect each other.
- Children perceive life in a concrete way up to a certain age. Children learn by doing.
- Children learn everything by using their senses. The smells, the sounds, the texture of the tissues, the colors and the tastes are new and exciting for them.
- Everything in the environment is arranged according to a certain plan. By this means, it is aimed to gain responsibility of putting back the objects that they have received. The environment is arranged in a simple, harmonious, orderly, child-friendly and aesthetic way to keep the child's interest, curiosity, and desiring the discovery of the environment.

- Reality has an important role in education. Each material used in the environment is a material used in real life.
- Being with nature is very important. Children explore nature through concrete observations and can take responsibility for the care of plants and animals.

1.2. Reggio Emilia method

Reggio Emilia method was developed by Loris Malaguzzi. According to the method, children have many languages used to express themselves and they use different symbolic tools while expressing themselves. Accordingly, children express themselves through symbolic ways such as painting, sculpture, music, shadow games and dramatic games. The way that children use to make their emotions and thoughts visible to everyone is called 'the child's 100 languages' (Dundar, 2007). The method, which involves early childhood, is a project-based method of education. That is, the child should learn by observing and analysing the life. According to the method, while the teachers assume the role of assistant and guide, children are individual and constructive (Temel, 2005).

The general principles that define the method are summarised as follows (Aral, Kandir, & Yasar, 2000; Bennett, 2001; Borgia, 1991; Branzi et al., 1998; Edwards, 2002; Edwards, Gandini, & Forman, 1998; Gandini, 1997; Hertzong, 2001; Staley, 1998; Valentine, 1999).

- Having any hierarchy among staff ensures that everyone has a common responsibility for working and planning with children. The absence of hierarchy among staff requires no hierarchy among spaces.
- There is a method called 'documentation' in which teachers take notes by observing children. Children's work, voices and speeches are recorded and analysed. Then those are presented in the form of portfolio presentations.
- A great importance is given to children works. These works are seen as communication tools for children among themselves and also for teachers with the parents.
- It is important for children to feel as if they were in warm home environment.
- It is important to strengthen social interaction between adults and children. There are enough spaces to be or work alone for children in the environment. But, environment motives the children to communicate with others.
- Children learn the life through concrete experiences and by observing the life. Children need multiple sensory environments that will appeal to their senses and that support the development of all senses.
- Education is project-based. So, children are supported for research and exploration. There are different projects and activities implemented during the day or year.
- As the child's age and interest change, the physical environment changes at least once a year.
- Environment is warm and calm, with wooden materials and soft colors. Illuminated tables, mirrors, candles, windows extending from the floor to the ceiling and the windows between the rooms are remarkable elements of the interior spaces.
- Space is organised by the observed conscious of that children and identify themselves, each other and various objects in different situations and forms.

1.3. Waldorf method

The Waldorf method is another child-centered approach developed by Austrian philosopher and educator Rudolf Steiner. Education is focused on supporting learning and advancing holistic thinking and aims to develop creative thinking as well as analytical thinking. Art constitutes the center of Waldorf education, curriculum and school design. The main purpose of the method, which educates the human being as a whole with 'mind, heart and hands', is to educate the children as free, moral and balanced individuals (Oberman, 2007). According to the method, each child is considered to have different individual characteristics and unique superior talents. While planning the training

programme, 'what the children can learn' is regarded instead of what they should learn (Kotaman, 2009). From this point of view, it is accepted that each child has different individual needs, character, thoughts, feelings and mobility.

The general principles of the method are as follows (Astley & Jacson, 2000; Dundar, 2007; Kotaman, 2009; Nicol & Taplin, 2012; Ogletree, 1997; Poplawski, 2009; Sliwka, 2008).

- Each child has different individual characteristics and specific abilities.
- The environment must be shaped according to the changing mental and physical needs of the child.
- The physical environment is formed by the conscious that it has a lifelong influence over the child and each object in the school, classroom and interior is presented to the child in an aesthetic way.
- A special importance is given to creative and artistic activities and items, because children respond to learning activity better in artistic settings. So, art has been centered on educational programme.
- The purpose of the training is to educate the person mentally, psychologically and physically as a whole, particularly the mind, the heart and the hand.
- It is aimed to advance a more productive personality and intelligence with the physical activity called 'Eurythmy' which is one of the artistic events of Waldorf method.
- Issues are presented according to the level of development of the children, from concrete examples to abstract ones.
- The person is seen as a part of nature.

2. Method and Findings

In the study, the principles of the training method were examined and sorted at first. Then, the spatial reflections of these principles were analysed in the light of the school photos, plans and written information in the literature, so the prominent arrangements in each method were revealed. These arrangements were explained by the titles of spatial arrangements which were created by using educational principles for each method and the information about each title was then tabled.

The main features of **Montessori method** reflected on space according to method's educational philosophy, principles and literature analysis can be summarised as follows (Al, Sari, & Kahya, 2012; Ozdag, 2014).

- Anthropometric design: the importance given to the freedom of the child in education required respect to the freedom of the child's accessibility; therefore, the environment was equipped with accessories and materials suitable for the dimensions of the children. The environment is arranged to ensure the child's independence at maximum level. Everything in school is in the height of the child's eye, at the height he can reach, and in the dimensions he can grasp and fit into his hand (Table 1).
- Articulated classroom: according to the method, the importance of children's coexistence and to learn from each other by working together with different age groups is particularly emphasised. This is also the reason of why the Montessori classes have a 'knotted class' arrangement, which consists of square embedded in each other or in L-shaped. Each child can perform the activity he/she wants in the classroom independently and without disturbing each other. Through the use of articulated classes, it has been aimed to strengthen the social relationship of children by means of coexistence of different age groups. Therefore, common working areas have been established in articulated calssrooms. Besides, it is aimed to make children feel special and valuable through special places where their works are exhibited in classrooms (Table 1).
- Learning street: everything in the educational environment plays an educational role. Circulation areas within the school are like 'learning street' that contributes to the learning of children by their simplicity and order and by the arrangements resembling concrete life and stimulating the senses. Children can continue to learn, play, work individually or by a group, chat and listen, and learn from each other in various ways in the corridors and in the classroom. In other words, many parts of the school have become a living, moving and inviting 'learning street'. These spaces are noteworthy

only because they are special areas for children to use. It is seen that the play and performance areas are also evident with the features such as color, texture and level difference (Table 1).

- Learning gardens/outdoors: the importance given to the nature is required school gardens to be used as a 'learning gardens'. Education is not only carried out indoors but also outdoors. The plants in the gardens are also intended for the children to be responsible for the animals and to gain an early sense of responsibility in this respect (Table 1).

The main features of **Reggio Emilia method** reflected on space according to method's educational philosophy, principles and literature analysis can be summarised as follows.

- Horizontal planning: schools are planned in a horizontal line. That there is no hierarchy between the places is emphasised by horizontal planning (Table 2).
- Piazza: social integration has a quite importance for the method. Therefore, there are areas called 'piazza' where adults and children be together and they have to pass throughout the day. Piazzas help children and adults to socialise by strengthening their communication and by allowing them to encounter by chance during the day, such as squares and gathering spaces in cities. The importance given to socialisation is emphasised by paying attention to visual continuity for not cutting the visual relationship among the children themselves and children with their teachers (Table 2).
- Classroom arrangement: that the space must be organised in an aesthetic and stimulating way is emphasised. Therefore, convex and concave mirrors and the overhead projector system which reflects the pictures, colors and works on the walls are included for the use of children. In class, children's works are exhibited for reflecting the value given to them, and by this way, children are encouraged to work more diligently by proud of their work. Also, there are group or individual working areas in the classrooms. In this way, the children can study wherever they want (Table 2).
- Atelier: a practice area called 'atelier' exists as the complementary of classes in every school. Children make investigation and explorations in these studios (Table 2).
- Interior–exterior relationship: the importance given to the learning through concrete experiences necessitates school gardens play an educational role. Through the use of various plants in the class, a natural transition has been created between inside and outside. It is also aimed that children observe seasons, nature events, sun movements and shadow formations with the continuity of transparency between inside and outside (Table 2).
- Flexible space: according to the method, schools need to be composed of flexible spaces that can be transformed by adults and children and can allow different uses. Classrooms can be rearrangend according to the project or activity applied during the day or year. Teachers can arrange classrooms for children who working with teacher, with other children or alone (Table 2).
- Transparency: sharing children's work and progress of each stage of development can be regarded as a principle of transparency. Besides, the mirrors and the reflectors used in the environment are actually a transparency indicator. Children can observe and identify themselves, each other and various objects in different situations and forms through these mirrors. The most concrete example of transparency concept in the school is that doors are made out of glass, in order to make it easy to see the rooms, classrooms or every part of the school from the inside or outside. At the same time, transparent surfaces have been used to provide continuity between the interior and the exterior and to create a sense of depth in the spaces (Table 2).

Table 1. Spatial reflections of Montessori method

	Montessori method – explanations and photos
Anthropometric design	Montessori preschools include lightweight, movable furniture that can be lifted by children, shelves, cupboards and cloth hangers at high altitudes to which they can reach, easily openable and closable locks, drawers and doors, easily grasped blades, brushes, soaps and sweepers. Everything in the space is in suitable dimensions that the child can use them without an adult assistance. According to the method, non-breaking objects do not contribute to development of the child. Therefore, there are real glass cups to drink something, a real heatable iron and real sharp knives to cut vegetables and fruits. The fact that much furniture in the classroom are so light that they can be rolled or even overturned reveals the rough and flawed behavior of the children. Every object in the environment shows the slightest error. This allows the child to become aware of his/her body and gain control over his/her physical activities. There are no precautions to prevent the sound of objects such as tables and chairs in the living room, but there are a certain number of objects in the room that can be broken.
Articulated classroom	Articulated areas enable spaces that are suitable for children, presenting independence of choice and movement. Many different activities are allowed to take place at the same time by this organisation. The child can perform whatever she/he desires at any part of the classroom and also moves around with the confidence of being under teacher supervision. Children can freely choose, act, socialise together with different age groups, find suitable spaces for individual or teamwork, work safely in an anthropemetrically suitable setting and easily perceive the environment through low-divisive elements. Besides, the areas for exhibiting the children's works in the classrooms make contribution to the children in a way that they can see themselves as part of the school, special and valuable and also feel that they belong in school.
Learning street	According to the method, each child has different characteristics, choices, abilities and interests. Therefore, there are arrangements that allow children to make choices in the environment. Single-occupied work areas located in the corridors, on the sides of the windows or corridor, allow children to work individually. Various forms of learning and practice spaces have been created that allow children to socialise. Special fields such as teamwork areas and mini amphiteatres designed in the corridors allow children to interact and to socialise with each other. Spaces reserved for children, spaces used only by the children and special areas for children serve as a part of the learning street in the Montessori schools where the child freely accesses every object, enjoys the pleasure of self-sufficiency, finds space to store his personal possessions. On the other hand, these space organisation lead child feel that him belong in school.
Learning gardens/outdoors	The school's garden allows children to be naturally intertwined with nature, to directly experience the diversity and beauty of nature, and to discover natural materials through concrete observation. The direct relationship of the classes with the garden also enables children to be in touch with nature and to make explorations using their senses. By providing animals and plants in the school garden, both information about natural life can be given and children could take care of these creatures, and, thus, responsibility awareness is ensured. Children learn what patience and waiting in confidence, being a belief and life philosophy, mean and respect to the nature also. That the windows are wide and extending from floor to ceiling also helps to get maximum natural light into the interior by providing visual continuity. Children can observe nature, weather events, seasonal changes, light-shadow plays and sun and cloud movements without making any effort in their daily lives by the help of aforesaid transparency. On this count, children also meet initial geographical information at an early age without being aware.

Table 2. Spatial reflections of Reggio Emilia method

	Reggio Emilia method – explanations and photos
Horizontal planning	The absence of hierarchy between the staff ensures no hierarchy between spaces. This arrangement emphasises that not only employees, but also service areas, work areas, classes and offices all have an important and common role and each serves a specific and necessary purposes.
Piazza	There is a comfortable area in the schools called 'piazza' where all children and teachers can coexist in order to strengthen social exchange between adults and children. The classes are situated around the piazzas and adults and children pass through these areas during the day. Piazzas are not only the spaces where children discharge energy, but also places where they explore, show theatre performance, dress up and play costumes. In addition, the continuity of the visual communication between the children and adults is provided with glass separators and doors extending from floor to ceiling in the classrooms.
Classroom arrangement	The environment must be aesthetically and stimulatingly organised according to the method. Therefore, the overhead projector system is included in order to reflect pictures and colors to the walls and convex and concave mirrors in the form of a triangular roof help children to see themselves in different situations and forms, to recognise themselves, and to see themselves with the eyes of others. Foldable hanging curtains are used for shadow games in some schools. The indicator of the value given to children is the wall panels in the classrooms. Children's work, paintings and photographs displayed on these panels are seen as a communication tool for children with other children and teachers with the parents. Thus, children remember what they are doing through visual memory, teachers follow children better and help children develop their project ideas, and parents can have detailed knowledge of their children's school life and development records. Also, Group or individual working areas in the classrooms help the children study wherever they want.
Atelier	The working area, called the atelier, is a spacious and bright discovery area, full of various materials, where research and experiments take place. The ateliers are filled with natural materials such as glass beads, pipettes, ceramic pieces, transformable materials, stones, rocks, bean seeds and dried flowers. It has been noted that everything in the school is on the shelves that children can access and in an open environment so that they can recognise the colors of the materials. At the same time, the materials in the room are in a format that will encourage children to recognise colors and shapes, to think about how to use them, and to recognise odors and textures.
Interior–exterior relationship	Water playgrounds, climbing hills, child-sized labyrinths formed by small trees which the families planted, and picnic tables are the remarkable items of the school outdoors. That various flowers and plants are used in classrooms as well as in inner courtyards and gardens creates a natural transition between indoor and outdoor. Eaves at the outdoors, the verandas and the wide windows that carries the sunlight into the interior help to create and maintain the physical connection between the interior and the exterior.

Flexible space	Flexible spaces, transformed by adults and children and having multi-purpose usage, can be rearranged according to the project or activity applied during the day or year. Teachers can organise the spaces so that children can work with teachers, teachers with large groups and teachers with small groups or children alone.
Transparency	The doors are mostly made of glass, to make it easy to see the room from the outside or from the room. Besides, glass divider elements draw attention with their reach from the floor to the ceiling. Thus, children can act with the confidence of working under the supervision of teachers and teachers can easily observe children. Besides, through the windows extending from the floor to the ceiling, which facilitates the perception of the outdoor environment, both the maximum natural light is carried to the place and the child can observe the nature at random.

The main features of **Waldorf method** reflected on space according to method's educational philosophy, principles and literature analysis can be summarised as follows.

- Flexible space: spaces need to be organised according to the development of children. As the child grows, the environment must change with her/him. This situation necessitated schools to be flexible spaces (Table 3).
- Art studio: the importance given to every field of art requires schools to have an art studio and artistic features are also included in the spaces. Children can perform many art activities such as music and painting in these places (Table 3).
- Classroom as a nature studio: it is important to give nature of love to the children. Therefore, the furniture in the classrooms are produced from natural materials. Classroom is full of natural elements to observing, touching and seeing the natural elements up close by children. It can be said that the school and classrooms are designed like a nature workshop (Table 3).
- Rhythm/dance rooms: schools have spatial arrangements for physical activities particularly for the rhythmic movements called eurythmy (Table 3).
- Nature and natural environment: the furniture and features in the classrooms are produced from natural materials. As education is based on concrete examples, the relation between education and the nature is very important. In accordance with the concept of integration with nature, the position of the school is intertwined with nature (Table 3).

Table 3. Spatial reflections of Waldorf method

	Waldorf method – explanations and photos
Flexible space	Rectangular fields activate human thought and render the minds rigid and linear as for the method. In contrast, circular spaces reveal more spiritual and more inner feelings. Therefore, the architecture of Waldorf schools is usually designed in organic forms. According to the method, the space should be shaped by considering the changing mental and physical needs of the child. Particularly, the classes where the youngest children are located are more rounded and almost designed as a womb. Because it is believed that the child has more spiritual and more inner feelings at these ages. As the child grows, the classes become less rounded and angular, just as the child develops the capacity of thought without abandonment of emotions. The necessity of changing the child's environment as he/she grows has been tried to be provided with flexible arrangements in the interior. The environment must be reorganised according to the needs of the child and the activity to be taken.

Art studio	The importance given to the art is emphasised by art studios and artistic features. Music or handicraft studios are the main artistic spaces. Paintings of the teachers on the boards, paintings and tables of the children exhibited on the walls are also included as items that enrich the space in an artistic sense.
Classroom as a nature studio	The classrooms in Waldorf schools are full of natural assets, materials and equipment to constitute love of nature and perception of natural harmony. There is a nature table in the classroom whose content changes according to the season. In kindergartens, soft colors and textures, natural materials, flowers, branches, seeds and other seasonal ornaments, kitchen utensils and places are arranged in a simple and as a warm home environment. Children can perform here with natural materials such as wooden blocks, stones, silk, wool and pine cones. It is believed that the simplicity and naturalness of these materials make the child's imagination more active and that a better ground for creative reasoning has been created by this way.
Rhythm/dance rooms	According to the method, rhythmic movements called 'eurythmy' are important for children. These rhythmic movements, which help keep the children vigorous and calm, are an artistic activity that allows the voices and quiet letters of the speech language, the tones and intervals of the musical melody, and the movements of the arms and the body. This physical activity is used to help the developing personality and intelligence to be more productive. These schools have the necessary space formations for these rhythmic movements and music activities called 'eurythmy'. The environment is organised to enable creative and artistic approaches such as drama exercises, physical movements, singing and dancing through the colors and forms used.
Nature and natural environment	Waldorf method considers that the natural cycle, the seasons and the life rhythm, affects the human rhythm, and the human exists in this rhythm. As the person is considered as a part of nature, the schools are located in the fields where children most utilise from the opportunities that the nature offers and inside with nature.

3. Results

The study results show that each of the three educational approaches is child-centered and is based on similar philosophical ideas. But each one also shows a number of differences in the direction of the main philosophy.

The Montessori method supports the child's independence and aims to improve the senses. It focuses on freedom within limits, individuality and self-discipline as an educational method. The method, which advocates that the child's learning style takes place through concrete examples from real life, has organised the educational environment from that principle. Spatial organisations that support the child's freedom and enable him to do it on his own, anthropometric designs that remind the child's real life and adapted to his/her dimensions, specialised areas that give importance to the child and his individuality, articulated classes that enable many activities simultaneously and also support socialisation, the learning streets and gardens, which maintain the learning facility to the corridors and outdoors besides the classrooms are the main components of the educational environment.

The main purpose of the Reggio Emilia method is to improve communication skills of the child by supporting the socialisation. Besides, it can be said that there is an equitable and transparent understanding of education which supports the creativity of the child. Therefore, the spatial reflections of the method are also going to support to reveal these talents. Horizontal planning that reveal the equality of the spaces and the education, piazza that promote the socialisation of the child, various materials and furniture in classrooms that enable the children identify his/her own and immediate environment, studios full of natural materials that aim to improve the creativity are the prominent components of the educational environment. Besides, transparency, relationship between indoor and outdoor spaces, established by the arrangements that aim to incorporate the garden into the classroom and provided by the visual transparency between classroom and garden, and flexible spaces that is suitable for different arrangements and transformations are other noteworthy spatial elements.

In the Waldorf method, it has been argued that human being is aimed to be fully trained as mind, heart and hand, and that education and creativity can only be improved through art. According to the method, which emphasises that the child has different physical and psychological needs at different ages, age-specific education method has been applied. In the educational environment, a spatial formation has been proposed according to the needs and transforming/flexible spaces that change according to physical needs, ages, mental changes, interests and facilities. The importance given to art makes it essential to include art studios and artistic items in the school. At the same time, rhythm/dance rooms, where practices of rhythmic movements and dances are performed and various musical instruments are played, are the key elements of the spatial organisation. Believing that man is a part of nature requires schools to make as much use of nature as possible. The location of the schools within nature, the natural areas and the use of natural materials in the classroom are the indicator of the importance given to nature and natural environment.

The importance of nature and natural materials are remarkable in three educational approaches. Even the purpose of incorporating nature into the educational environment is different in each educational method, concrete education through nature, the development of sense of responsibility and learning by observing nature are the principles goals of the education about the nature. In addition, the spatial arrangements that promote socialisation in Montessori and Reggio Emilia methods are remarkable. In Montessori method, socialisation is supported with articulated classes and learning street, while in Reggio Emilia method socialisation is provided with piazzas. In the Waldorf method, education emphasis via arts is come to the forth, and in the case of spatial arrangements, art rooms and artistic objects become more of an issue.

Today, the effects of the physical qualities of places on human behavior and psychology are a known fact. When this reality is taken into consideration, there is no doubt that the effects of spatial arrangements in education, on the child's success, and on the physical, mental and spiritual worlds of the child will be undeniable.

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