



The Presence of Modernist Architecture in Government's educational Buildings at Lefkoşa

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ARTICLE INFO:

Article history:

Received 20 February 2017

Accepted 23 July 2017

Available online 23 July 2017

Keywords:

Modern architecture;
Elements of modernist
architecture;
Modernism philosophy;
Government's
educational buildings;
Lefkoşa.

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ABSTRACT

Modernist architecture movement of the buildings in any city reflects the modernity of that city. Lefkoşa as a modern city faced many conflicts in the last century. The governmental buildings illustrate how modernism in architecture was defined and reflected in the buildings of the city. The aim of this paper is to explore the modernism movement in architecture influence on educational governmental buildings in Lefkoşa for first half in 20th century. The paper focuses on the ideas and experiences of modernist architects in first half of 20th century to apply modernism elements, and relationship between architecture form and functionalism in governmental buildings. Methodology frame work elucidated to conduct the subject. Two School buildings have been selected from the first half of twentieth century in Lefkoşa as case studies for modernist architecture. 'Lefkoşa türk lisesi' designed by 'Ahmet vural Bahaedden', which was the one of famous modernist architects in Cyprus and 'Şehit Ertuğrul İlkokulu'. The buildings architectural elements analyzed in both schools to demonstrate relation between site, interior space, functionality and environmental response, based on using their modern material and character. The paper concluded that the educational buildings hold strong elements of the modernist architecture in Lefkoşa and demonstrate how the elements of modernism were involved functionally in the design. The findings contribute useful evidence about the existence of modernism philosophy in architecture in Lefkoşa in the first half of twentieth century.

CONTEMPORARY URBAN AFFAIRS (2018) 2(1), 22-32.

<https://doi.org/10.25034/ijcua.2018.3653>

www.ijcua.com

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1. Introduction

Lefkoşa is considered as a modern city because it was affected with European architecture in first of 20th century. Many modern buildings are built in Lefkoşa in that time. Over time modernist architecture replace with other styles in architecture and modernist elements changed or became meaningless because of another

adding elements. Governmental buildings were less affected with these deformations and the

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modernist architecture appears more than another buildings.

Schools are crucial buildings of a society and indicator of its development. Schools as a building with special character were always one of the most momentous projects for architectural thinking because of their multi functions and elements. The aim of this paper is to explore the modernism movement influence on Educational governmental buildings. The paper tries to evaluate the effects of the modern elements for school buildings design on first half of 20th century. Functionality will be second factor to evaluate the effects of modernism. Many buildings represent modernism in Lefkoşa but over time they lost their character as a modern building or they change with another style. The research assigned few questions to be answered. How much Modernist Architecture elements presence in Modernist feature of Educational Buildings in Lefkoşa? How much Modernist Elements are functional today? The paper hypothesizes that if the educational buildings from beginning of twentieth century until today have the elements of modern architecture, then that shows the presence of modernism philosophy in architecture in the city since that period.

2. Literature Review

2.1. Modern Architecture History

The term 'Modern' demonstrates combination of functionalism and aesthetic through movements in twentieth century which deny traditional and historical ruling on that period (Robinson, 2003). In the first half of 19th century while, modernism applied in the art and literature, start to refuse religion and history in Enlightenment period. In Europe, one of the most important perspectives of modern movement was criticism of the tradition and religion. In fact, the idea of modernism finds out in renaissance, but become more popular in Enlightenment era. Scientific look forward for future instead of past to improve the society and their life, as a result churches lost their place in society (Zabihi, 2010). The modern

movement had begun in the early twentieth century by political, social, aesthetical and technological revolution in design and creates artistic and architectural movement to look ahead to future without participate historical background. The modern design focuses on functionality and interior space of the building more than decoration. In the beginning of 20th century, modern architecture continued by technical revolution which was the product of modern movement. Development of engineering field, using the materials and construction techniques, open a new way for architects in the world. New material such as steel, reinforced concrete, glass and aluminum enter to the new era of design (Evans and Jeffery, 2005).

2.1.1 The Pioneer Architects of Modern Movement in the world

Modernism is the most important movement of the 20th century, in architecture related to function of building and using new materials. It has been called as international modern after Philip Johnson's modernist architecture exhibition in 1932 in America. The modernism is determining by; building always introduced by cubic or cylinder shapes with flat roofs, using reinforced concrete in the facade with white or cream color without any ornamentation, as well as steel and glass sheet are used in the building with horizontal large windows and open interior plans. The two pioneer of modern movement in architecture design were Walter Gropius in 1883-1969 and Le Corbusier in 1887-1965. (Savio, 2006). Le Corbusier was one of the Pioneers of the modern movement in 1920's and one of the most famous architects in the history of modern movement. His effects on the architecture as well as on the art continues until today in the world. Chandigarh is one of the remarkable experiences of urban planning in 20th century. It is only the one in whole urban design of le Corbusier which had been built; also it is the place of many of his significant architectural design. The city of Chandigarh was blooming the

modernism architectural movement in all over the India. It became famous for its modern architecture and landscaping. Most of the buildings were designed with cubical form; respect the proportion of human body with building scale and details. The city was combined with several sectors; the area of each sector was 800by 1200 meter (Tungare, 2001). He designed many buildings in Chandigarh with different categories. Colleges and Schools were important part of his design in the city. The Chandigarh College of Architecture located in sector 12 is one of the educational building built by le Corbusier and was established in 1959 (Ali, 2017; Dalrymple, 2009).



Figure 1. In the left shows northern façade of Chandigarh College of Architecture and in the right shows the interior space with opening for natural lighting. Retrieved from <http://corbusier.totalarch.com/chandigarhcollege>

Walter Gropius is another pioneer of modern movement and founder of Bauhaus school of architecture (Amen, 2017). Impington Village College (1938-1939) is the most remarkable work by Walter Gropius during his short period while he came to England with his assistant, Maxwell Fry to participate an architectural partnership. Simultaneously, educationalist Henry Morris was deciding to build three village colleges in Cambridge shire. In autumn 1934 Gropius introduced with Henry Morris and they decide to build a college in 'Impington'. Gropius and Maxwell Fry worked together to design 'Impington' College in summer 1936. Gropius's modern design of school leads the community pay attention to the build environment. Professor Sir Nikolaus Pevsner eulogize the 'Impington' village college as '*one of the best buildings of its*

date in England, if not the best'. The importance of 'Impington' Village College became the only public building designed with Gropius in England (Campbell, n.d).



Figure 2. The outdoor view of the 'impington' Village College designed by Gropius in 1936(A plan conceived in the mind. Impington Village College, 2011).

The crossing wall built by bricks, with steel roof trusses and steel frame conference hall. The envelope covered by rough-texture yellow bricks with dark brown brick used in plinths, chimney stacks and bridge trusses bearing the girders which span the hall roof.

The timber roofs covered with furring and asphalt. In the classrooms, steel roof trusses carried by internal walls therefore the external walls are not bearing wall and could be design with large windows. The building designed with one and two stories and simple. The plan is designed around central landscape which, normally used as the dining space. The accessibility to the building is direct from main entrance and also from side entrance from Playground. The Conference hall is located in the right of main entrance. The classrooms designed by two stories with two staircases and later extended lift. Behind the landscape located the main classrooms with central laboratory, and corridor relating the classrooms. The accommodation buildings such as staff rooms, common rooms, lecturer rooms, committee room, and library are located in the left of entrance. The building is presence the simplicity in architectural design (Walter Gropius-master of Modern architecture, 2011). After World War II, Richmond High School for Girls designed by Denis Clarke-Hall & Scorer in 1940.it

was another modern architecture school in England which designed in the form of Gropius and Fry's 'impington' Village College (Hille, 2011).

2.1.2. Elements of Modernism in Architecture

The modern movement elements are: absence of ornament, decorative molding strongly simplified and buildings introduced by simplicity in design. The convergence of touching surfaces between vertical and horizontal are sharp and clear, horizontal and vertical lines create rectangular form for the plans, flat roofs, most of the plans have meandering one story. Introducing new and modern material and systems such as steel column was using directly as an obvious elements to show the simplicity and functionality, concrete block is used for finishing material, truces with long span steel provide open spaces free from columns, direct solar heating system provide comfortably for occupant. Also traditional materials such as wood, brick and stone are used in building in a simple way to demonstrate the simplicity in modern aesthetic. All the material is stayed with natural character to reflects the honestly of materials. The interrelation between indoor and outdoor explained the transparency of large windows allows visual connection between site with natural landscape and building. The more important element is open plan that provide a big interior space in the building. Shading elements also applied in the building to increase human comfort. The modern building designed efficient (Jones, 2011).

2.2. History of Modern School Design in modern movement period

During 1930's to 1940's, many schools were built with the same criteria and methods of design from the last periods, however the interest for the newer models of education were increasing. As much as the tendency was growing, the new model of schools was more appearance. Through guidance of several people such as Maria Montessori in Italy and John Dewey in the U.S by support the educational development

theories which cause form the basis of many current educational until today. In addition to this educational Progressivism, several architects start to support these new ideas of schools. Many significant schools were built by innovative architects of that time such as Alvar Aalto's Tehtaanmaki School (1937), Richard Neutra were built many modern school buildings during the 1930's and Impington Village College (1939) by Walter Gropius. These schools were known as the 'open air school' movement, because of the importance of design were in indoor air quality, natural light, strong connection between inside and outside and proper circulation inside the school building. The best sample of this architectural movement could be the adult learning center (Impington Village College) built by Walter Gropius which the windows is the connection between ceiling and floors. This school building still in use and is the best school building in England. This model of design could easily apply in the classroom design of today (Baker, 2012).

2.3. Modern Architecture in Cyprus in the period of 1900-1965

The modern architectural movement in Cyprus starts with colonization in the island. When the ottoman rent the island to Britannia in 1878, British start to have full population documentation with hoping to control island. When they reach to control the tension between two communities of Greeks and Turks in the island, they decide to keep them separate. But the situation changed after 1914, the colony status in 1925 and increasing the population and hard economic situation in 1931 British rulers applied several new law projects and infrastructures and begins a processes for modernization and urbanization. Hence, the island had introduced to the new idea of modern architecture in 1930's, when the number of architect who educated abroad increased to start their practices in island. The architects started to reflect rational aesthetic which sometimes followed by vernacular priorities. After finishing the World War II, the

urbanization became more strong and it tend to aesthetic of "Corporate modernism" mostly revealed in the landscape by using concrete in the apartment buildings and office blocks which cause to be separate from walled city. In 1960 which Cyprus released from British colonial, modern architecture became as a tools for decolonization and modernization. They start to build new schools, markets, factories, hotels with modernism thinking and using new materials and techniques. There are several samples of modern schools building in Cyprus such as Lykavytos elementary school in Nicosia;

After the World War II, when the urbanization process came across with modernization and intensified, the needs for school building appeared. The Demetris Thymopoulos's elementary school in Lykavytos is one of the first modernist school buildings in Nicosia which had built between 1955-1957. The architect follows the Louis Sullivan ideas which is "Form follows function" and use local material such as sandstone in the building. School for Girls in Nicosia (1962) also were designed in a same architectural style where founded a new building style, which were built clearly after the island independence from British colonial (Pyla and Phokaides, 2009).



Figure 3. D. Thymopoulos, Lykavytos Elementary School, Nicosia, 1955- 57 (Pyla,Phokaides, 2009).

2.3.1 North Cyprus, Lefkoşa

Nicosia or Lefkoşa (TRNC) is the largest city and capital of Turkish Republic of North Cyprus. From

the geographical condition is the economic, political and cultural center of the Cyprus. The population of the city is about 84900 people by 2006 census. The majority of people are local Cypriot and Turkish people consider of people who migrates from Greece part after 1974. Lefkoşa is the only divided capital city in the world nowadays, which south of the island occupied with Greece people and in the north by Turkish people (Nicosia - North Cyprus capital city, 2007). TRNC area is 3,355 square kilometers, with the Mediterranean climate which is long dry summers and short rainy winters (*The Turkish republic of Northern Cyprus*, 2014).



Figure 4. Nicosia city. Retrieved from <http://www.lefkosa.com/>.

2.3.2. Ahmet Vural Bahaedden (1927-1993)

During Industrialization and blooming of Modernist movement in the world, local architecture in island also has been affected by this architectural movement. Hence, there are many good samples of modernist architecture in Cyprus which were designed by Cypriot architects of that period. Unfortunately, this condition had left as it was without any research from that period until today in north Cyprus. Ahmet Vural Behaeddin (1923-1993) was one of the pioneers of modern movement in north Cyprus which bring about special attention with his works (Celik and Erturk, 2007). He designed many modern buildings in north Cyprus which most of them is residential buildings, also he has school building (Lefkoşa türk lisesi built in 1962), which today used as high school. The author tried to investigate this building but couldn't find

any information source about the school, therefore, the author decides to visit the building in order to analyze the building and draw its plans.

3. Methodology

Through literature review author illustrate some information about Modernism Movement and its characteristics, then tried to shows some sample of educational modern design by pioneer of modern architecture in the world. The qualitative method applied in this paper through analyzing two educational Buildings design examples in the 1960's period case studies in Lefkoşa, North Cyprus. The Analysis criticized several elements regarding modern architecture characteristics. The author studied the form and function of the school's architectural elements and demonstrates their success; Envelope, materials, surface, structural elements, and spaces. The author analyzed the existing elements for the educational buildings in Lefkoşa and compared them with the standard elements of design in Modernist movement in architecture for educational buildings. The paper tried to demonstrate how Modernist elements were introduced successfully in those buildings during the 1960's until today in north Cyprus. The frame work of the methodology approach was developed by author to conduct the investigation:

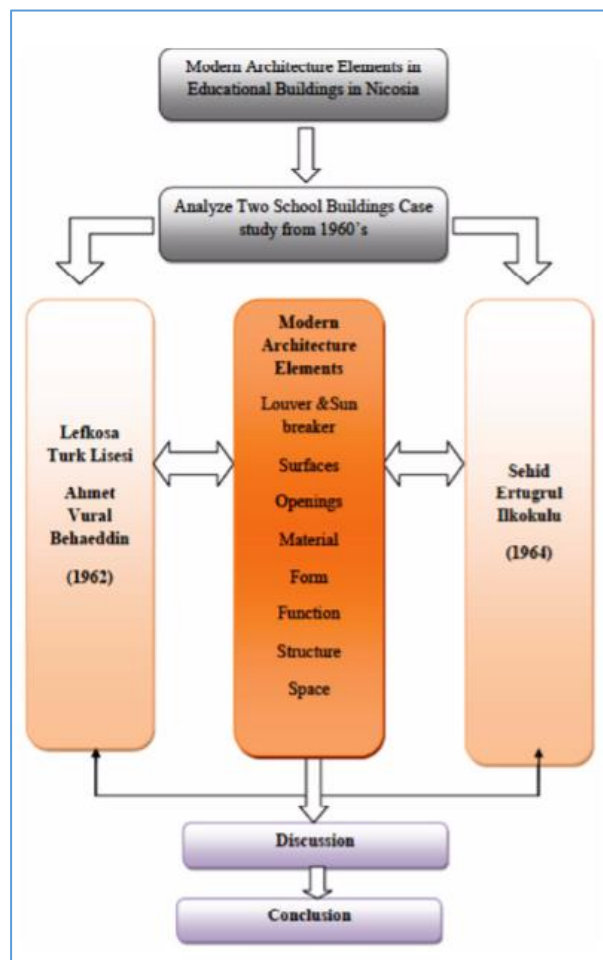


Figure 5. Methodology Framework.

3.1. Case Studies

Two case studies are selected in Lefkoşa to be analyzed by their Modern factors. The case studies selected through some similarities such as, 1. Both selected Case studies are Educational buildings (School Building) in Lefkoşa. 2. Both Schools Building had been built in the first half of twentieth century. 3. Both Schools have holding the character of Modern architecture.

3.1.1. Lefkoşa türk lisesi (1962)

Lefkoşa türk lisesi was designed in 1962 by Ahmet Vural Behaeddin and located at Cemal Gürsel Caddesi. See figure '10'. The building is used as a High school nowadays.



Figure 6. The location of the Lefkoşa türk lisesi, Source; Google map.

Regarding the Lefkoşa türk lisesi School building the author tried to find any documentation (plans, elevations, and sections) or any research about it, unfortunately the author came to know that there is no any documentation for the school until now. Hence, start to attempt to set up the plan by her. Through several visits with measuring and documentation could finally make the plan from scratch. The following plan is the Ground, first and second floor plan of school drawn with author. The building's site has two entrances from outside; one is from 'Gazeteci Kemal Assik Caddesi' street which is the main road and other one from lateral road on the west side. The building is located east-west orientation in the site and has several access ways to the buildings, See figure '5'.

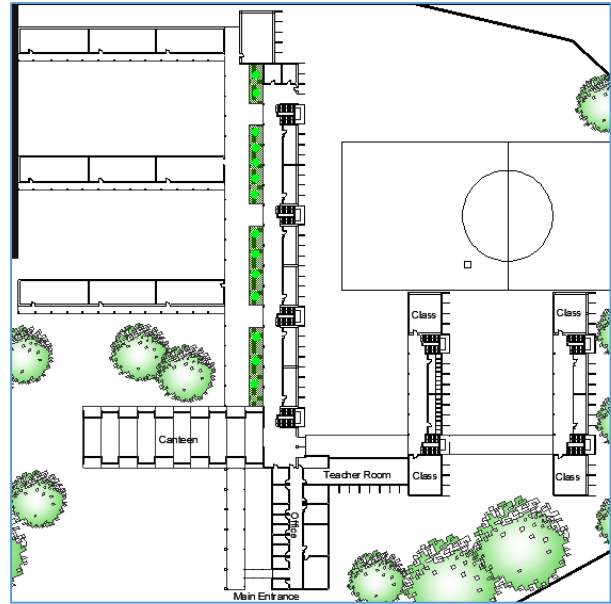


Figure 7. The Ground Floor Plan for Lefkoşa türk lisesi (Drawn by Author).

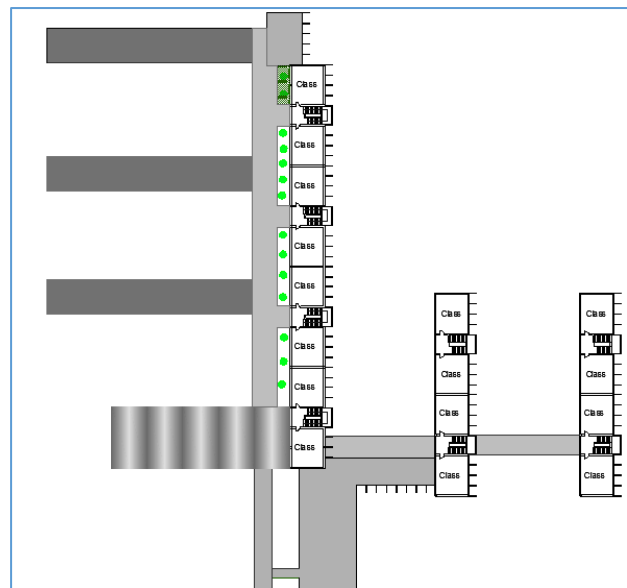


Figure 8. The First and Second Floor Plan for Lefkoşa türk lisesi (Drawn by Author).

The main building in ground floor consist Offices rooms with toilet, another attached building is canteen for students and employees. The canteen slab has been designed as folded corrugated slab. There are four staircases in the building which two rooms are located between them. Class rooms are located in the first and second floors. There are three buildings which located parallel from each other and provide open spaces between them. There is a small

room in the end of the building which based on the author in-situ observation utilized for music lessons room. The building consists of three parts with three floors which located next to the administration building. The ground floor consists small rooms, toilet between staircases, in the north and south side there are classrooms. The first floor consists four classrooms and it is repeating in the second floor, See figures '6' and '7'.

One of the elements in Modern architecture based on Jones (2011) is clearness of structural elements (Beam and Columns) and in Lefkoşa türk lisesi School; the structural elements are designed to be clear as one of the character of modern architecture. Another element in Modern architecture based on Jones (2011) is the sharpness and clearness of the edges between vertical and horizontal surfaces, horizontal and vertical lines create rectangular form for the plans with flat roofs. Hence, these parameters are seen as modern elements in the school building. Large windows in the building are applied for interrelation between inside and outside to enhance natural lighting into the classrooms and office rooms which is another factors of modern architecture based on Jones (2011). Louvers applied in the eastern façade as shading elements to increase occupant comfort is another modern architecture element. The material used in the façade of the building is necked concrete. The relation between outside and inside represented through interrelation between the buildings and several courtyards among them to give good example of transparency between inside and outside as one of the modernist element in architecture. The horizontal and vertical ribbon openings are other elements applied in the building as one of the characteristics of modern architecture.

3.1.2. Şehit Ertuğrul İlkokulu

Şehit Ertuğrul School was designed in 1964 and located between Şehit Huseyin Bora Sokak and Sipah Sokak and Bedrettin Demirel Caddesi, Lefkosa. The building is used as a

primary school nowadays and has the characteristic of modern architecture. The entrance to the site is from Şehit Huseyin Bora Sokak, See figure '25'.

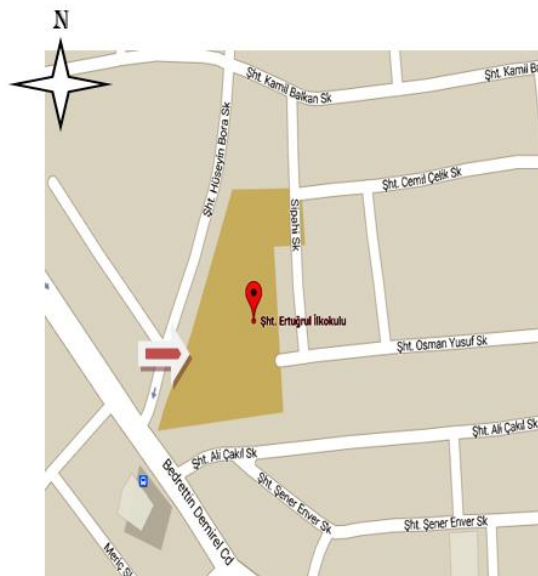


Figure 9. The location of Şehit Ertuğrul İlkokulu (Source: Google map).



Figure 10. The site plan of Şehit Ertuğrul İlkokulu .

The Şehit Ertuğrul School building also suffered from lack of documentation. Hence, the author started to document the building from crash. The building is prolonged in north- south direction and the school building consist three parts. The first part is cubic form with courtyard in the middle surrounded by administration and




















classrooms opened to middle courtyard. Second part is linear form from north to south with two floors; the third part is closed play yard, See figure '9'.

Beams and columns are observed as clear elements in the building to show the functionality and strength of the building. The building has horizontal and vertical ribbon openings to introduce the indoor with outdoor and invite natural light inside the building. The sun breakers applied in the structure of the building from eastern façade to provide shading in the façade and enhance the occupant comfort as an element of modern architecture. The building materials used was reinforced concrete and concrete blocks for the masonry. The smooth façade with white color were applied in the façade as a symbol of simplicity based on modernist characteristic. The classrooms have large windows dropped from the slab to middle distance to the ground, invite natural light inside the building. The building has central courtyard to enhance the lighting and interrelation between outdoor and indoor. The sharpness of the edges between vertical and horizontal surfaces, horizontal and vertical lines create rectangular form for the plan with flat roof.

4. Discussion

Theoretical analysis and critics have been applied on both buildings regarding the uses of modernist character in them. The table shows the comparison between both buildings basis on the similar elements used in the both buildings.

Table 1. Shows the comparison of the modern architecture elements between two school building, Developed by Author.

No	Elements of Modern Architecture	Name of Building		Remarks
		Lefkosa Turk Lisesi(1962)	Şehit Ertugrul İlkokulu(1964)	
1	Orientation of the building			The direction is weak in both buildings because it should be East- West direction.
2	Clearness of structural elements (Beam and Columns)			Both buildings demonstrated clear structural elements.
3	Sharpness of the edges between vertical and horizontal surfaces			The perpendicular surfaces and sharpness introduced in both buildings.
4	Simple cubic form with flat roof			Both of the buildings metaphor simple cubic shape as design basis.
5	Interrelation between inside and outside for natural lighting			First building more successful in achievement of inside and outside relationship. Second building used corridors adjacent the classrooms.
6	Louvers or overhangs to provide shade in the facade			First building employed vertical louvers in eastern and partially southern facade. Second building used sun breakers only in eastern sides.
7	Material(using concrete ,steel and glass)			Both of the buildings used modern material such as reinforced concrete and white paints as well as transparent glasses for the windows. Second building used exposed stone facade in the entrance.
8	Horizontal and vertical ribbon openings			Both buildings used ribbon windows vertically and horizontally.
9	Courtyards		 	First buildings showed maximum interrelation between inside and outside through merging the outside and inside in interlocking shapes with several backyard and forecourts. The second building introduced closed inner courtyard to the building in first cubic part and in second part the building introduced to outside through corridors.

The findings show that both of the buildings had applied the main characteristic of modernist movement in architecture. Lefkoşa türk lisesi was successful in introducing the building as part of its surrounding through extension of the buildings and penetration in surrounded outside spaces. 'Ahmet Vural Bahaeddin' was aware about the elements of modernism and almost applied them in his building as a sample of 1950's model of modern architecture. The building had some shortage regarding the orientation of the building which didn't respect the climate of this Island and generally should be prolonged by east- west direction. In time we can see the widest façade are in the east- west direction. Şehit Ertuğrul İlkokulu had been introduced the

modernist architectural elements in the design but it took the vernacular architecture as a source of modernity as what Mediterranean Modernist architecture philosophy claimed (Al-Din, 2017). The central courtyard and opening the rooms toward the courtyard as well as the exposed stones in the façade of entrance are elements of vernacular architecture. The building was not successful partially in the orientation regarding the sun ecliptic same previous building. It has directed in the second part of the building (prolonged one) north to south which exposed the wider façade to the east west direction. The findings show the clear modernist architecture elements in educational buildings in Lefkoşa in first half of twentieth century. The buildings demonstrate that there are defects in respecting the environmental factors because of wrong direction of the building orientation which affected the building thermally and visually. Hence, the finding validates the hypothesis. The Hypothesis supposes that if the educational buildings holds the main indicators and elements of modern architecture from beginning of twentieth century until today, then that confirm the awareness and witness of the city in that period about modernism philosophy in architecture.

5. Conclusion

Lefkoşa as a capital of North Cyprus was one of the modern cities in the beginning of twentieth century. Several modern architectures had been designed by modernist architects that time. Many buildings changed under the order of clients afterward. Governmental buildings were less affected with these deformations and the modernist architecture were appearing in them more than other buildings. The paper conducted two questions to investigate that; how much modernist architecture elements presence in style of educational buildings in Lefkoşa? How modernist elements were functionally succeeded to be introduced in the design? To evaluate the effects of the modern elements for school buildings design on first half of 20th

century in Lefkoşa, the paper conducted comparing method between two modern architectural schools in the city of Lefkoşa. Identifying the main elements of modernist movement in architecture generally and see how they introduced in the design. The findings demonstrate that there is a clear modernist architecture in educational buildings inside Lefkoşa returns to the era of modernist movement in architecture for the first half of twentieth century. In the same time there are partial defects in respecting the environmental principles in those buildings which could reduce the efficiency of architectural elements in the buildings. As future study the investigation about another type of buildings (residential, commercial or even other governmental buildings) will fortify the findings of this study.

Acknowledgments

This research did not receive any specific grant from funding agencies in the public, commercial, or non-for-profit sectors.

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