

**ISTANBUL TECHNICAL UNIVERSITY ★ GRADUATE SCHOOL OF ARTS AND SOCIAL
SCIENCES**

**AN INVESTIGATION ON LIFE CENTER UNIT'S DESIGN CRITERIA
IN INCLUSIVE EDUCATION ENVIRONMENTS:
A CASE STUDY ON SERÇEV ACCESSIBLE VOCATIONAL HIGH SCHOOL**



M. A. THESIS

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Department of Interior Architecture

International Master of Interior Architectural Design (IMIAD)

JUNE 2017

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İSTANBUL TEKNİK ÜNİVERSİTESİ ★ SOSYAL BİLİMLER ENSTİTÜSÜ

**KAYNAŞTIRMA EĞİTİMİ MEKANLARINDA YAŞAM MERKEZİ
BİRİMİNİN TASARIM KRİTERLERİNİN BELİRLENMESİ ÜZERİNE BİR
İNCELEME: SERÇEV ENGELSİZ MESLEK LİSESİ ÖRNEĞİ**

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To my father,



FOREWORD

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Simge GÜLBAHAR
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ABBREVIATIONS

ADA	: Americans with Disabilities Act
CABE	: The Commission for Architecture and the Built Environment
CP	: Cerebral Palsy
CUD	: The Center for Universal Design
DDA	: Disability Discrimination Act
EFA	: Education for All
EIDD	: European Institute for Design and Disability
ICIDH	: International Classification of Functioning, Disability and Health
IDEA	: Individuals with Disabilities Act
IEP	: Individualize Education Programme
LRE	: Least Restrictive Environment
MEB	: Republic of Turkey Ministry of Education (Milli Eğitim Bakanlığı)
SEN	: Special Educational Needs
SENDA	: Special Educational Needs and Disability Act
SERÇEV	: Children with Cerebral Palsy Association (Serebral Palsili Çocuklar Derneği)
TOKİ	: The Housing Development Administration (Toplu Konut İdaresi)
TUIK	: Turkish Statistical Institute (Türkiye İstatistik Kurumu)
UD	: Universal Design
UN	: United Nations
UNICEF	: United Nations Children's Fund
UNESCO	: United Nations Educational, Scientific and Cultural Organization
UPIAS	: Union of the Physically Impaired Against Segregation
WHO	: World Health Organization



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AN INVESTIGATION ON LIFE CENTER UNIT'S DESIGN CRITERIA IN INCLUSIVE EDUCATION ENVIRONMENTS: A CASE STUDY ON SERÇEV ACCESSIBLE VOCATIONAL HIGH SCHOOL

SUMMARY

In Turkey, disabled people's interaction with their physical environment poses many difficulties for their daily lives. For those with special needs, social integration to society should be encouraged from early ages. Increasing the level of communication and creating an inclusive environment would boost disabled people's self-confidence and help them realize their true potential. In this context, the existence of an accessible environment is highly important for the disabled in terms of increasing their interaction with the society.

Accessibility in design is an approach not only embodying spatial and environmental solutions, but also promising a fair society. In this sense, access to educational facilities brings about a problem for children with special educational needs. Disability should be discussed in different context to help promote accessibility in educational environments accommodating broad and distinctive participants. Universal design, which is cultivated by existence of many other terms bringing affluence in literature for both accessibility and usability such as design for all, inclusive design, barrier free design, transgenerational design, stands on a unique position in discussion concerning the design requirements of educational environment to promote equality. In this sense, inclusive education environment should be provided through universal design principles to provide spatial equality for individuals as much as possible. Students with special educational needs can have strong relationship with their environment thanks to the increase in the efficiency and adequacy in their educational environments with a social-rehabilitation purpose.

In addition, support spaces have a significant position in inclusive education environment in terms of rehabilitating and teaching fundamental life skills to students with special educational needs. *Life center unit* is an enterprise in Ankara Gökkuşuğu Primary Schools, having a similar purpose. For this reason, some interviews and investigations were made in Ankara Gökkuşuğu Primary School, which demonstrated once again the necessity of support spaces in inclusive schools open for all –including students with special educational needs- to teach them fundamental skills. *Life center unit* is a place where students can gain empathy and social sensibility beyond regular education and socialize. Related to this topic, the idea of accommodating diverse physical abilities in same educational environment leads to raise the accessibility and usability concerns in inclusive education environment. Social integration, one of the purpose of inclusive education environment, is only possible with support spaces to rehabilitate the abilities of students with SEN. This foresees the need of design criteria for *life center unit* to define spatial requirements comprehensively. According to reviews on universal design and inclusive education, assessments are made to identify *life center unit* in terms of user type, type of use, period of use and spatial requirements. In this research, universal design is utilized to solve spatial problems in life center

units, both technically and theoretically, to put forward a design approach for future. A design guideline is prepared for further implementation of life center unit in addition to the development of a design project for *life center unit* of SERÇEV Accessible Vocational High School.

In this context, this thesis study, which focuses on “life center unit’s design criteria in inclusive education environment”, is comprised of six chapters:

In the first chapter, definition of the problem, scope of the thesis and methodologies used in the thesis are introduced.

In the second chapter, the idea of accessibility and usability are examined with references to the literature. Terms related to the idea of accessibility and usability, are introduced in order to provide further knowledge before in depth analysis of what universal design embodies. Following the definition of the terms, universal design is discussed in terms of its conceptual framework. Disability is analyzed in the context of universal design.

In the third chapter, inclusive education is introduced within the concept of special educational needs with focus on both its evolution and purposes. Inclusive education environment is also explained in terms of environmental requirements.

In the fourth chapter, existing *life center unit* in Gökkuşuğu Primary School is analyzed in terms of accessibility and usability. Further expectations from life center units are introduced with the help of the interviews conducted to identify the design approaches on life center unit.

In the fifth chapter, primitive design decisions on life center units are put forward with conceptual understanding of the project of life center unit in SERÇEV Accessible High School.

In the sixth chapter, concurrence between universal design and inclusive education will be discussed in order to take design decisions for inclusive education environments. Conclusion and recommendation are given for further implementations of life center units in order to raise awareness on equality and non-discrimination within an inclusive education environment.

KAYNAŞTIRMA EĞİTİMİ MEKANLARINDA YAŞAM MERKEZİ BİRİMİNİN TASARIM KRİTERLERİNİN BELİRLENMESİ ÜZERİNE BİR İNCELEME: SERÇEV ENGELSİZ MESLEK LİSESİ ÖRNEĞİ

ÖZET

Ülkemizde engelli bireylerin yapısal ve fiziksel çevre ile olan ilişkileri, çoğunlukla yaşamlarında zorlaştırıcı unsurlar barındırmaktadır. Toplumsal bağın güçlendirilmesi açısından sosyal entegrasyonun sağlanması, bireylere erken yaşlardan itibaren aşılmalıdır. Engelli bireylerin diğer bireyler ile iletişim ve etkileşim kanallarının açık hale getirilmesi ve empati ortamının yaratılması, onların gelecekte kendine güvenen ve potansiyellerinin farkında olan bireyler olmalarına imkan sağlamaktadır. Bu nedenle söz konusu bireylerin çevreleriyle olan etkileşimi onların sosyal hayata entegrasyonunu doğrudan etkilemektedir. Bu çerçevede; erişilebilir ve gerekli konfor koşulları sağlanmış mekânların tasarlanması engelli bireylerin topluma katılımları açısından önem taşımaktadır.

Erişilebilirlik, sadece mekansal ve çevresel ölçekte değil aynı zamanda, yaşamsal haklara ulaşılabilir olmayı hedefleyen bir anlayıştır. Bu bağlamda, engelli bireylerin eğitim hakkı da üzerinde durulması ve çözüm geliştirilmesi gereken önemli bir konudur. Engellilik tanımı farklı konseptler içinde tartışılarak ve engelli bireylerin özel eğitim ihtiyaçları karşılanarak eğitim almaları sağlanmalıdır.

Erişilebilir tasarım, herkes için tasarım, kapsayıcı tasarım, engelsiz tasarım, nesillerarası tasarım gibi zincirlenerek doğmuş söylem ve yaklaşımlar, benzerlik ve farklılıklar içermektedir. Bu yaklaşımlar arasında 'evrensel tasarım', özel eğitim mekanlarının ihtiyaç duyduğu kalitenin sağlanmasına yönelik eleştirilere olumlu yanıt vermektedir. Evrensellik tanımı, eşitlik anlayışını beraberinde getirmektedir. Dolayısıyla engelli bireylerin eğitim olanaklarına, diğer bireylerle birlikte eşit erişim sağlanması gerekliliği ön plana çıkmaktadır. Özel eğitim ortamlarının mekansal kalitesini artıracak tasarımların geliştirilmesi bu eşitliğin sağlanmasına yardımcı olmaktadır. Bu bağlamda yaygınlaştırılması düşünülen kaynaştırma eğitimi kurumlarının, eğitim müfredatlarındaki düzenlemelerle eş zamanlı olarak, mekansal kalitenin de artırılması için çalışmalar yapılması gerekmektedir. Ayrıca, kaynaştırma eğitimi veren okullarda eğitim gören engelli öğrencilerin okulla ve çevreleriyle ilişkilerini destekleyen, sosyalleşme ve rehabilitasyon işlevi gören mekanların, eğitim yapıları içinde yer alması önem arz etmektedir.

Kaynaştırma eğitimi veren okullarda uygulanan tasarım kararları, barındırdığı kullanıcı profiline ihtiyaçlarına cevap verebilmesi açısından önemlidir. Bu okullardan biri olan ve SERÇEV'in (Serebral Palsili Çocuklar Derneği) iştirakiyle hayata geçirilen Gökkuşuğu İlköğretim Okulu'nda, zaman içerisinde, özel eğitim gereksinimi olan öğrencilerin ihtiyaçları, 'yaşam evi' biriminin oluşumunu desteklemiştir. Yaşam evi birimi, engelli öğrencilerin yaşam becerilerinin geliştirilmesi ve yaşatları ile aralarındaki iletişim ve diyalog kanallarının kuvvetlendirilmesi açısından önemli bir misyona sahiptir. Serebral Palsi'li bireylerin buldukları mekanla olan iletişimlerinin

desteklenmesi, onların toplumla ve çevreleriyle olan ilişkilerini güçlendirmektedir. Bu amaçla Ankara'daki Gökkuşuğu İlköğretim Okulu'nda yapılan görüşmeler ve yaşam merkezine ilişkin gözlemler bu mekanın; okulda tüm öğrencilerin birbiriyle kaynaşması esasına dayalı ve özel eğitim alan öğrencilerin günlük aktiviteleri gerçekleştirebilecekleri, dersler arasında mola verebilecekleri ve öğrencilerin refakatçilerinin de kullanımına açık bir mekân olarak tasarılmasının gerekliliğini ortaya koymuştur. Kaynaştırma eğitimi veren bir okulda bu birimin görevi, fiziksel ve/veya zihinsel engelli öğrenciler için bir öğrenme ve sosyalleşme mekanı olmakla birlikte diğer öğrenciler için bir empati kurma ve sosyal bilinç kazanma alanıdır. Kaynaştırma eğitiminde aile bireylerinin katkısı da önem taşımaktadır. Bu bağlamda yaşam merkezleri, ailelerin katılımını sağlayacak, özellikle engelli öğrencilerin sosyalleşmelerine yardımcı olacak bir çevrenin yaratılması adına önemlidir.

Bu çerçevede, SERÇEV'in iştirakiyle tasarlanan ve TOKİ tarafından inşası sürmekte olan 'SERÇEV Engelsiz Meslek Lisesi Projesi'ne ulaşılmıştır. 'SERÇEV Engelsiz Meslek Lisesi Projesi', Ankara Çayyolu mevkiinde konumlandırılmış olan bir kaynaştırma lisesidir. Proje; Serebral Palsili öğrencilerin sosyal yaşama entegrasyonunu sağlamak amacıyla yaşlıları ile aynı mekânda eğitim ve öğretimlerine devam etmesi düşüncesi üzerine geliştirilmiş önemli bir sosyal sorumluluk girişimidir. Konu ile ilgili olarak SERÇEV (Serebral Palsili Çocuklar Derneği) yetkililerinden bilgi alınmış ve inşaat alanı ziyaret edilmiştir. Bu projenin Türkiye'de kaynaştırma eğitimi vermek anlamında bir ilk olma özelliğinden dolayı, İstanbul'da yer alan muadil okullar da incelenmiştir. Bu çalışmalarla eş zamanlı olarak yapıyla ilgili, planlama kararları ve mekan kullanımının başta engelli öğrenciler olmak üzere, diğer kullanıcılar ve refakatçiler için ne derece erişilebilir, güvenli, konforlu ve iletişim kurmaya elverişli olduğu analiz edilmiştir. Kaynaştırma eğitiminden yararlanan özel eğitim gereksinimli öğrencilerin, farklı sağlık durumları ve fiziksel kabiliyetleri göz önüne alındığında, eğitim yapılarının mekansal yeterliliklerinin yanı sıra, kaynaştırma eğitiminin destekleyici birimlerinin kullanım potansiyeli arttırmak için sahip olması gereken yeterlilikler de sorgulanmalıdır. Bu bağlamda, yaşam merkezlerinin etkili bir biçimde kullanılması için evrensel tasarım kriterlerine ve yaşamsal ihtiyaçlara cevap verecek şekilde tasarlanması önem arz etmektedir.

Bu çalışma kapsamında, evrensel tasarım ilkeleri ve kaynaştırma eğitimi üzerine yapılan araştırmalar doğrultusunda, mevcut bir örnek olarak 'Gökkuşuğu İlköğretim Okulu Yaşam Evi (Merkezi)' ve halen yapım aşamasında olan 'SERÇEV Engelsiz Meslek Lisesi Yaşam Merkezi Birimi' üzerine literatüre dayalı ve alansal gözlem, görüşme, anket vb. yöntem ve teknikler aracılığıyla yapılan inceleme, araştırma ve analizler ışığında, bu birimin kullanım amacı ile ilgili çıkarımlar elde edilmiştir.

Bu bağlamda; ülkemizdeki yaşam standartları, sosyal ve kültürel ortamın sonucu olarak hayata geçirilen yaşam evi biriminin, evrensel tasarım ilkelerine uygun bir şekilde tasarlanması ve gelecek projelere altlık oluşturması için tasarım kriterlerini belirlemek bu çalışmanın temel amacını oluşturmaktadır.

Tez çalışması, altı bölümden oluşmaktadır:

Birinci bölümde; problemin tanımı, amacı ve kapsamı açıklanarak, araştırma süresince başvurulan yöntemlere değinilmektedir.

İkinci bölümde; erişilebilirlik ve kullanılabilirlik kavramlarının yapıları çevrenin tasarlanmasındaki rolüne değinilmektedir. Bu kavramların dahil olduğu terimler açıklanarak, evrensel tasarım ile ilgili bilgi birikimi üzerinde durulmaktadır. Ayrıca; evrensel tasarım kavramının, günümüzde pratik anlamda ortaya koyduğu sonuçlar

irdelenmekte ve engellilik kavramı farklı açılardan ele alınarak evrensel tasarımla ilişkisi değerlendirilmektedir.

Üçüncü bölümde; engellilerin eğitim hakları üzerinden, dünyada bir özel eğitim gereksinimi olarak 'kaynaştırma eğitimi'nin oluşumu ve hedefleri açıklanmaktadır. Özel eğitim gereksinimli bireylerin eğitimleri için yasal anlamda yapılan çalışmalarla, özel eğitimde bireyler arasındaki ayrımcılığın olmaması adına oluşturulan ortak yaklaşımlara değinilmektedir. Özel eğitimin Türkiye'de dikkate alınmasıyla birlikte kaynaştırma eğitimi üzerine yapılan çalışmalar ve bu eğitimin verildiği yapıların sahip olması gereken nitelikler anlatılmaktadır. Destek birimlerinin, kaynaştırma eğitimi içindeki yeri ve önemine dikkat çekilerek, sahip olması gereken mekansal gereksinimler örnekler üzerinden açıklanmaktadır.

Dördüncü bölümde; yaşam merkezi biriminin kullanıcı profili Serebral Palsili bireyler dikkate alınarak değerlendirilmektedir. Gökkuşağı İlköğretim Okulu'ndaki yaşam merkezi biriminin mekansal analizi yapılarak, bu analizden elde edilen veriler ile okulda yapılan görüşmeler sonucunda gelecek uygulamalarda hangi amaçlar doğrultusunda tasarım kararları alınması gerektiği üzerinde durulmaktadır.

Beşinci bölümde; yapımı 2017 yılında devam etmekte olan SERÇEV Engelsiz Meslek Lisesi'ne ait yaşam merkezi birimi üzerinden, bu mekanın tasarlanırken göz önünde bulundurulması gereken tasarım kararları aktarılmaktadır. Bu kararlar bağlamında evrensel tasarım prensipleri doğrultusunda iç mimarlık disiplini çerçevesinde yaşam merkezi birimine ait mekansal düzenlemelere yönelik yaklaşımlar önerilmektedir.

Altıncı bölümde; sonuç ve öneriler yer almakta ve yaşam merkezi biriminin tasarımında, evrensel tasarım ilkeleri ve kaynaştırma eğitiminin gerekliliklerinin bağdaştırılması üzerinde durulmaktadır. Yapılan anket çalışması sonuçlarına göre, yaşam merkezi biriminin, verimli bir uygulama olduğunun ortaya konulması ile bu birimin ilgili yönetmeliklere girmesi için gerekli teşebbüslerin başlatılması ve mekansal gereksinimlerinin tüm kullanıcıları kapsayacak şekilde tariflenmesinin gerekliliğine vurgu yapılmaktadır. Engelli bireylerin diğer bireylerle eşit eğitim hakkına sahip olarak ve ayrımcılığa uğramadan eğitim ortamlarında gereksinimlerini karşılamaları için gelecekte inşa edilecek yaşam evlerinin tasarım kriterlerinin belirlenmesi amacını taşıyan bu çalışmanın, ileride bu konu ile ilgili yapılacak çalışmalara katkı sağlayacağı düşünülmektedir.



1. INTRODUCTION

All individuals in the society have educational rights without any restriction or discrimination by force of human rights. For this reason, related authorities must provide an adequate environment and equal opportunities within educational environments for a better society. Furthermore, creation of an inclusive physical environment can ensure the integration of disabled people to society by raising awareness among individuals. In addition, negative thoughts upon disability should be altered for a well-communicated society by providing appropriate solutions, and in doing so raising disabled people's life standards.

Demographic results about disability show us that the ratio of literate disabled people is under 50% in Turkey. According to TUIK 2010 reports, the ratio of people having multiple disabilities (over 15 years old) who have jobs that are not physically challenging reaches 53% (TUIK 2016). These numbers obviously tell us that the disabled people have been and can be employed in the country. For this reason, governments should promote vocational practices for disabled people in society.

Human rights bring equality, which brings inclusion and universality into our discussion. Educational environments, which is the first place that people can associate themselves with other citizens, must be arranged with a principle of equal accessibility in order to provide social justice. Universal approaches for designing educational environments promise full inclusion without discrimination and segregation.

1.1 Definition and Aim of the Problem

It is an important issue to provide fundamental educational environments for disabled people. Socio-economical imbalance among individuals, cultural differences and intellectual levels may affect educational participation of citizens. Although utilization of the educational facilities without any physical restrictions is a fundamental human right, in reality people may have difficulties reaching them easily or participating completely due to personal issues. It is important that they must feel included within

the society and public territory where they are living. This issue has brought together professionals to find solutions, which would make educational environments more accessible, and increase the amount of participation in education. Therefore, discussions about the conditions of disabled people have become significant in terms of raising awareness of their existence in the society.

The existence of people with distinctive disabilities raises the issue of designing educational facilities in different ways, which brought about the notion of special education in the first place. In 1978, Warnock Report published in UK stated that students who have disability with diverse difficulties such as physical disability, mental disability, emotional and behavioral problems, medical care necessities and health problems, read-speak-write etc. require special education (OECD, 2000). Decisions were declared by many international conventions in line with the reports, and regulations stating that education is an essential human right, and for this reason, special education is a requirement for each country, which needs to prepare curriculums and regulations on their own.

Inclusive education, one of the special education approaches, is based on a agenda which promotes inclusion among students. Environmental necessities for a space that is inclusive become noteworthy as a consequence of regulations held by Republic of Turkey Ministry of Education (MEB) to promote special education for people with special educational needs (SEN). The quality of the educational environment brings satisfaction in users in the education environment and helps attracting students to the learning environment. Social integration of disabled people to the society can be realized with the contribution of special education. Moreover, individualized educational programme (IEP) has been improved so that students can be treated in line with their individual capabilities. Individualization of the curriculum gives opportunity to students, especially those with disabilities, to unleash their true potential. Such progresses in education have been in question, analyzing inclusive education environments.

Accommodating diverse disability groups is a challenge in special education in terms of curriculum when in comparison to the mainstream education. The purpose of the special education is to ensure the reintegration of students with disabilities (visual, hearing, mental or physical) to the society. In this context, it can be said that social integration, one of the main purposes of the idea behind inclusive education

environment, is only possible with support spaces to rehabilitate the students with SEN. '*Life center unit*' is one of these support spaces, newly put into practice for the sake of promoting inclusive education schools in Turkey. '*Life center unit*' takes responsibility for increasing the communication among users including disabled students, non-disabled students, their parents, teachers, and the school staff.

Life center unit is a socio-educational support space in inclusive education schools that aims that students with multiple disabilities constitute strong communication with their peers; and it fulfills parents' needs and demands for a suitable space with special care facilities. For this purpose, the interviews, observations, and investigations have been conducted with the users of Gökkuşuğu Primary School, which is considered an inclusive education school in Ankara, Turkey. These studies demonstrate that supportive educational spaces is a necessity for all users in the school, especially students with multiple disabilities, responding their daily needs and social participation within school environment. Thus, *life center unit* is a socializing space for students with SEN and a place that student can gain empathy and social sensibility beyond traditional learning.

Facilities about inclusive education in Turkey have been mostly improved for primary education, but facilities for secondary and higher education stay weak in comparison to primary education. Spatial facilities in inclusive education schools are in a critical position with regards to accepting all users in the same environment. Continuum of a qualified education for disabled people is important in terms of their participation in society. Therefore, SERÇEV (Children with Cerebral Palsy Association) Accessible Vocational High School is an opportunity for them to continue their education. In this sense, this requires finding a proper solution on how to design a vocational high school environment responding to inclusive education expectations and answering the needs of students with SEN and Cerebral Palsy (CP). Thus, *life center unit* comes out to fulfill these rehabilitation needs in inclusive school environments. This requires a need to define design criteria for *life center unit* to design its spatial requirements comprehensively and for students with different bodily and mentally disorder.

1.2 Scope of the Thesis

This thesis is about defining the life center unit's design criteria according to universal design principles in vocational inclusive education environments for students with

SEN and especially students with CP. In addition, the study investigates the existing life center unit's conditions in inclusive education environments in Turkey. The SERÇEV Accessible Vocational High School is the case study of this thesis study.

This thesis includes six chapters:

In chapter 1, the general conditions of the educational facilities are criticized in terms of their accessibility and usability to maintain educational rights of disabled people. In addition, the aim and scope of the study are mentioned and the methodology is introduced in this chapter.

In chapter 2, the terms on accessibility and usability are investigated as a background structure for universal design. In the global context, the idea of accessibility and usability are taken into account with the concepts of barrier-free design, accessible design, trans-generational design, inclusive design and design for all. Moreover, universal design principles and practices are mentioned in this chapter through its relation with disability phenomenon.

In chapter 3, the special education notion is introduced as an education method for student with SEN. Conceptual framework of inclusive education is discussed through legislations and regulations both with an international and national approach and the purposes of inclusive education are explained with a brief summary of inclusive education in Turkey. In addition, spatial requirements in inclusive schools are analyzed and supportive departments are introduced within the scope of special education for referring to the life center unit as a support space in Turkey.

In chapter 4, the life center unit of the Gökkuşığı Primary School in Ankara is analyzed in relation to its spatial organization and mission in Turkey. Spatial failures that have been found out at the life center unit of Gökkuşığı Primary School during field visits, observations and interviews are described according to the universal design principles. Current practice of the life center unit of SERÇEV Accessible Vocational High School is simply mentioned with its spatial problems. In addition, current statues and further goals for life center units are analyzed to develop better inclusive education environments for the sake of social integration of students with SEN. In this scope, the user profile is also mentioned to eliminate participating problems in order to design a proper space for a more welcoming sociable environment.

In chapter 5, the life center unit in SERÇEV Accessible Vocational High School is analyzed with the help of interviews and questionnaires with the SERÇEV volunteers detailing spatial use and planning decisions, considerations for students, their accompanies and other users. Designing the life center unit according to zones such as public and private is recommended for further practices to improve use and spatial performance. In this sense, spatial necessities and requirements are discussed in terms of furniture, lightings, materials, color, texture and ergonomics and so on to improve space performance and increase human functioning and capabilities in relation to universal design principles. Then, design criteria for life center unit are defined thanks to investigations carried in relation to inclusive education and universal design.

In chapter 6, the necessity of co-operation of different professionals is stressed in order to clarify life center unit's position in inclusive education environments. Design criteria of life center unit are recommended to create a non-discriminatory space in inclusive education environment.

1.3 Methodology of the Thesis

This thesis intensely reconsiders literature reviews by investigating and analyzing the relation between universal design and inclusive education. Besides, national and international educational institutions, which are designed for diverse disability groups, are investigated through methods such as analyzing other institutions, site visits, interviews, note-taking, sketches and documentation (photography, video, documentary and so on).

Scope of literature review is fortified by publications from international organizations and hard copy and soft-copy sources referring to topics such as ergonomic, accessibility, universal design, design for disabled people and so on. Besides, different approaches on inclusive education from US and UK are also integrated into the study to understand the notion of inclusive education.

In addition to the interviews and questionnaires with people having Cerebral Palsy and their respective families, there are other interviews and questionnaires with managers of educational institutions and health professionals (doctors, physiotherapist, nurses etc.) to have further awareness on people having physical and mental disabilities to define user profile and their needs according to universal design principles and

inclusive education necessities. For this reason, the cooperation with SERÇEV (Children with Cerebral Palsy Association) were an ongoing activity during the thesis study. Information gathered from the site visits and data processed from other gatherings are also used to define design criteria of life center unit in inclusive education environment in Turkey.



2. AN OVERVIEW ON THE NOTION OF UNIVERSAL DESIGN

Thoughts on human rights came into prominence after World War II, so that United Nations (UN) approved Universal Declaration of Human Rights on 10 December 1948 proclaiming fundamental human rights. Thus, providing human rights and fundamental freedom in an equal way became significant point for diverse professions. After war discussions about physical environment and their life standards disabled people have begun because of rise on the members of disabled people in society. Distributing freedoms and rights gain speed, especially in 1990s, because of increased awareness on disability (Table 2.1). All individuals must adapt to built-environment created by us. It is a right for people having no restriction to express themselves in their living environment. Design solutions for providing to people social integration and consciousness on daily life rise as a question with regard to idea of equality for all. Early studies on human rights in UK and US ensured achievements responding people's fundamental needs.

Fundamental debate of universal design is based on the idea of accessibility and usability. Different concepts evolved around these terms and planted notion of universal design for constructing a right-based structure in design.

Table 2.1 : Disability studies in worldwide.

1964	Civil Rights Act
1968	Architectural Barriers Act
1975	The UN Declaration on the Rights of Disabled Persons
1975	The Union of the Physically Impaired Against Segregation (UPIAS)
1980	International Classification of Impairments, Disabilities, and Handicaps (ICIDH)
1990	American with Disabilities Act (ADA)
1990	Individuals with Disabilities Act (IDEA)
1995	Disabled Discrimination Act (DDA)
2001	WHO (International Classification of Functioning, Disability and Health ICF)
2007	The UN Convention on the Rights of Persons with Disabilities

2.1 The Idea of Accessibility and Usability in Universal Design

Sustainability of human rights is promised by “equality” principle that is approved by universal declarations in the world. Based on that, physical environment that must responds diverse needs in the society can contribute social justice in question when necessities considered individually. Solutions of the design problems are expected to put forward a well-qualified physical environment, where all individuals are equally accepted.

After World War I, countries came across a problem that results from the social imbalance in the society. That situation has forced the countries to develop standards and regulations to use physical environment more effectively since the population of physical disabled people increase perpetually. World began to witness a social change after 1925 due to war results, especially the changes of people’s physical abilities; so that it attracts attention about making initiations on promoting environmental quality of living spaces (Figure 2.1). ‘Physically disabled’ appeared in 1925 when impacts of World War I started to become visible. Moreover, this formation in society became a design matter, which leads designers to think on how a space promises to people more usable and accessible environment than before. Thus, characterizes of society started to shape environment necessarily.



Figure 2.1 : An ad in a magazine about prosthetics that are demands after World War I (Fischer & Meuser, 2009).

Following change socially and politically in the world through World War II has led countries to assure human rights for spreading equal opportunities to all individuals’ lives in the world. Equality under debate of human rights started to be legalized by

countries with special standards to protect their people's fundamental rights in front of laws. Governments start to consider the positions of equality in many fields, especially in living environment. The high population of disabled people reinforces them to find solutions providing a well-qualified environment. Thus, progresses upon human rights point at a new design matters, which consider life expectancies of individuals without discrimination or stigmatization. These legislation movements contribute social participation of disabled people into society in order to sustain individuals' lives in the same physical environment without any discrimination. Furthermore, quality of design product or space should meet with users by eliminating 'accessibility' and 'usability' problems.

1950's and later years the world witnessed a global change in terms of raise on elder and disabled population. This change in world resulted in failures about use of physical environment by those populations. Designed products or spaces were expected to fulfill users' needs. Existing buildings has started to examine about its usability and accessibility since disabled people have difficulties in the physical environment. Furthermore, necessities start to legalize due to residential problems. This situation excludes disabled people to adapt into society socially, because of accessibility issues that occur in public spaces. The story beginning with an approach that is the adaptation of the buildings in order to create better living environment for people having physical disabilities reveals universal design approach.

Moreover, design turns to an apprehension approach in order not to give chance to discrimination or stigmatization against disabled people. According to this approach, it should be discussed accessibility and usability in design. Hacıhasanoğlu (2003) defined that accessibility is a term that all individuals may reach and access everywhere, usability is a term that all users may use a product or equipment; so that, both accessibility and usability must consider together by designers.

Physical environment designed and shaped according to users' needs that are revealed in time. Debates on requirements of physical environment are started to discuss about accessibility and usability of disabled people's residential problems. Accessibility and usability problems of residents is followed by the same problems of public space. In this context, there are concepts which are blended each other. Improved technology is cause of differentiating notions to create new approaches in time that can develop. However, all approaches derived from different notions with same main idea.

Moreover, those years also had industrial developments, which may contribute design approaches responding people’s need effectively.

The main point of social changes including both aging and disability problems must care as a potential matter of society. Getting difficulties to accommodate in built environment lead to design approach that aims removing barriers in physical environment, because of this transformation in the society. Thus, people having bodily problems exclude themselves from public areas in this situation, which effects their participation in society. In this sense, ‘*separate is not equal*’ doctrine which established in 1954 gives a start to legalization process of design to spread the equity on usability and accessibility over all areas (Preiser & Ostroff, 2001).

Creating environmental opportunities in public space without excluding the people who have restricted physical ability effects people’s social participation positively. Thus, sustainability of human rights is provided with the maintaining social justice in society. Supporting social participation of people having disabilities generates different terms, which are affected by the standardization and legalization process from the post-war until today. Complex relation of these terms creates awareness to put into practice new spatial solutions for accessibility and usability issues while keeping human factors as the focus in the terminology. Accessibility and usability can separately focus to the relation between user and environment when user get into the boundaries of the environment (Figure 2.2).

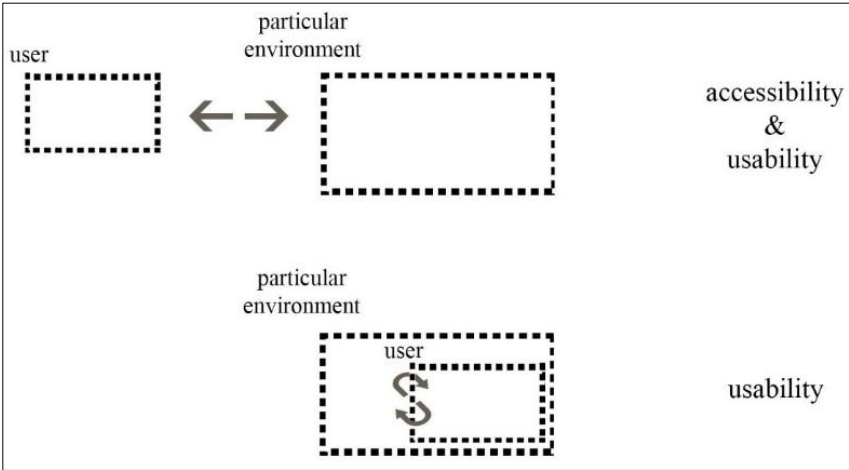


Figure 2.2 : Accessibility and usability relations in a particular environment.

2.2 Design Approaches Related to Universal Design

Different design approaches focused on the idea of accessibility and usability have introduced in this section. These design approaches chain each other in evaluation process of idea of accessibility and usability.

2.2.1 Barrier-free design

Aging and disability problems that are released by after-war results are directed design approaches for rehabilitation of the physical environment. Thus, barrier-free concept gained importance for making accessible environments after the social regeneration in 1945 (Fischer & Meuser, 2009). People firstly came across difficulties in their houses, in other words in their living environment (Figure2.3). The expectations changed through having a comfortable house bring up a new design quest/mission/goal, which should be respond people's needs with an adaptation of their living environment.



Figure 2.3 : Everyday barriers (Fischer & Meuser, 2009)

Besides many descriptions, barrier free concept intends to make a built environment designed temporarily for easing lives of people with disabilities. It can also be described as a rehabilitation of existing environment for people with disabilities as well. However, it would be unsuitable using the term of ‘building for disabled people’ (Fischer & Meuser, 2009). It carries an understanding that is reimbursed the environment to accessible, and it is not rejection of the idea of creating environments with non-barrier. The initial term used around the world was “barrier free design”, and it is related to effort that began in the late 1950s to remove barriers for “disabled people” from the built environment.

2.2.2 Accessible design

Rehabilitation of living environments involved another awareness after the barrier free design approach. Suggestions were firstly established on the idea of adapting environment to new physical condition of users, and then it involved another approach which products and environments have no adapting solutions or modification. Concerns about living environment of disabled people jumped to public environment and products that they are using. Problems that disabled people come across in public spaces show that researches on usability of existing environment help to authorities to lean on producing more accessible environment. In the context of social integration among people, accessibility focuses on person – environment relationship (Iwarsson and Stahl, 2003) since social participation primarily effects disabled people to access public environment.



Figure 2.4 : Accessibility problems in daily life (Url-3)

Admitting that disability is a social issue beyond describing inefficient bodily abilities of a person gives a start making legislations and regulations about social development. People get an acquisition having design with equal accessibility and usability due to equality discourse. People with disabilities are satisfied with accessible environment derived from things such as legal mandates, standards or necessities to create accessible design discourse (Erlandson, 2008: p.18). Ostroff states that accessible design became positive term than barrier free design in 1970s and connected with legislated regulations (Preiser & Ostroff, 2001). Accessible design is considered a kind of specialized design that is regulated by some design standards and rules (Erkılıç, 2011).

Accessible design is a situation of designing barrier-freely with wider user population and finalized product. Regarding this statement, accessibility constitutes the idea of space production to legal dimension by standardizing disabled user definition. Nussbaumer (2012) states that the accessible design adopts all barriers by removing and letting access to make it suitable for specific group, which consists of disabilities.

2.2.3 Transgenerational design – lifespan design

Social changes that became visible in 1950's give new dimension into design both existed and on-going. Demographical results about aging in Europe shows the raise of the elder population is the most important social changes nowadays. This leads the companies into a vision of "design for aging" directing the elder population's desires (Steinfeld et. al, 2012). Raise in older and disabled population fosters the market to produce transgenerational products. Consequences of bodily limitations in older age make the idea of design appealing/attractive to people's future life by reconsidering existing situation of our surroundings.

This approach should not be understood as user profile includes older population. Age is the focus point of this understanding for which design suits. Transgenerational design should not be considered through dictated solutions such as standards, principles or dimensions, which design must obey in order to produce "accessible" products. Likewise, it looks for responsiveness to touch users' life with design utterly focusing functional products and environments (Nussbaumer, 2012).

In that point of view, lifespan design looks for the circumstances of created by age groups to how they can take place in the process of design. It does not restrict user type with older consumer; it covers all age main life needs to advocates the design products (Nussbaumer, 2012). Design products meet the needs of users' characteristics according to their ages.

2.2.4 Inclusive design

Social changes become a global problem in the world as a design challenge after the World War I and II. Social changes by aging occur the problems about accessibility and usability in daily life. Needs depending on age effect qualification and utilization of using products. Interaction between product and user changes according to the amount of user capability how they accommodate the product or physical environment.

Physical ability of a person changes while they are aging, and consequently reaction of user to a service will be changed (Figure 2.5). Aging matters occur health issues, generally handicapped results, and restrain the physical environment to any people having disability and minor impairments. Furthermore, losing physical disabilities because of aging leads design products and environment to adjust them for our daily demands. It shows that products start excluding user because the accessibility to products is refused by user's physical capability or aging demands. Diversity on aging, emerging as a global issue, pushed the idea of design to find sustainable and economical solutions to contribute the market problems emerged.



Figure 2.5 : Everyday design problems according to age differences (Keates and Clarkson, 2003).

Coleman (2001) is stated that as a result of population aging bringing out the matter that is not pointed by laws, collecting information, provide a satisfaction market care for inclusive design, maintain prototypes of designs that can foster the marketplace by suggestions of well-qualified life and keeping up with changing lifestyles of aging come out as a necessity. We can say that inclusive design is a design approach, which is mainly occurred by economical concerns of the companies later on. Efforts to reach more consumers in the market have gained meaning mutually by understanding desires and expectations of user population accurately. Demographical alterations on aging society pushed the idea of design to find sustainable and economical solutions. It is a business necessity rather than a choice anymore (Keates and Clarkson, 2003).

In a common perspective, diversity in society in terms of user capability of a service or product excludes the users from the design. Service or product requirements are not always helpful the users in terms of responding needs in daily life. In daily life, obstacles people came across lead them in discriminated situation and also stigmatized. Inclusive approach in built environment finds the solution for increase the

participations in society freely and providing equality resisting the aging problems. Nussbaumer (p:30, 2012); states that inclusive design is linked with the description of products and environments that keep level of life and independent living for an aging population, and because supportive or medical devices had become expensive stigmatizing and unpleasant. Design requirement of a service or product keep people away from using it, because of difficulties in usage, which cause lower user number later. However, inclusive design is an activity to have extended user number as possible. Quality places in design process to heart of the activity excluding any adaptation action in future by pushing limits of the design (Keates and Clarkson, 2003). Persson et al. (2014) stated a definition of British Standard Institute which published in 2015 on inclusive design that “the design of mainstream products and or services that are accessible to, and usable by, as many people as reasonably possible on a global basis, in a wide variety of situations and to the greatest extent possible without the need for special adaptation or specialized design.”.

Especially in UK, the social transformation has an effective reaction on public place and mainstream products, and inclusive design discourse was born in UK as a reaction of this social transformation. Commission for Architecture and the Built Environment (CABE)¹ in UK published a report about the principles of inclusive design in 2006 (Table 2.2). Inclusive design promotes equal usage to provide social inclusion by involving the maximum amount of user in the design process. Creating environment as respond people’s demands as efficient is good design. Everybody has an impediment about his/her mobility persistently or temporarily. Inclusive design heed to demands of the diversity in the society to maintain the balance of different requests, so it creates flexible environments that can adapt changing needs and uses. . Discover solution without disabling barrier, may exclude some user, but in use, no one should separate by the purpose of usage. Designers should give effort to find non-separated and realistic solution for a problem, *there is not one solution work for all*. Information of product or services can be perceptible, so that everyone can use confidently, easily and safely (CABE, 2008).

¹ CABE (The Commission for Architecture and the Built Environment) is the government's advisor on architecture, urban design, and public space in UK. As a public body, they encourage policymakers to create welcoming places. They help how can be applied more influence with responding high demands in built environment. It is merged with Design Council in 2011.

Table 2.2 : Five principles of inclusive design (adapted from Nussbaumer, 2012).

People	Place people at the heart of the design process
Diversity	Acknowledge diversity and difference
Choice	Offer choices where a single design solution cannot accommodate all users
Flexibility	Provides for flexibility in use
Convenience	Design buildings and environments that are convenient and enjoyable to use for everyone

Nussbaumer (2012, p. 32) explains CABE's principles of inclusive design that "remove the barriers that create undue effort and separation". Inclusive design welcome all people and gives them a way to get interact with the built environment equally, confidently and independently (Nussbaumer, 2012, p. 32). Inclusive understanding in design collect all user in the same purpose with a variety of adjustments (Figure 2.6) while "creating new opportunities to deploy creative and problem solving skills" (Nussbaumer, 2012).



Figure 2.6 : Tripp Trapp Chair (Url-2)

"An inclusively designed product should only exclude the users that the product requirements exclude." (Keates and Clarkson, 2003: p69). Even though people do not have any impairment or health problems, they may be excluded by design. All of this situations cause exclusions in design. Social participation is one of the other important concerns in inclusive design. Inclusive design basically is related to age-capability concerns.

2.2.5 Design for all

It is a controversial subject of usability of designed product, building, or space. “Design for all”, which is evaluated in this context, was put forward as a result of the sub-terms under the universal design. It was born in Europe with a broader definition that is introduced by The European Institute for Design and Disability (EIDD) “the design for human diversity, social inclusion and equality” (Persson et. al., 2015).

Design for all includes design that is more inclusive. Keates and Clarkson describes design for all as a philosophy “encourages designers to consider the needs of wider range of users and typically results in products designed for largest possible population, but not the entire population.” (Keates and Clarkson, 2003: p55).

2.3 Universal Design

According to historical development tried to describe above, universal design approach sprouted the result of World War II. Universal design has a strong infrastructure due to the relation between user and space is investigated in many theoretic and practice-based queries. These studies give universal design a rich theoretical infrastructure.

There is no certain way to improve our living conditions for better physical environment in future. After many obstacles that people come across in their life, solutions can find out by professionals in order to make life easier. Equity in public space where socialization is main issue provides a maintenance of the balance among its participants. Pluralist characteristics of public space have a tendency to dissociate the participants regarding accessible from the environment. Diversity in society gives a challenge in public space to satisfy the majority in terms of responding their needs.

Ron Mace² first used universal design as a term, and he defined it as “the design of products and environments to be usable by all people, to the greatest extent possible, without the need for adaptation or specialized design.”(The Center of Universal Design³, 1997). Non-adaptable and non-specialized characteristic reveals universal

² Ronald L. Mace is an American architect and head of the Center of Universal Design (CUD).

³ The Center of Universal Design (CUD) was established as a part of College of Design at North Caroline State University in 1989. The Center focus on the research developing universal design to with renovation and rehabilitation solutions are developed for design practices considering diverse user needs in order to assist professionals internationally.

design without pointing a specific group or person, and make it unique and incentive for participants, so that the principles of universal design present a frame to understand universal design discourse (Table 2.3).

Table 2.3 : The Principles of Universal Design (Copyright 1997 NC State University, The Center for Universal Design).

Principle 1:	<p>Equitable Use: The design is useful and marketable to people with diverse abilities</p> <p>Guidelines: 1a. Provide the same means of use for all users: identical whenever possible; equivalent when not. 1b. Avoid segregating or stigmatizing any users. 1c. Provisions for privacy, security, and safety should be equally available to all users. 1d. Make the design appealing to all users.</p>
Principle 2:	<p>Flexibility in Use: The design accommodates a wide range of individual preferences and abilities.</p> <p>Guidelines: 2a. Provide choice in methods of use. 2b. Accommodate right- or left-handed access and use. 2c. Facilitate the user's accuracy and precision. 2d. Provide adaptability to the user's pace.</p>
Principle 3:	<p>Simple and Intuitive Use: Use of the design is easy to understand, regardless of the user's experience, knowledge, language skills, or current concentration level.</p> <p>Guidelines: 3a. Eliminate unnecessary complexity. 3b. Be consistent with user expectations and intuition. 3c. Accommodate a wide range of literacy and language skills. 3d. Arrange information consistent with its importance. 3e. Provide effective prompting and feedback during and after task completion.</p>
Principle 4:	<p>Perceptible Information: The design communicates necessary information effectively to the user, regardless of ambient conditions or the user's sensory abilities.</p> <p>Guidelines: 4a. Use different modes (pictorial, verbal, tactile) for redundant presentation of essential information. 4b. Provide adequate contrast between essential information and its surroundings. 4c. Maximize "legibility" of essential information. 4d. Differentiate elements in ways that can be described (i.e., make it easy to give instructions or directions). 4e. Provide compatibility with a variety of techniques or devices used by people with sensory limitations.</p>

Table 2.3 (continued) : The Principles of Universal Design (Copyright 1997 NC State University, The Center for Universal Design)

Principle 5:	<p>Tolerance for Error: The design minimizes hazards and the adverse consequences of accidental or unintended actions.</p> <p>Guidelines: 5a. Arrange elements to minimize hazards and errors: most used elements, most accessible; hazardous elements eliminated, isolated, or shielded. 5b. Provide warnings of hazards and errors. 5c. Provide fail safe features. 5d. Discourage unconscious action in tasks that require vigilance.</p>
Principle 6:	<p>Low Physical Effort: The design can be used efficiently and comfortably and with a minimum of fatigue.</p> <p>Guidelines: 6a. Allow user to maintain a neutral body position. 6b. Use reasonable operating forces. 6c. Minimize repetitive actions. 6d. Minimize sustained physical effort.</p>
Principle 7:	<p>Size and Space for Approach and Use: Appropriate size and space is provided for approach, reach, manipulation, and use regardless of user's body size, posture, or mobility.</p> <p>Guidelines: 7a. Provide a clear line of sight to important elements for any seated or standing user. 7b. Make reach to all components comfortable for any seated or standing user. 7c. Accommodate variations in hand and grip size. 7d. Provide adequate space for the use of assistive devices or personal assistance.</p>

According to Erkılıç (2011), seven principles interact with the socio-political ideal of equity, which present solutions for a better physical built-environment. Universal design undertakes the responsibility giving equal accessibility to design for wider range of users. In this point of view, providing equality turns into a problem rather than an answer in design. Creating equal opportunities to people is the root of universal design, but equal opportunity does not mean treating all individuals equally. On the contrary, it means creating opportunities from individual needs (Durak, 2010).

Equality indicates an encompassing expression that is at the higher level of hierarchical structure of universal design principles (Figure 2.7). Individual needs get limitations in design process due to more detailed concerns at the lower level of this hierarchy.

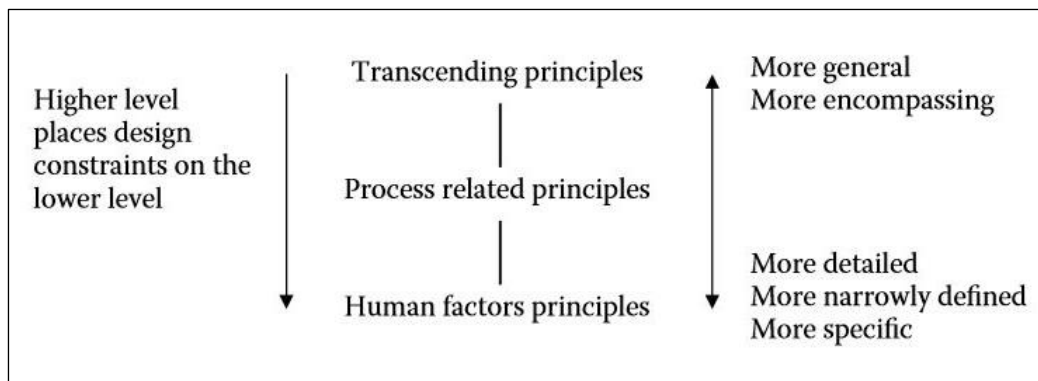


Figure 2.7 : The hierarchical structure of the universal design principles (Erlandson, 2008).

Universal design has different descriptions since it has been discussed. Universal design cultivated under the common debate of inclusive design, accessible design, trans-generational design, and its principles are described a framework of this approach. It evolved in time along with many concepts to get a broadened concept. All terms explained above are premise of the approaches in universal design influencing each other and cannot conceive them separately. They just differ in terms of their starting point whereas they all mainly concern disability subject. Universal design notion focus on social integration more than inclusive design (Preiser & Ostroff, 2001), though they both can use changeably. Universal design reveals a global consideration that is existing everywhere or accessible to everyone, but inclusive design supposes an inclusion without exclusion for people in using a product or environment. (Nussbaumer, 2012).

Social participation goals are social integration, personalization, cultural appropriateness (Steinfeld, Maisel and Levine, 2012). Universal design principles respond the concerns of social participation.

Universal design is a user-oriented design approach. Any of products does not claim that it is for whole population, so that professionals should focus on special purpose. Row 6, 7, and 8 on universal design pyramid refer physical disabled people who are need assisted technology for diverse situations (Figure 2.8). Universal design put these user types into design process with special provisions in order to create an inclusive environment (Goldsmith, 2000).

Awareness of the disablement raised the consideration of connection and relation between the physical environment and the people in the society. This consciousness on person's disability advances in UK. UPIAS⁴ (Union of The Physically Impaired against Segregation) campaign a seminal document, Fundamental Principles of Disability (1976), and give description of disability as...

... a situation, caused by social conditions, which require for its elimination (a) that no one aspect such as incomes, mobility or institutions is treated in isolation, (b) that disabled people should, with the advice and help of others, assume control over their own lives, and (c) that professionals, experts and others who seek to help must be committed to promoting such control by disabled people (Goldsmith, 1997, p150; Url-4).

Disability definition of UPIAS conceives of a social manner in environmental context. Different physical capabilities of people diverse the use of environment effectively. This situation causes the threat constructing a discriminated environment for people having inefficient physical abilities. Physical competence of people should negotiate with the functional requirements of the environment. Accessibility and usability concepts intervene personal components in order to solve environmental problems, which are occurred by disability issue. Therefore, accessibility and usability concept stress the problems human functioning in case target user group includes disabled people. WHO (2011) made the definition of disability involving bodily impairment, activity limitation and participation restriction.

Impairments are problems in body function or alterations in body structure – for example, paralysis or blindness,

Activity limitations are difficulties in executing activities – for example, walking or eating,

Participation restrictions are problems with involvement in any area of life – for example, facing discrimination in employment or transportation WHO (2011).

Premise definitions on disability converge on the idea that is assessed compatibility of physical abilities in environmental context. ICIDH⁵ classification made by WHO

⁴ The Union of the Physically Impaired Against Segregation (UPIAS) is an organization about maintaining disability rights in United Kingdom. The Union aims overcoming the arrangements that cause segregation about physically impaired people, and it contributes the definitions of disability and the development of social model of disability.

⁵ International Classification of Functioning, Disability and Health (ICIDH) was published by WHO in 1980. It is a classification about health issues, and it is structured around the following broad the consequences of disease, classification of impairments, classification of disabilities and classification of handicaps. Afterwards, International Classification of Functioning, Disability and Health-2 (ICIDH-

separates disability consideration in two such as individual and contextual understanding. The interrelations between components of disability shows that there are variable interactions to consider upon disability definitions in the Figure of 2.10. Disability does not have a classification; it is a broad understanding on relations with creators of either barriers or enablers. According to Erlandson (2008), disablement is a consequence of the relationship between the person and the environment. Truly, WHO (2001) makes a definition on disability that is shaped as a consequence of a synthesized relation between health conditions and individuality, and of environmental factors that characterized the conditions which individual lives.

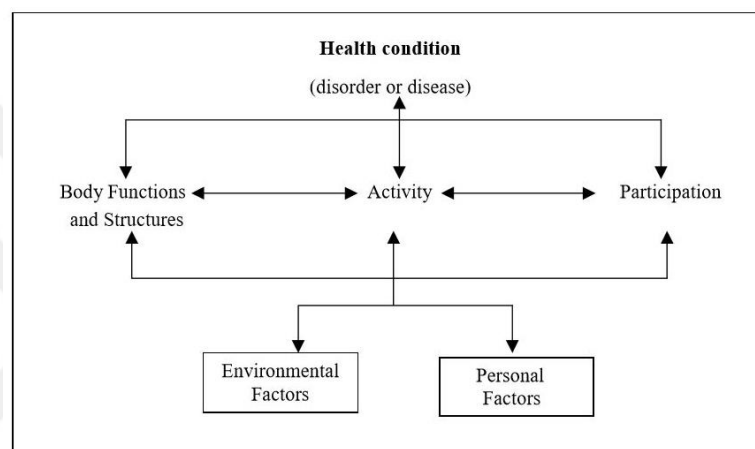


Figure 2.10 : Function interaction with disability (WHO, 2001).

Disability approach of UPIAS dominantly gives a reaction to a social problem, which are covered failures about physical capabilities of people in environment. Nevertheless, existence of functional diversity in environment has concerns to discuss disability tendencies in multiple contextual factors. WHO (2001) defines two definition about disability based on medical model and social model;

The medical model views disability as a problem of the person, directly caused by disease, trauma or other health condition, which requires medical care provided in the form of individual treatment by professionals.... The social model of disability, on the other hand, sees the issue mainly as a socially created problem, and principally as a matter of the full integration of individuals into society. (WHO, 2001)

Goldsmith (1997) simplified medical model that is used for disabled people who cannot provide freely their mobility due to their bodily systems, and social model that

2) is published in in 2001 with more detail version about the components which are body functions and structure, activities and participation, environmental factors.

is used for disabled people who are excluded by societal obstacles such as architectural and other barriers. Moreover, medical model of disability can eliminate with solutions of health professionals owing to true treatment. Nevertheless, social model of disability cannot eliminate medical solutions in the society in the same way. Solutions for this model of disability should consider under the political and right-based context. At this point, the architectural consideration should think all people together in design process to reduce impediments in environment in order to provide full participation in society. In other words,

The medical model's engineer would emphasize designing and developing prosthetics and orthotics that can directly restore a person's limited or lost functionality - ... - Social models recognize the importance of the environment in defining disability. The various social models advocate using universal design to reduce or remove accessibility barriers (Erlandson, 2008)."

In ICF (International Classification of Functioning, Disability and Health-2), both two models are integrated in order to draw functional varieties with 'biopsychosocial' approach (WHO, 2001). Thus, ICF attempts to achieve a synthesis, thereby providing a coherent view of different perspectives of health from a biological, individual, and social perspective.

Designers should think about medical needs of users, final product lack of aesthetic quality on the other hand it has functionality and longevity (Keates and Clarkson, 2003).

Disability is something that people are thrust upon an inadequate environment, and then people may become disabled by design. Architectural disability is, in effect, synonymous with architectural discrimination, the principle being that a building feature that is disabling, whereas he would not have been had the architect, as he might have done, incorporated an enabling feature instead (Goldsmith, 1997).

Disability is a problem related with person-environment relationship. An architecturally enabled person is a person who, when using a building, is able to do so on account of a building feature or features without which he would not have been able to use that building, or to do so conveniently (Goldsmith 1997). This situation brings together professionals to find solutions for making educational environment accessible, and increasing the participation in education.

3. INCLUSIVE EDUCATION AS A SPECIAL EDUCATIONAL NEED AND ITS ENVIRONMENTAL AND SPATIAL NECESSITIES

Educational rights, as well as human rights are globally hot debate topics. Even though international declaration suggested that all people have to access education facilities equally, educational curriculums differ according to countries in terms of education methods. Adults need to be provided with learning opportunities as well since the ultimate goal of inclusion in education is concerned with an individual’s effective participation in society and of reaching his / her full potential (UNESCO, 2009). It is an important issue to provide fundamental educational environments for disabled people. Basic educational rights for disabled people have tried to regulate with reports of international and national committees (Table 3.1). UNESCO published Education for All (EFA) report in 1990, which is a supportive work on international platform, to point for eliminating discrimination problems in education as “universalizing access to education for all children, youth and adults, and promoting equity” (UNESCO, 2009).

Table 3.1 : International policy documents pertaining to disability & education (Peters, S.J.,2007; UNESCO, 2009).

Year	Policy Documents
1960	United Nations Convention Against Discrimination in Education
1971	United Nations Declaration on the Rights of Mentally Retarded Persons
1975	United Nations Declaration on the Rights of Disabled Persons
1981	Sundberg Declaration
1982	UN World Programme of Action 3 goals: Concerning Disabled Persons
1989	Tallinn Guidelines for Action on Human Resources Development
1990	Convention on the Rights of the Child (UNICEF)
1990	World Declaration on Education for All (UNESCO, Jomtien)
1993	UN Standard Rules on the Equalization of Opportunities for Person With Disabilities
1994	World Congress on Special Needs Education, Salamanca
1995	World Summit for Social Development
2000	Education for All (EFA) Framework for Action (UNESCO, Dakar)
2005	The EFA Global Monitoring Report
2006	Convention on the Rights of Persons with Disabilities (UN)

Educational rights drive the governments how to ensure disabled people fulfillment of their special educational needs. Educational institutions should reconsider their understanding in a new perspective beyond the traditional norms. Innovative practices responding educational needs of disabled people should be developed with the help of accurate assessments on today's resources. In this sense, inclusive education concerns individual needs of disabled students to contribute their social integration and societal production.

3.1 Inclusive Education as a Special Needs

Different kind of person / human characteristic in the society does not allow insisting same educational curriculum for all citizens. Mainstream education facilities are not enough for today's society to provide educational opportunities for people having disabilities. Students with special educational needs (SEN) lead professionals to find out new methods as an answer of socio-cultural pluralism in the society. OECD (2000) points that there is no consistent in terminology, however it describes SEN referring disabled students who has learning problems with various reasons.

Separated classes are a way in some methods, but it leads to label the students with SEN in environment. At this point, educational environment plants discrimination in the society in a public space where citizens in the society firstly meet each other at their early ages. According to the provision on special education, the question is how social integration can be provided between disabled and non-disabled students in educational environments for establishing social balance in the society. Accommodating people with physical diversity in the same educational environment is an opportunity of inclusive education. Inclusive education supports diverse abilities in the society, preventing social exclusion in the same educational environment for suitable learning environment.

General opinions in early years of special education methods is that students with special education needs follow their education in separate spaces with special teachers according their educational needs (Url-5). Separate classrooms for students with special educational needs exclude them from a social environment, and push them into a discriminative environment. Considering this matter, further attempts on special education have allowed later that special education and mainstream education are in the same school environment in order to contribute social participation of student with

special educational needs (Url-5). New approaches on education begin to consider social integrity of society, and advice an environment unique and emphatic as eliminating students as disabled and non-disabled ones.

Inclusive education came into consideration with Salamanca Statement that is published by UNESCO in 1994. Salamanca Statement (UNESCO, 1994) encourages inclusive education in all level of education to ensure equity on education for all children due to accommodate them to learn together. It supports special education in mainstream curriculums for integration among people, because inclusive education has opportunities to eliminate discrimination among students in schools.

Accommodating of diverse learners in the inclusive education is a challenge that constitutes equality in mainstream curriculums and its learning environment. Some exceptions related to students who has differences in terms of learning ability or disability have special educational needs to maintain accessibility to both environmental and practical opportunities. Student with special educational needs (SEN) who cannot utilize mainstream educational facilities because of various reasons and have differences from their peers. In this sense, some terms should internalize to understand the expectations from inclusive education. The intention of this discussion reveal three main term upon education of children with SEN:

Segregation in which children are classified according to their impairment and allocated a school designed to respond to that particular impairment; integration, where children with disabilities are placed in the mainstream system, often in special classes, as long as they can accommodate its demands and fit in with its environment; and inclusion where there is recognition of a need to transform the cultures, policies and practices in school to accommodate the differing needs of individual students, and an obligation to remove the barriers that impede that possibility (UNICEF, 2011).

Special educational needs constitute broaden range of disability groups. Student with SEN is under consideration in terms of their diverse abilities of learning, the focus of inclusive education provides equal opportunities contrary to the parameters in terms of exclusion, segregation, integration (Figure 3.1). Erkılıç and Durak (2013) notes that “integration remains an ultimately segregating experience and practice” (Erkılıç and Durak, 2013, p.465). Inclusive design individually response the educational needs due to its intention on creating equal opportunity in educational environment. It includes positive differentiation but it does not have exclusionary perception. Equal opportunity

means considering each individual dissimilarities to disclose their full potential (Erkiliç and Durak, 2013).

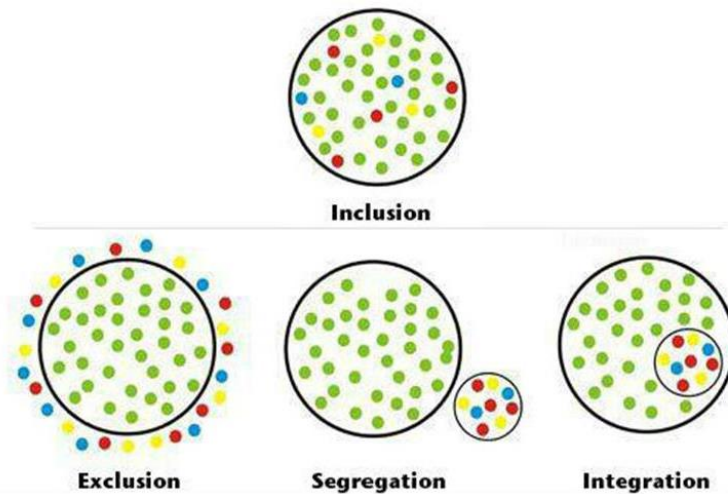


Figure 3.1 : Inclusion diagram (Url-9).

Inclusive education is “a practice of ‘mainstreaming’ children with disabilities” (UNESCO, 1994). Countries suggest their own policy on education, so they are differs in terms of their approaches on inclusive education. Least restrictive environment (LRE) states in IDEA⁶ for student with disabilities as a maximum opportunity to provide a same educational environment with their non-disabled peers due to maintain consistent individual needs of student with disabilities (Gargiulo and Metcalf, 2010). Providing opportunities for individual needs of students with SEN should not be perceived as an advantage for them. Students with/without SEN assumed as ‘whole’ with all their diversities with isolating from any exclusionary approaches. Least restrictive environment (LRE) provides for disabled people meaningful development and contribution with their peers (Gargiulo and Metcalf, 2010). It is necessary to increase the quality of communication among people, who are growing up in different social environments, to contribute their knowledge. According to Gargiulo and Metcalf (2010),

The LRE is based on the student’s educational needs, not his or her disability. We interpret the principle of LRE to mean that students with disabilities could be educated in the setting that most closely approximates the general education classroom and still meets the unique needs of the individual (Gargiulo and Metcalf, 2010, p.6).

⁶ The Individuals with Disabilities Education Act (IDEA) is a four-part piece of American legislation that ensures students with a disability a free educational environment.

While providing the integration of students who have learning disability or physical disability, they mostly have a need for accompanying with them. Diverse disability groups among students set forth that there should be other actors except teachers in the school to help their self-improvement. Therefore, inclusive settings in education environment achieve equality and participation of children with SEN, there cannot be underestimated the effort of peers, parents and volunteers with teachers and school staff (UNESCO, 1994).

Notion of inclusive education promises a lifelong learning for people with disabilities. Curriculum in educational programmes for student with SEN should have provisional programmes for supporting higher education on vocational practices in order to be free and productive member in the society after school (UNESCO, 1994).

Inclusive education as a special education method proposes opportunities that can individualize according to educational needs of students. Policies in inclusive education of which countries and associations put forward, criticize mostly similar points as important to maintain non-discriminatory approach about educational rights:

- 1- Free access to public education for all children
- 2- Individual and extra support for student with special educational needs
- 3- Flexibility on curriculum and environment
- 4- Parents and families to make a part of education curriculum
- 5- Student who has a disability should have the opportunity to be educated with non-disabled peers, to the greatest extent appropriate
- 6- Additional facilities and activities for student with SEN

3.2 An Overview on Legislations and Regulations on Inclusive Education in Turkey

Concerns about special education needs in education came up late 1940s in Turkey. Legislations and laws started to include rules, which make compulsory for full participation in educational environment and access fundamental education rights of people in the society (Table 3.2).

Table 3.2 : Legislation On Educational Rights Of People With Special Needs In Turkey (adapted from Vural and Yücesoy (2003); Sucuoğlu (2004); Durak (2010))

Year / Issue	Policy
1949 / 5387	Law on Children in Need of Protection (Korunmaya Muhtaç Çocuklar Hakkında Kanun)
1961 / 222	Law on Primary Education and Basic Education (İlköğretim ve Eğitim Temel Kanunu)
1962 and 1968	Regulation on Children in Special Need (Özel Eğitime Muhtaç Çocuklar Yönetmeliği)
1983 / 2916	Law on Children in Special Need (Özel Eğitime Muhtaç Çocuklar Kanunu)
1983 / 2828	Law on Social Services Child Protection (Sosyal Hizmetler Çocuk Esirgeme Kanunu)
1986 / 3308	Law on Apprenticeship and Vocational Education (Çıraklık ve Mesleki Eğitim Kanunu)
1991	First Special Education Council (İlk Özel Eğitim Konseyi)
1992	Regulation On Educational Practices For Mentally Retarded Children (Zihin Özürlü Çocukların Eğitim Uygulamaları Yönetmeliği)
1997 / 571	Degree of Law on Organization and Duties of the Presidency of the Administration for Disabled People (Özürlüler İdaresi Başkanlığı Teşkilat ve Görevleri Hakkında KHK)
1997 / 573	Decree of Law on Special Education (Özel Eğitim Hakkında KHK)
2000	Regulation on Special Education Services (Özel Eğitim Hizmetleri Yönetmeliği)
2005 / 5378	Law on People with Disabilities (Engelliler Hakkında Kanun)

In Turkey, inclusive education has mentioned at first in 1983 with Law on Children with Special Needs in order to become prevalent that students with special educational needs can study in mainstream schools with their peers (Sucuoğlu, 2004). A special educational need in Decree of Law on Special Education (1997) is that the individuals differentiate from their peers in terms of individual capability and educational proficiency. Sucuoğlu (2004) refers under the topic of “Inclusive Spaces” in Decree of Law on Special Education, which published in 1997, that inclusive education is described as continuum in education of student with SEN provided by schools in all level with appropriate techniques and methods due to an individualized educational plan.

Inclusive education defined in MEB’s regulation in Article 23, that inclusive education contains special education applications that is based on an approach, which provides supportive educational services to students with SEN to continue their education in mainstream schools with their peers who do not have any SEN (MEB, 2006). Erkıılıç and Durak (2013) pointed out that inclusive education principles are depicted in regulations that claim that children with SEN can receive their education either in regular classrooms with their peers or in special education classrooms in the same institution with provision of supportive services. However, there is a different model of inclusive education practice in Turkey,

Full time inclusive education is a full time education practice which is provided same environment accommodating student with /without SEN together in order to unify them in terms of social improvement with the help of supportive special education services, special equipment, and material. Educational curriculum applies by individualized with suitable physical arrangement. Students with SEN matriculate in regular schools and are distributed classrooms equally.

Part time inclusive education, students in inclusive education classrooms and special education classrooms participate classroom activities of inclusive education together to take supportive education due to resource room, counselling and research center. There are precautions in activities of inclusive education to promote participation for some students who are matriculated at special education school.

Reversed inclusion in inclusive education, students with/without SEN pursues their education in same classroom or it practices in a separate classroom which is embodied in same schools for student with SEN in special education schools. (MEB, 2013)

Erkıılıç and Durak (2013) states that different models of inclusive education practice (full time, part time and reversed inclusion) show that inclusion conceives the

integration of children with disabilities into mainstream schools through the provision of special education services.

Regulation on Special Education has a separate chapter for families of student with SEN, which shows participation of family is considerable in inclusive education (MEB, 2006). Families have a significant position in inclusive education in terms of responsibility, which makes a part of student's education. MEB (2013) states that families of both students with and without SEN should be gathered regularly to eliminate problems easily to achieve corporative and constructive connection between school and family (MEB, 2013).

There is a convergence in some points on special education approaches of UK and US with Turkey's legislations (Kırcaali - İftar, 1998). Least restrictive environment (LRE) and Individualized Education Programme (IEP) are closer about their definition, which Turkey also implies in its special education policy. LRE describes for children with SEN as most appropriate education environment that is intended to provide societal inclusion through social and communicational behavior and to gain academic and vocational knowledge that are suitable their grade due to supportive education services and environment which includes their peers as possible extent (MEB, 2006).

It is impossible to expect that every student have same capacity of learning. In this case, academic activities given to all students cannot response each student in the same way. Moreover, there are educational activities that can individualize to each student. Decree of Law on Special Education states that it is compulsory to develop an individual education plan and apply individualizing the plan to each student with SEN (MEB, 2013). Individualized Education Program (IEP), which is constituted by MEB, is a guide that suggests teaching methods for students having disabilities as a solution for equal accessibility (MEB, 2004). Students with SEN can assure an effective academic or vocational practice with IEP due to provide a qualified educational perception same as their peers. IEP is applied in case there has special educational needs unlike their peers' educational facilities; there is disability or inefficiency that affects his/her educational performance or student is needed of special arrangement on supportive education (MEB, 2004).

3.3 Environmental Concerns of Inclusive Education

Inclusive education solves integrity problems in education “thereby enabling schools to serve all children, particularly those with special educational needs” (UNESCO, 2009). Equal accessibility of inclusive education provides space organization that welcomes all users. Spatial requirements must consider legally sustaining universality of inclusive educational environments. Inclusive education promotes greatest extent participation of disabled people by gained them academic and vocational life skills to participate societal integration and production. In this sense, spatial arrangement should support social participation and be out of perception on discrimination and stigmatization.

Spatial requirement is not clear and has disunity in terms of conceptual and schematic definition of special education environment, as well as inclusive education environment related to regulations of MEB (2006; 2008). Erkıılıç and Durak (2013) assess the situation that spatial expectations are not formulated to answer accessibility concerns in inclusive education environment. Missing clarity for essentials of inclusive education indicates the failures of spatial organization, which must respond shareable structure of inclusive education environment (Erkıılıç and Durak, 2013).

On the other hand, Minimum Design Standards for Educational Buildings, which is a guideline published by MEB for educational building in 2013 and in 2015, has a topic ‘Design Standards for Disabled’ that we could consider applying in inclusive education environments. Suggestions of this guideline indicate the standards of ADA and the regulations such as Law on Disabled in June 2005 with no: 5378, TS 9111 Criteria for Accessibility of Disabled on building construction in addition to their suggestions. Besides, no exact design standard defines space regulations that are peculiar to special education schools. There are some requirements mentioned in the guideline of ‘Minimum Design Standards for Educational Buildings’, considering accessibility matter in educational building construction such as;

- 1- Building materials and solutions provide accessibility of disabled in outdoors without interruption.
- 2- Flooring on pathways must have hard, rigid, durable and non-slip surfaces for all users, both disabled and non-disabled.
- 3- Minimum one parking area is required for disabled.

- 4- Arrangement must consider disabled if there is differences of rise level on flooring.
- 5- Rough and perforated surfaces avoid using as flooring in spaces where disabled use wheelchair.
- 6- Floorings include materials having different texture and skid resistance that consist of colors, pattern, and contrast to ease access of disabled people.
- 7- Clear opening in entrance doors of WC for disabled should be 100 cm.
- 8- Preventing door crashes of student having less visual capability should be marked appropriately.
- 9- There should be at least one separate WC and bathroom / sink for disabled student.
- 10- In halls, separate spaces should leave for disabled audiences.
- 11- There should be an elevator for student having physical disability on easy accessible space.
- 12- Sharp corners should be rejected in circulation areas, handrails and handles put spaces considering as dangerous.
- 13- Ramps should be placed for easing to circulation of disabled; flooring of ramps must consist skid proof materials, slopes and details of ramps must be decided according to current standards and legislations.
- 14- 'Room for Disabled' must be on ground floor. (MEB, 2015)

'Minimum Design Standards for Educational Buildings' underlines free accessibility in all educational building for all disabled students, but there are no specific explanations. These design standards generalize users who have disability, and ignore human necessities. Recommendations listed above give premise ideas on design and construction referring regulation and laws, which makes a scattered sensation about design of educational environments. They have complications to figure them out in putting them to design process.

Besides constructional recommendations, Durak (2010) recommends spatial requirements in order to contribute conceptual framework in inclusive education

environments (Table 3.3). It helps understanding functional relations in inclusive education environment.

Table 3.3 : Spatial requirements for inclusive education environments (Durak, 2010).

user type	<ol style="list-style-type: none"> 1. students 2. teachers, advisors, therapists, other staff 3. parents, caretakers 4. local community 	<p>Spatial Requirements:</p> <ol style="list-style-type: none"> 1. formal learning spaces 2. informal learning spaces 3. non-specialist spaces 4. spaces for medical treatment 5. spaces for guidance and counselling 6. spaces for therapy 7. storage spaces for medical equipments 8. teachers', advisors' and therapist's room 9. family room for waiting, meeting and training activities 10. ICT-enabled meeting room for face to face and teleconference interviews 11. waiting hall, lobby, cafeteria and spaces for personal care 12. easily controllable, specialized or multipurpose spaces used after school hours with separate entrance
type of use	<ol style="list-style-type: none"> 1. curriculum-based use (educational activities) 2. rehabilitation facilities (medical facilities) 3. collaborative use (cooperative teaching, cooperation between general education teacher and parents/ caretakers, advisors, special education teachers and learning assistants) 4. additional community facilities (community-based facilities, performing vocational training, music, sports and arts activities, conferences) 	
period of use	<ol style="list-style-type: none"> 1. during school hours 2. out of school hours 	

3.4 Support Spaces in Inclusive Education Environments

Inclusive education has two-way structure including feedbacks between students with SEN and the educational curriculum, which depends on students' learning ability. Thus, quality of the relation between environment and student is important to get effective feedbacks on improvement of students, especially the student with SEN. In this sense, academic and social skills can only be provided by continuum of supportive education facilities.

Purposes and implementations on special education are tried to support with legislations, regulations, and decrees in order to present special education facilities to disabled students properly. The role and function of support services are non-ignorable as a key feature of successful inclusive practice (OECD, 1999: p. 39). Moreover, the

approaches for the supportive educational services depend on the educational policies, which are under the effect of cultural identity in each country.

Assessments of OECD shows that parents in different countries participate in inclusive educational curriculum in different ways. In addition, student centered approach of inclusive education gives opportunity to educators to adapt some part of curriculum in education process of students with SEN. These adaptations changes according to the country's educational policies. Support spaces for SEN and disability specialist includes medical facilities, therapy, and support spaces according to needs, such as for physiotherapy, sensory learning, counselling, and social skills development (Education Funding Agency, 2014). According to purpose of inclusive education, support spaces in inclusive education environments diversify their functions due to the countries' educational policies. Integration of student with SEN can improve with activities, which are encompassed by curriculum or community-based. In addition, support space is not only compressed the idea of rehabilitation or school-centered educational activities. Support spaces also promote students' behavioral and social skills due to offer an opportunity of togetherness with their peers or other people by various activities (Figure 3.2).



Figure 3.2 : Social/recreational activity space (Education Funding Agency, 2014).

Support spaces include participants from out of school such as community members, other staff, which contributes social development of students with disabilities. Multi-functional responsibilities of supportive services construct togetherness among different type of users at the same time. In that case, support spaces should allow flexibility for various events and learning environments (Figure 3.3).



Figure 3.3 : Multifunctional area in Pistorius School, Germany (Url-12).

In inclusive education, community base activities, vocational practices encourage self-confidence of student with disabilities and interaction between students with and without disabilities. Students with disabilities gain life skills by having training activities to foster their independence (Figure 3.4).



Figure 3.4 : Training kitchen in Pistorius School, Germany (Url-12).

Purposes of support spaces intend to give opportunities for special educational needs of students (Figure 3.5). Thus, support spaces also include the use of rehabilitation purpose with therapy rooms, sensory space, and hygiene room.



Figure 3.5 : Multisensory Room in Park School: Katie's Corner Multisensory and Therapy Rooms (Url-13).

Designated unit gives a general spatial layout in the school for special education (Figure 3.6). It can be an example that opens to use for all user profile in the school. This unit is linked with the other services of the school. Spatial arrangements in the unit allow people use the space multi-functionally and individual needs of students.

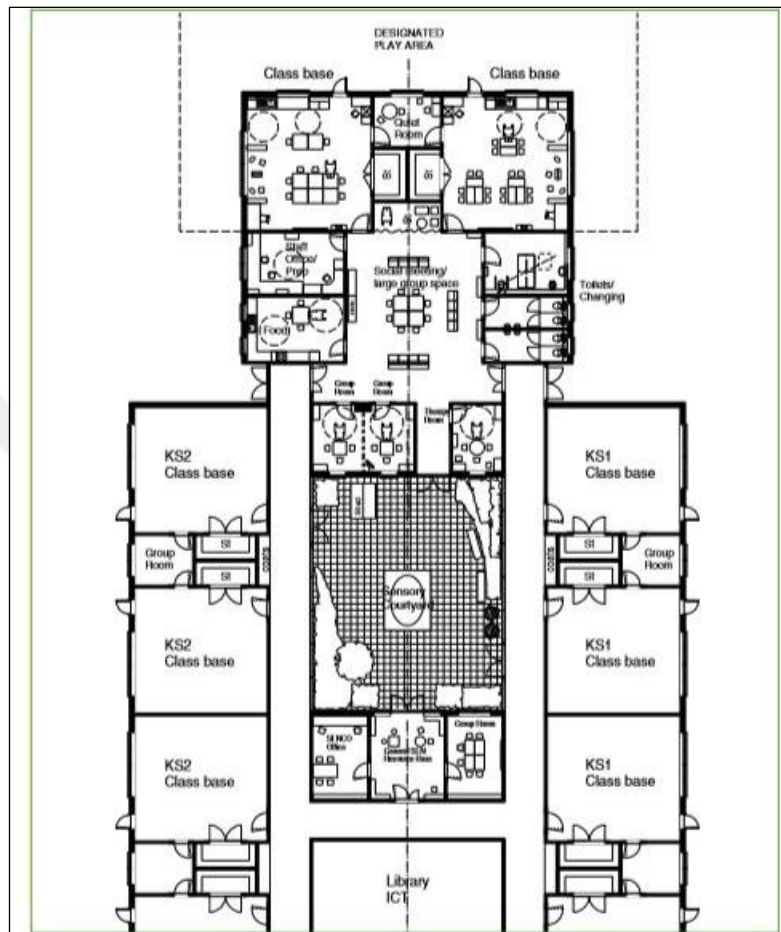


Figure 3.6 : Designated unit–primary mainstream (Education Funding Agency, 2014).

There are different types of support spaces, which are adapted according to educational policy of the countries (Table 3.4). Although they differ in terms of spatial requirements, all of them responsible for the rehabilitation process of inclusive education. In Turkey, Regulation on Special Education Institutions (MEB, 2012) mentions in Article 4 about support services as a student-centered approach that is used to teach fundamental life skills for providing self-sufficient in order to attune them to society. In addition, Chapter 3 of the Special Education Regulation (MEB, 2006) explains supportive educational services that is provided by assistance services such as material, seminar and consultancy for students with SEN, their parents and school staff with the help of the assessments and recognition of student with SEN in both

medical and educational spaces in the school. Although there is legally efficient provision about inclusive education in Turkey, these requirements cannot put into practice progressively because of limited educational professionals and non-existed support spaces (MEB, 2013). Supportive educational services such as resource room are described separately from rehabilitation services as a part of educational curriculum in Turkey. Resource rooms help improving academic skills of students with/without SEN in inclusive education. There is not specific definition for a space, which accommodates students' parents, community members or any visiting staff in order to facilitate education of students with SEN. At that point, 'life center unit' comes out, and stresses spatial necessity as a support space in inclusive education environments in Turkey.

Table 3.4 : Range of the support spaces.

Support Spaces	
	Medical rooms
	Therapy rooms (Physiotherapy, Occupational therapy, Speech and language therapy, Hydrotherapy etc.)
	Hearing-visual impairment support
	Sensory rooms
	Social skills training
	Calming rooms
	Social/recreational activity space
	Parents' rooms
	Training rooms
	Resource rooms



4. A DESCRIPTION FOR LIFE CENTER UNIT IN INCLUSIVE EDUCATION ENVIRONMENTS

Supportive educational services are part of the special education that transform knowledge into practice beyond the mainstream school environment. In special education school environments, spatial arrangements that are physical, social and psychological should maintain students' inefficiency. The supportive education service is part of inclusive education is mentioned by MEB (2006) in Article 67 in Regulation of Special Education. Moreover, it is stated in Article 62 that individualized educational programme (IEP) is a special education application that is predicated on supportive education services which aims demands of students, parents, and teachers. Regarding these definitions, supportive services are necessities in inclusive education, when requirements of inclusive education consider contributing students' self-improvement and conversation with each other. Therefore, existence of the spaces, which have supportive functions in inclusive education environment, is a significant point in terms of contributing participation of children with SEN in school. In time, 'life center unit', one of which is placed in Gökkuşığı Primary School in Turkey, is formed in inclusive education environment in order to maintain fundamental life skills to the students with SEN. Life center unit carries features of public spaces, besides being a supportive department, because of the diversity of dynamics. This unit should be arranged according to students' behavioral and ergonomic requirements for enabling students' activities. In this chapter, spatial and environmental necessities of life center unit in inclusive education will clarify regarding with the standards and regulations on special education.

4.1 User Profile of Life Center Unit

Inclusive education is a type of special education, which disabled student and non-disabled student can study together at the same educational environment. So that, disabled students have privilege as user profile in spatial arrangement in inclusive education environments. Inclusive education in Turkey is a new approach in special

education, so it can bring different understanding of use in school environments in some point related to user profile.

Durak (2010) claims that user profile should be divided into four-user types in inclusive education environments in Turkey:

User type 1: Students with diverse abilities/learning styles and with/without special educational needs who are integrated into general education environments

User type 2: General education teachers, special education teachers, advisors, learning assistants, therapists and other professionals

User type 3: Parents/caretakers, other family members

User type 4: Local community. (Durak, 2010)

In inclusive education environments, students with special educational needs have diverse disability categories. Mental retardations and physical disability draw a wide characteristic of user profile. In this thesis, conditions occurred by physical disability are explained through Cerebral Palsy.

Cerebral Palsy (CP) is an umbrella term using for having a group of loss or impairment of motor function caused by brain damaged (The Council for Disabled Children, 2012). It is not neither contagious nor progressive and, there is no cure. However, it can be rehabilitated for increasing the life expectancy of people. Cerebral Palsy does not affect people in the same way and it depends on the damage of the developmental condition of brain that happened before, during or after the birth. It is about muscle's situation being control the movements not properly. However, it accommodates many physical symptoms (The Council for Disabled Children, 2012). There is not a single reason that causes brain impairments, so that there are different types of cerebral palsy that may define according to The Council for Disabled Children (2012) in four categories as below:

- 1- Spastic cerebral palsy: This form of cerebral palsy can decrease the range of movement anywhere in the body, including the joints affecting walking and coordination. Spasticity can affect different areas of the body and, like other types of cerebral palsy, may affect how clearly children can speak. The effects may increase with anxiety or increased effort, leading to excessive fatigue.
- 2- Athetoid (or dyskinetic) cerebral palsy: This type of cerebral palsy causes involuntary movements due to lack of control in the way that muscle tone

changes from floppy and loose to tense and stiff. It can result in difficulty maintaining any position. Speech can also be hard to understand due to difficulty in controlling the tongue, breathing and the use of vocal cords. Hearing problems can be associated with athetoid cerebral palsy, too. Effort or intention to move of any sort tends to increase movement.

- 3- Ataxic cerebral palsy Ataxic cerebral palsy affects the whole body – all four limbs and the trunk are usually affected. This results in poor spatial awareness and difficulty in judging body position in relation to the physical environment. Ataxic cerebral palsy impairs coordination and balance. Most children with ataxic cerebral palsy can walk, but they are often unsteady. They may also have shaky hand movements and irregular speech.
- 4- Mixed cerebral palsy: The types and descriptions of cerebral palsy above do not always describe adequately the individual nature of cerebral palsy. Individuals can often experience a mix of types of cerebral palsy.

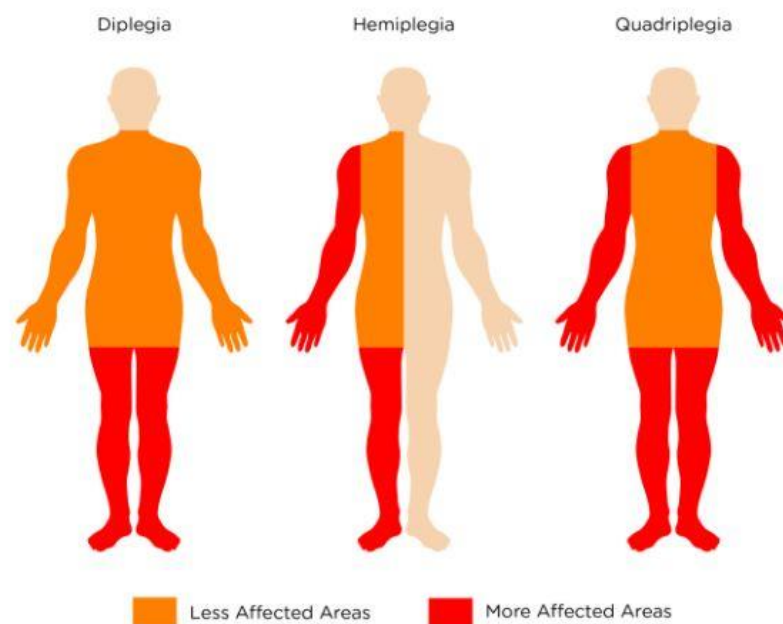


Figure 4.1 : Affected body parts because of Cerebral Palsy (Url-1).

Muscle tones in Cerebral Palsy (CP) effects controlling the body parts in terms of restricting the capability of daily activities. Affected body parts are mostly distinguished three parts (Figure 4.1). UNESCO (2015) defines difficulties of children with Cerebral Palsy as,

1. Movement of body parts or the whole body
2. Talking as well as non-verbal communication (facial expressions may not always reveal true emotions – i.e. the child might appear to be smiling but is actually very angry or sad)
3. Involuntary muscle movements (spasms)
4. Eating and drinking
5. Muscle weakness or tightness
6. Balance and coordination
7. Posture (the ability to put the body in a chosen position and keep it there)
8. Attention and concentration. (UNESCO, 2015)

Mobility of students with CP changes according to the muscle controls. Balance and posture of a student with CP differs in terms of the severity, so they mostly need help of an assistive equipment (Figure 4.2; Figure 4.3). During the school hours, they need a companion helping them for their individual needs. Besides these difficulties, CP can affect students' intellectual functioning as well. Some of these students have a lack of intelligence that causes a student to be educated in a special education classroom separately.



Figure 4.2 : Some examples of assistive equipment using by children with CP.



Figure 4.3 : Some examples of assistive equipment using by children with CP.

Regarding to Durak's (2010) classification, users in the school except user 'type 1' are responsible to assist students. Life center unit primarily purposes to serve students with SEN and teachers. Parents are also user the life center unit due to necessity of their own children.

4.2 Spatial Analyzing of Life Center Unit

Gökkuşığı Primary School is the first inclusive education school, which was built considering inclusive education necessities in Turkey with the initiations of SERÇEV (Children with Cerebral Palsy Association). The initial use of the life center unit in Gökkuşığı Primary School is shown in Figure 4.4. During the use of building, new functions are added in the building programme considering the necessities that occurred in time. The investigations on Gökkuşığı Primary School shows that some changes happened in the building both functionally and spatially comparing with its first establishment (Figure 4.5). One of these changes shows the invention of 'life center unit', which takes place teachers room currently. Nevertheless, this unit service for only students special education classroom during the school time due to accompany

with their teacher. ‘Life center unit’ set up as a supportive space in this school later on, because of fulfilling the demands of students with SEN, who have mental retardation.

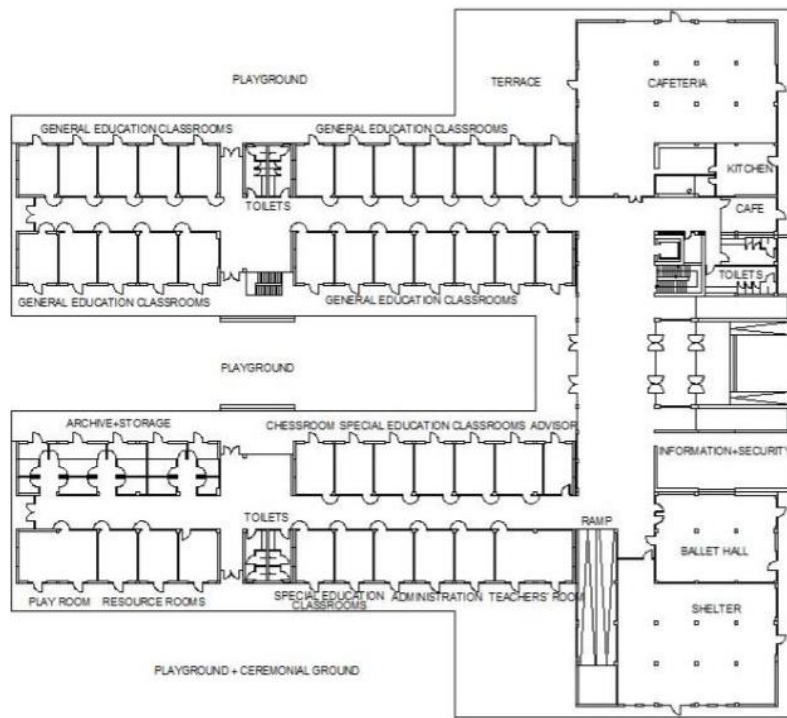


Figure 4.4 : Gökkuşığı Primary School ground floor plan (Durak, 2010).

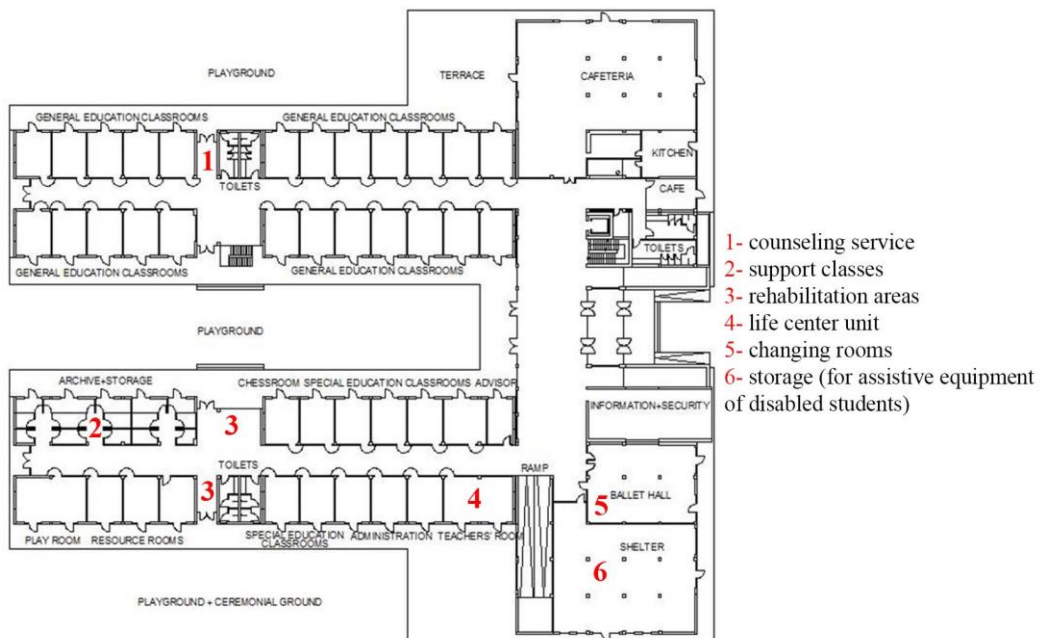


Figure 4.5 : The ground floor plan of Gökkuşığı Primary School with new functional additions.

At the first visit of mine in October 2015, queries of spatial requirement are unpredictable in the use of the life center unit of Gökkuşığı Primary School (Figure 4.6). The components of the space are gathered miscellaneously, and spatial arrangements in the life center unit cannot be decipherable in terms of functioning and human activities according to universal design principles. The plan scheme is defined by the results of the interviews with users that students with SEN, who have -learn life skills- practices guided by their teacher, and sometimes with an accompanying person such as students' parents. The space has basic house equipment, but they do not have eligible and proper spatial organization for an educational practice of target user profile. Physical disabilities and impairments of students with SEN cannot satisfy with this space appropriately because of failure of usability. Since there was no description about life center unit in educational regulation, it has been resulted with an ambiguity about use, which changes according to special educators' demands. Moreover, the formation of the life center unit is seemed suitable in terms of the location in the building, such as being at the same floor with all classrooms and being at the same wing with special education classrooms. The use of the life center unit has impeded due to occurred spatial inefficiencies in time. In addition, effects of spatial problems on usability and non-motivated spatial organizations do not foster the use of the life center unit.



Figure 4.6 : Life center unit in Gökkuşığı Primary School in 2015.

At the second visit of mine in January 2017, the space was turned into different appearance with the addition of basic house equipment according to the spatial functions such as kitchen, living room, bathroom, and bedroom (Figure 4.7). This regeneration is quite similar with previous use of life center unit, so it looks like a

small apartment flat. According to results of survey about use of life center unit, the parents' views show that this space respond educational need and expectation sufficiently. They disagree with the idea that the space is enough capacity to respond individual needs of students with SEN. In the life center unit, there is not a positive impact on accepting all users in this space when human activity is considered. On the other hand, some problems have partly solved with regard to the problems defined in Table 4.1 as well as the spatial functions are more clear and definite than before. In addition, the territorial problems are partly solved. However, the failures about circulation have still existed related to usability of fittings and ergonomics. There is no attraction and identity for indicating the life center unit as a support space in an education environment. Furthermore, the expectations are actually about creating a space where students with SEN can learn and practice fundamental life skills. It is not a house; on the other hand, it is a space, where equipment and functions predict like a house. This implementation does not foster a qualified education or social environment for the student with SEN, as well as the previous arrangement of the life center unit. The discriminated orientation of furniture in the life center unit is still stressing, and compelling students with SEN moving around without an accompanying person, who helps them. Even though main target users are students with SEN, expectations and problems of other users such as teachers, students' parents should have to be taken into account.

Table 4.1 : The determined spatial problems in the life center unit of Gökkuşığı Primary School.

1	Weakness connection between inside and outside
2	Undefinable privacy limits
3	Undefinable functions
4	Inadequate circulation for mobility
5	Failure about organization of fittings
6	Failure about usage of fittings
7	Territorial uncertainty of spaces about function
8	Non-ergonomic furniture
9	Non-qualified implication of building components
10	Lack of spatial characterization/identity

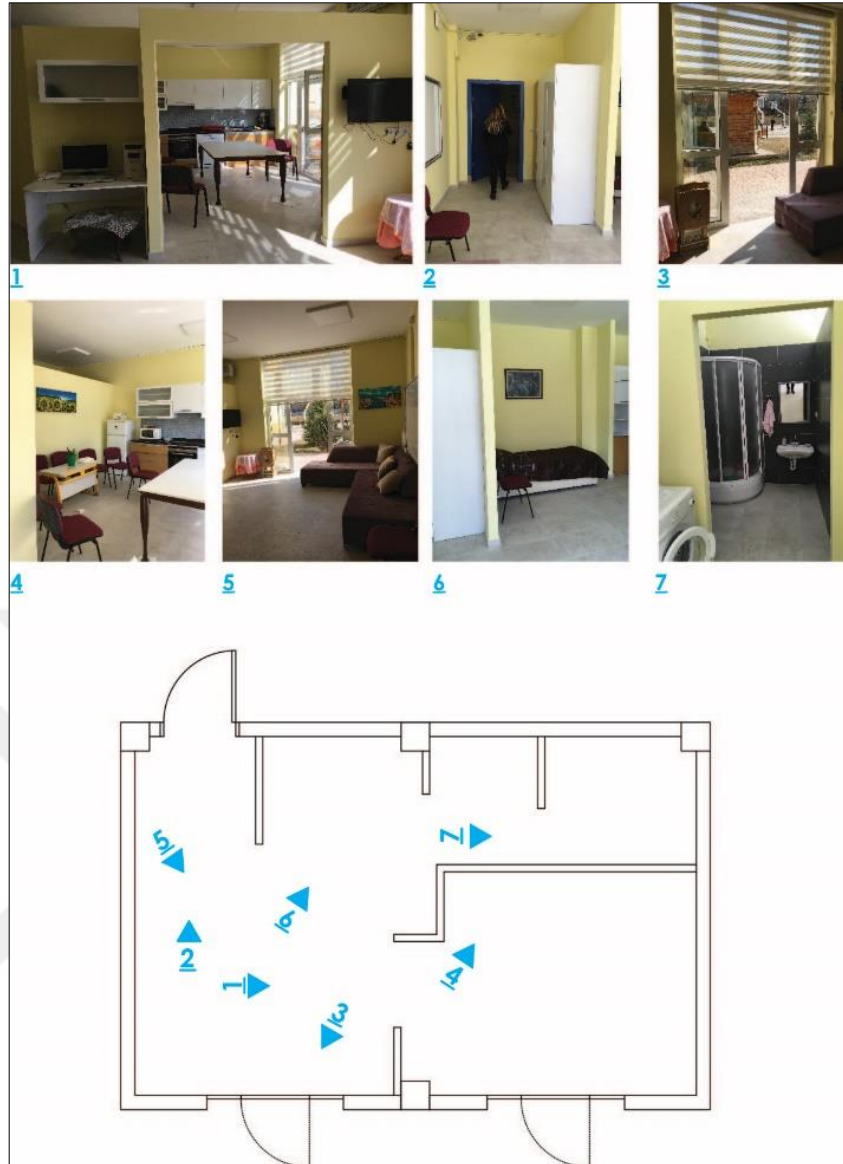


Figure 4.7 : Gökkuşığı Primary School, life center unit in 2017.

Expectations about life center unit's spatial requirements are still in development process, which supports practical regulations in order to teach fundamental life skills to student with SEN. The parents' opinion about life center unit's spatial condition according to survey results is that it fulfills the educational needs of student with SEN effectively. Although life center unit satisfies user in terms of spatial opportunities, there are failures from the designers' point of view when accessibility and usability are discussed. Nevertheless, current position is not efficient, even though it supposed to be rehabilitated, in terms of usability and accessibility in the space. The problems of the use of life center unit of Gökkuşığı Primary School that are defined in the first visit of mine (seen in Table 4.1) still exist in the new spatial organization of the life center unit .

4.3 Findings about Use of Life Center Unit

Life center unit obviously have a supportive responsibility on education of student with SEN. Designing life center unit is a significant adaptation in inclusive education environments, and the further plans about its use show that it is generated as a supportive service in inclusive education. Quality of education depends on the balance between the students and their environment. Inclusive education offers students a flexible educational fulfillment with support spaces as a different alternative in mainstream curriculum in order to improve their life skills.

Acquisition of life center unit in Gökkuşuğu Primary School currently does not provide qualified space in terms of accessibility and usability. Spatial conditions in life center unit are assessed regarding UD principles in order to offer equality in use (Table 4.2). This assessment on current condition of life center unit reveals that ambiguities of its use pass over the benefits. Users are discriminated by physical environment because of missing universal understanding of spatial decision.

Table 4.2 : Assessment of current life center unit in Gökkuşuğu Primary School according to UD Principles.

UD Principles	Spatial Conditions of Current Life Center Unit
Equitable Use	Not provided - Only student with mental retardation are allowed to use.
Flexibility in Use	Not provided – Furniture is not flexible to respond diverse bodily conditions.
Simple and Intuitive Use	Not provided – Interior elements are chosen by ignoring users’ characteristics in terms of their age and bodily conditions.
Perceptible Information	Not provided – Sensory elements as a spatial element are not included.
Tolerance of Error	Not provided – There is not any precautions considering users’ characteristics in terms of age, physical conditions. User traffic is ignored in the space.
Low Physical Effort	Not provided – User, who has disability, always needs an accompany person.
Size and Space for Approach and Use	Not provided – Circulation in the room is not enough for students who use all assistive equipment.

Necessities occurring in time brings new spatial requirements that is observed in inclusive education environments. Rehabilitation of physical environment conditions helps improving physical capability of the students with SEN. UNESCO (2015) is also highlighted the significance of educational rights of children that all children can learn (if learning is understood as a wider concept than reading, writing and arithmetic) with care and protection in a child-friendly inclusive setting. When user profile in Gökkuşuğu Primary School, adaptation the life center unit as a requirement in inclusive educational environments may be supported with the statement of UNESCO (2015) that “Some children with cerebral palsy will tire easily. We should therefore allow them time to rest during the school day. A place to rest should ideally be provided by the school.” In this sense, functional purpose can be expanded for life center unit in inclusive education environments in order to cover individual needs of student with SEN. Solutions for individual needs should include changing room for student with SEN, especially who are in special education classrooms.



Figure 4.8 : Changing rooms for students on ground floor in Gökkuşuğu Primary School.

Cultural identity intuitively effects functioning in inclusive education environment due to the investigations on Gökkuşuğu Primary School. Parents, especially parents of students with SEN, usually spend their times in school building for waiting and accompanying their children (Figure 4.9).



Figure 4.9 : The waiting area for parents on first floor in Gökkuşuğu Primary School. According to Durak’s (2010) classification of user type in inclusive education environment, the use of life center unit is related to educational activities (type 3), whereas further plans in use offers both educational activities and collaborative use (type 4). The functional and spatial evaluation of the life center unit, which is in SERÇEV Accessible Vocational High School, with regard to Durak’s (2010) classification on spatial requirements are shown in the Table 4.3.

Table 4.3 : Spatial and functional evaluation of life center unit.

	Current functioning in life center unit (according to Gökkuşuğu Primary School)	Further goal on functioning in life center unit
User type	special education student special education teacher	teachers, students with SEN, local community, parents, caretakers
Type of use	collaborative use	collaborative use curriculum-based use community based use
Period of use	During School hour activity	during school hour activity out of school hour activity
Spatial requirements	informal learning spaces spaces for guidance and counseling	informal learning spaces spaces for guidance and counseling family room for waiting, meeting and training activities easily controllable, specialized or multipurpose spaces used after school hours with separate entrance

The Educational Practices through Inclusion Circular gives suggestions to teachers about planning events activities to promote social interaction and communication of student with SEN and their classmates (MEB, 2008). Thus, new adaptation for social integration is inevitable in inclusive education environment. Promoting the participation of broaden user profile challenge in life center unit because of having limited space. However, it can solve with a flexible timetable of school-centered activities.

Inclusive education mainly contributes self-improvement of students with SEN besides the purpose of disabled people's integration into society. According to the investigations both literature review and on-site experiences, functional expansion of the life center unit comprises a wide spectrum in terms of purpose and participation. Universal design put into use a practical way for design of the life center unit to respond expectations both behavioral and psychological. Priority about user consideration should be students with/without SEN when functions are decided. Functional priority firstly belongs to students' needs, both educational and social. Therefore, the adaptations in life center unit of Gökkuşığı Primary School is an example to help adding other spatial responsibilities to the life center unit for further implementations.



5. SPECIFYING DESIGN CRITERIA FOR LIFE CENTER UNIT

SERÇEV Accessible Vocational High School is an inclusive school that is built in Çayyolu Ankara, in Turkey between the years from 2015 to 2017. This school aims to maintain continuity on education of students with SEN after primary school. It also promotes occupations of disabled people in the market and or society to give and support education opportunity to them for vocational experiences. The curriculum of this school is based on inclusive vocational high school with special vocational education. There is an existence of life center unit in building spatial programme and it reflects the expectation about continuum of life center unit in inclusive education environment. SERÇEV Accessible Vocational High School is located between two main streets, which allow two independent entrances to the building. The building surrounded by houses, contrary to rendered image as below (Figure 5.1). School building has two entrance from both streets between where building is placed for easy access.



Figure 5.1 : SERÇEV Accessible Vocational High School (Source: Gökhan Aksoy Architecture, 2011).

Universal design principles promote space use with equal, accessible and usable. In inclusive education environment, all spaces both private and public must have equal opportunities in accordance with students or demands (Erkılıç, 2012). Through this

understanding, some spatial failures in planning of the school observed related to students with SEN. Then some solutions are suggested by an assessment report⁷ at the beginning of the construction process of the high school building. In this report, the circulation failures of the building that restrict the disabled students were found out, and then solutions were suggested for students with SEN.

In the light of the description of life center unit in Chapter 4, the gap between expectation and practice has found out a necessity of specifying design criteria for life center unit.

5.1 Life Center Unit in SERÇEV Accessible Vocational High School

The life center unit in the SERÇEV Accessible Vocational High School is located on the first/ground floor with a connection from both inside and outside of the building. It has a separate entrance from outside which is directly connected to outside of the building and has a garden its own. This independent entrance of the life center unit shows that there is an intention about use for out of school hours. There are classrooms and administration on the same floor and this encourages inviting possible users to life center unit (Figure 5.2).

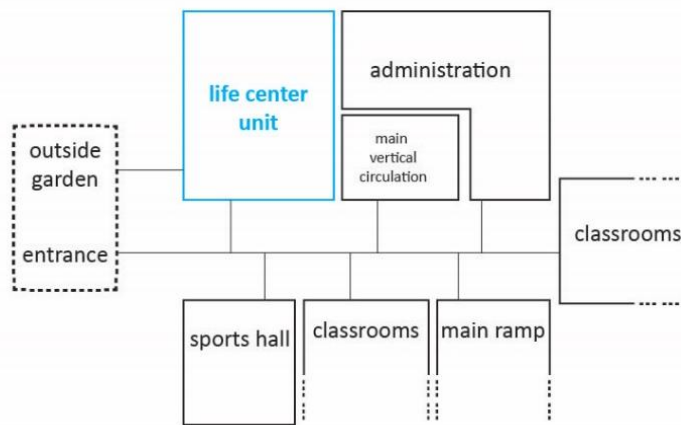
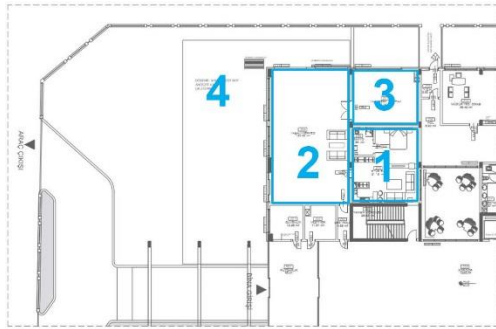


Figure 5.2 : The relation between life center unit and its surrounding functional units.

⁷ This report was for evaluating the SERÇEV Accessible Vocational High School building to find out the spatial and functional inadequacies during the construction process of TOKI. In addition, this report was produced under the umbrella of Interior Architecture Project III of IMIAD Master programme in 2015-2016 in fall semester related to the thesis project's study of Simge Gülbahar and, Ali Shoar with tutoring of Assoc. Prof. Dr. Özge Cordan and with the assistance of Demet Dinçay and Çağıl Yurdakul as advisors.(See Appendix D)



1
life center unit - practice unit



1
life center unit - practice unit



2
common area



3
kitchen



4
garden



Figure 5.4 : Rooms in the life center unit of SERÇEV Accessible Vocational High School.

This research supports the rejection on the idea of apartment flat type of planning of the life center unit. On the other hand, the life center unit in SERÇEV Accessible Vocational High School promises much broader use than the life center unit in

Gökkuşığı Primary School considering the further goals of the life center unit. Fundamental approach on the use of the life center unit in SERÇEV Accessible Vocational High School can be explained in following categorizations;

- 1- User type: students with/without SEN, teachers, advisors, therapists, other staff, parents, caretakers, local community, visitors and students with SEN from outside
- 2- Type of use: curriculum-based use, collaborative use, community-based use
- 3- Period of use: during school hours, out of school hours
- 4- Spatial requirement: formal learning spaces, informal learning spaces, non-specialist spaces, family room for waiting, meeting and training activities, spaces for personal care, easily controllable, specialized or multipurpose spaces used after school hours with separate entrance.

Size of the life center unit restricts the amount of necessary functional requirements, so that existing plan has an intention to discriminate users. Zones must determine in order to specify design principles and accommodate useful spatial necessities and functions by means of internalizing further goals of life center unit. In addition, the spatial zoning distinguishes not only the functions but also the user types.

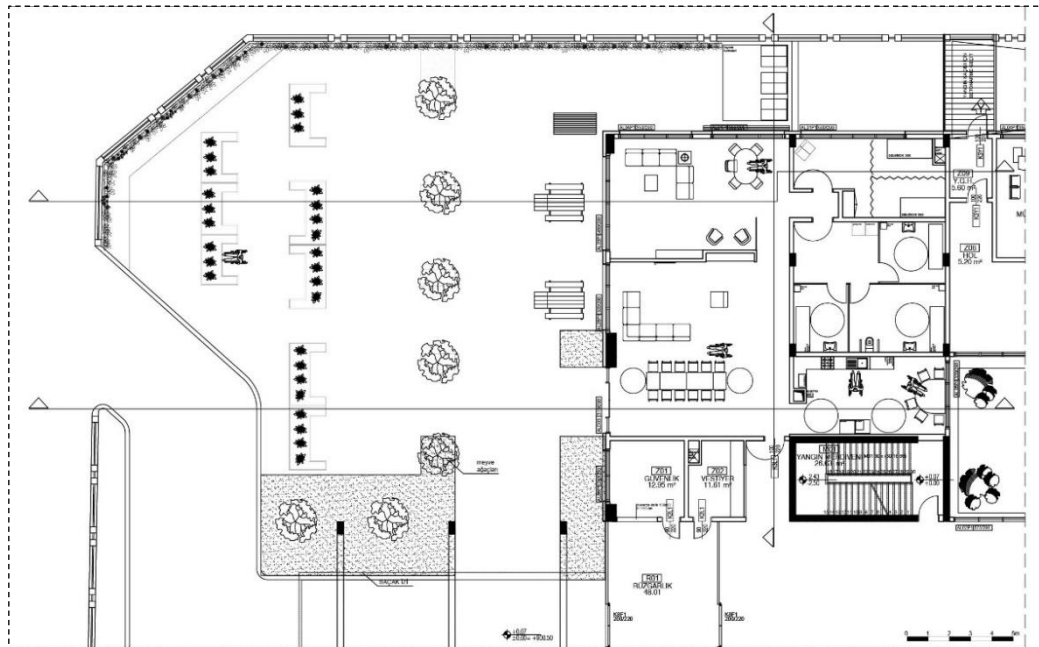


Figure 5.5 : Suggested arrangements of life center unit in IMIAD Project III Course.

5.2 Zoning of the Life Center Unit

The zoning based on public, private, and additional spatial areas in life center unit is suggested in order to internalize functional requirements. This zoning is a categorization, which is according to the spatial program needs. Thus, privacy limits can control easily. Functional territories can remove its inconsistency or generate a buffer zone. The discussion starts how increases this space's inclusivity and preclude stigmatization among users in space. Expectations in life center unit can be provided with this approach effectively.

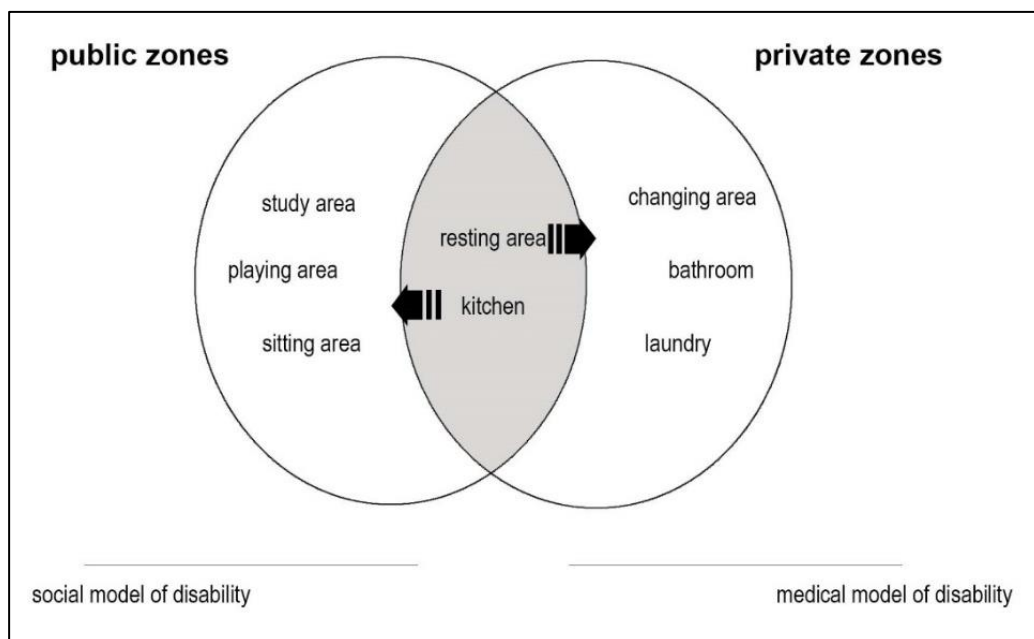


Figure 5.6 : Zoning diagram in the life center unit.

Deciding two main zones, which can embody other functions, help to identify the spatial requirements according to user and space capacity. Designers should formulate the functions in the zones according to user needs (Figure 5.6). Dominant character of educational purpose is solution oriented unlike social or individual purpose for eliminating spatial problems when zones are decided. In this research, blurred zone sweeps between private and public according to either medical or social model of disability.

In addition, design criteria, which can apply to designing of life center unit, can be changed according to the functional zones. Main topics of design discussion in life center unit are listed to ease implementations of interior components.

5.2.1 Public zones

Intention of inclusive education improves social integration among different bodily abilities in the society. Size of space and number of users in inclusive school environments can allow specialized/intermediary functions to respond individual needs. This zone can be designed the idea that is high level of social integration by clustering arrangements. The special rooms' arrangements such as resting, napping and so on are also related to privacy issue and personal needs. In this manner, privacy limits can control with enclosed functions into boundaries.

Social integration in inclusive education school environment is highly dominant among users in common areas. In addition, it should accommodate spatial and functional opportunities, which are responding student with SEN. This manner shows that some territories need more privacy in common area related to common use. This requirement also needs an area, which allows flexible arrangements for future adaptations and seems welcome for student (Figure 5.7). Intermediary functions that are identified in this research may become different in the future, but two ends of the functionality in common area stay stable in every implementation while intermediaries can eliminate.



Figure 5.7 : Recommended space as common area in life center unit.

Life center unit should not be a look like home is a perception that is necessary to repeat again. Space is temporary for users because of its public role, so human functioning varies in terms of dynamics that diversity of user.

Promoting social integration, sitting arrangement should include different clustering opportunities for different social interaction. Rectangular tables or sitting arrangements dominates one-person impact in conversation while circle-sitting arrangements fosters people conversation (Steinfeld et. al, 2012). Besides sitting arrangements, human functioning and capabilities should be considered for proper

furniture choice in order to increase social integration. Flexibility of arrangements should allow different clustering options for activities to control social interaction between users with each other.

Kitchen describes a necessity of a cooking place and a storage for equipment. In spatial organization of the kitchen, this place can be defined a transition area through public zone. The furniture and furnishing should be simple and easy to use. The counter can be adjustable in some parts, and it is not necessary to have cabinet under it. In case there is need for storage, pull out or pull down systems can be used as shelving systems in cabinets for saving effort (Figure 5.8).



Figure 5.8 : Shelving Systems: (a)Pull-out (Url-7). (b)Pull-down (Url-8).

The location of the life center unit is in a suitable position in the spatial organization of the SERÇEV Accessible Vocational High School. In addition, the relation with the garden and the life center unit facilitate the indoor and outdoor use at the same time. The independent entrance of the garden allows use of it out of school hours (Figure 5.9).



Figure 5.9 : Outdoor space of the life center unit in SERÇEV Accessible Vocational High School.

Secondary outdoor activities can encourage children to be adventurous, supporting their skill-based learning and enjoyment of recreational, activities, and supporting their

progress to independence. Any conflicting needs should be resolved in the design (Educational Funding Agency, 2014: p. 100). Suitable arrangements considering user requirements must be included in outdoor facilities (Figure 5.10).



Figure 5.10 : Plantation areas for wheelchair users.

5.2.2 Private zones

Private zones provide use for individual needs, especially student with SEN. It stresses the medical model definition of disability, thus considers the individual needs of student with SEN. Because of the interviews with some parents of students with cerebral palsy, it can be concluded that they expect a place in inclusive school environment for their children to change their clothes due to their incontinence problems. The life center unit can accommodate a changing room when the functions surrounding the life center unit are considered. Changing room should vary in terms of arrangements because students have different level of disability (Figure 5.11).

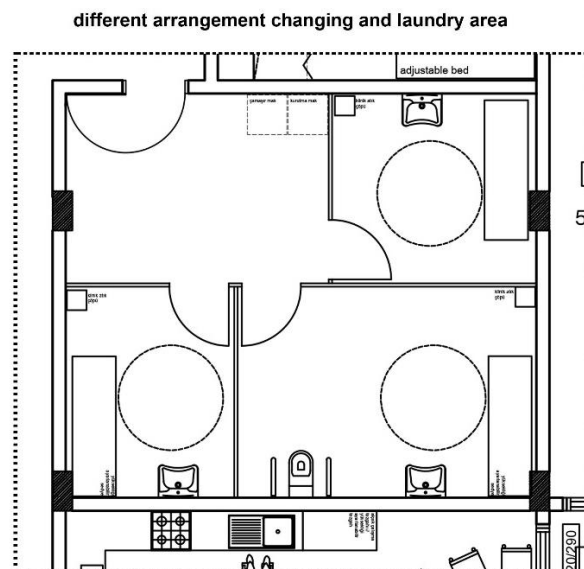


Figure 5.11 : Recommended changing room arrangement for student with SEN.

Furniture in changing room should serve easy usage for accompanying person of students with SEN. Adjustable bed can be preferred rather than a fixed one (Figure 5.12). It also gives flexibility in use in related areas. Student with CP can be tired easily, so they need to rest some time in school hours. Considering diverse characteristics of disabilities, adjustable equipment is suitable to use in furniture of resting room.



Figure 5.12 : Adjustable stretcher and bed (Url-11).

5.2.3 Additional areas

After analyzing the existing plan schema of which includes classrooms on both floor in the SERÇEV Accessible Vocational High School, additional spaces are recommended for the life center unit on the ground floor in order to find a suitable solution for two-story building in terms of providing an effective use. The room, which is parents' room in existing plan, is functioned as an additional area for life center unit (Figure 5.13; Figure 5.14). Parents are in the user type of life center unit in further goals, so separate room for them cause a discriminatory spatial organization.

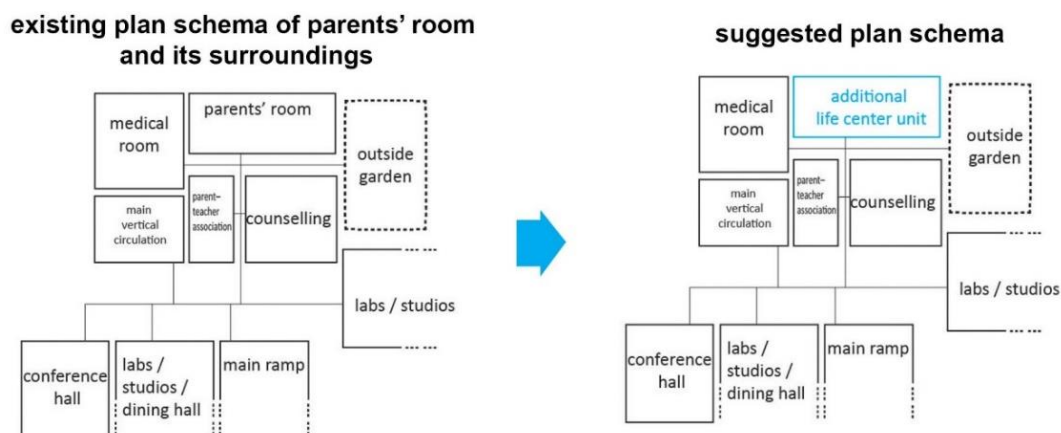


Figure 5.13 : Functional changes for additional area of life center unit

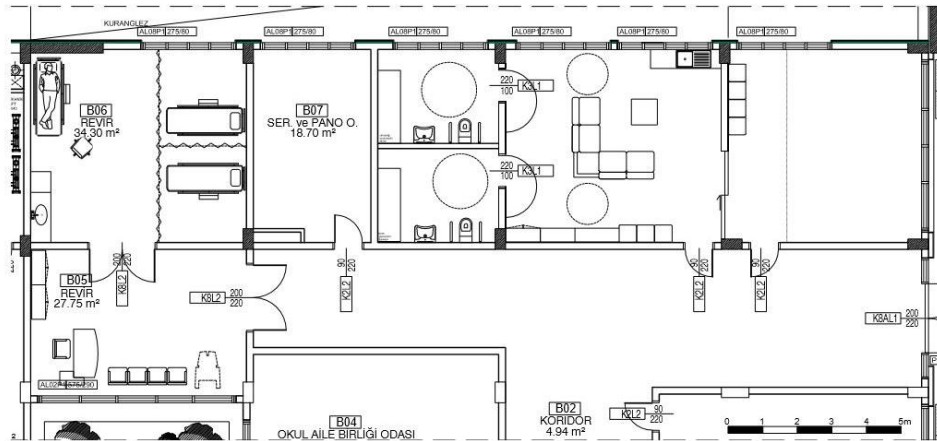


Figure 5.14 : Recommendation for additional areas of the life center unit in SERÇEV Accessible Vocational High School within the IMIAD Project III Course.

5.3 Design Criteria for Life Center Unit

Edward (2011) states UD principles as a key values and ethics for human needs and factors that include “the issues of inclusiveness (equitable use), choice (flexibility in use), clarity (simple and intuitive use; perceptible information), safety (tolerance for error), and comfort (low physical effort; size and space for approach and use)”. So UD principles are related to human needs and factors because of its user-oriented approach. Spatial failures in an interior space can eliminate if human needs and factors are ensured. Interiors of support spaces can be divided in two main topics, which are spatial organization and interior elements, for discussing the relation between them and human needs and factors (Figure 5.15). Spatial organization analysis functional and dimensional relation in interiors; interior elements analyze technical and detailed concerns of interior space. In this context, UD principles can help specifying interior requirements of support spaces in various levels of needs by discussing the relation of human needs and factors and interior space.

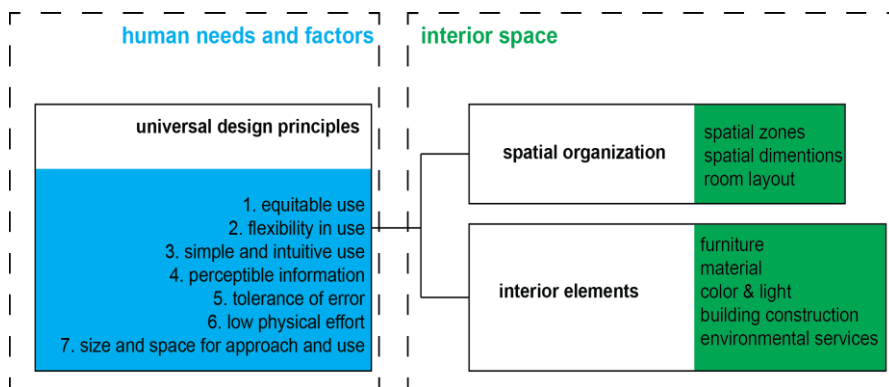


Figure 5.15 : The relation between human needs and factors and interior space.

Any regulation or legislation do not mention support spaces in inclusive education environments in terms of their design criteria. For this reason, life center unit's design criteria introduce in Table A.1 due to the recommendations for life center unit in SERÇEV Accessible Vocational High School (See Appendix A). In addition, life center unit's design criteria are structured according to the relations shown in Figure 5.15. These criteria help designers by giving useful information to put into practice for designing life center unit. Defining the life center unit's design criteria aims minimizing spatial failures for responding universal design principles.

These criteria can remove the ambiguities about design attitudes of life center units. They can improve and modify according to the user's needs and future spatial requirements.



6. CONCLUSIONS AND RECOMMENDATIONS

In the millennium age, when protection of fundamental human rights is essential, governments should promote inclusive educational environment to solve social participation problems of people with SEN. Since education has been getting marginalized globally, inclusive education environments should keep up with current design understanding in line with culture and politics. New applications or practices, which fulfill new spatial necessities, should be put forward as a solution to increase the social participation and integration to the inclusive education environments. Thus, educational applications for disabled people should change according to their necessities. Authorities must evaluate user pluralism equivalence between space necessities to find optimum universal design solutions in education environments.

Inclusive education should be discussed with a “design for all” approach rather than individualized ones. In this context, universal design principles can help create an accessible environment not only for a specific group, but also for the community. Inclusive education constructs an approach to meet individual necessities in the same public space. This situation increases the communication among different groups, which is important for social integration. Therefore, governments must emphasize the significance of supportive units in inclusive education for well-being of the society. Moreover, diversity of user profile poses another design issue to provide everyone with an equal accessibility within an educational environment. Minimizing spatial failures is important to increase the participation of disabled people in an effective and active manner.

SERÇEV (Children with Cerebral Palsy Association) has been encouraging projects regarding to inclusive education for children with Cerebral Palsy to protect their educational rights in Turkey. These projects increase the social integration of children with CP and encourage them for being a part of the society as a productive citizen. On the other hand, discussions about accessibility and usability have attracted attention thanks to the projects encouraged by SERÇEV to promote the participation of children with CP into the inclusive education environments. User’s variety poses spatial

problems in inclusive education environment due to Cerebral Palsy, which restricts the classification of human function in a built environment. At this point, universal design must be brought into discussion in design process of inclusive education environment to eliminate possible impediments that might occur related to students with SEN.

Although spatial necessities of inclusive schools are defined by legislations and regulations properly, new spaces are formed due to users' demands related to their social integration in further levels in order to promote supportive aspects of inclusive education. In this context, life center unit for inclusive educational environment is intuitively an adaptation, which brings along an expansion in terms of determination and participation. Inadequate and inefficient facilities in this unit limit the development of disabled students' social skills. For this reason, life center unit should be adapted in educational curriculum as a supportive service. It can help understand the purpose and user potential of the unit, which can ease the design process to define the spatial needs. Erkilic and Durak (2013) also emphasize the spatial needs in inclusive education by saying that "more holistic approach is required because short-cut descriptions of spaces are wholly inadequate for the exclusion of the vision of inclusive education and are likely to create further problems due to their piecemeal concern with the physical problems of inclusive education".

The current position of life center unit in inclusive education environment and the universal design principles have a large content beyond the technical requirements to maintain spatial quality of the life center unit. The issue is not only a door handle or scope of the ramp, but also unity of people without any embracement in the space. Life center unit should be organized in response to students' basic daily needs in addition to their educational needs so as to become an opportunity for students to share knowledge and experience with each other by showing empathy. It will make the information more accessible by nurturing the communication between disabled students and other users at school.

The interview notes with the volunteers of SERÇEV have highlighted that disabled students have started to become entrepreneurs to create solutions for themselves to inspire a more inclusive education environment. On the other hand, non-disabled students have left behind their misconceptions to their disabled peers. Life center unit also help create an environment encouraging personal improvement and social independence. There is not a clear decision in terms of functional territories. In short,

possible actions and spatial arrangements must be clarified for life center unit in order to develop specific standards and requirements for better spatial organization.

Life center unit has an ambiguity in use, though general view does present that it aims for a home life experience to teach students with SEN the basic life skills. However, life center unit is in progress to expand its definition, adding accompanying people, parents and others into the user profile in addition to the students with SEN. It has become a place, where both educational needs and social interaction meet.

Throughout this thesis research, it seems that universal design studies in the design field mostly draw its framework from the condition of existing buildings as to whether they are suitable in terms of accessibility standards or not. However, UD is an important issue that needs to be cultivated by other professions to carry the definition beyond an ordinary discourse. Universal design is basically an user-oriented design approach, and also an user friendly approach. Any design approach cannot claim that it is for whole population, so professionals should focus on special cases and purposes. Observations on the studies about special education demonstrates that it mostly focuses on primary level as a case study, even though legislations and regulations include secondary education. The importance given to primary school education must also be given to secondary school education for continuity of this endeavor. Otherwise, those who finish primary school education will face some integration problems in their further educational life.

Social integration among students is a necessity to be maintained in inclusive school environments. Therefore, life center unit has become an option, which refers to some standards of inclusive education in Turkish schools. Additional supportive services for social integration with further community facilities and community involvement should be included within the responsibilities of life center unit, thereby participation of families. Life center unit should be comprised by IEP as a supportive educational unit in inclusive education in order to help understand the spatial requirements of the unit.

Educational environment does not just transmit intellectual information to student with SEN; it must include spaces that could strengthen social relation and integration among its users. Maintaining the balance between behavioral and physiological performance in the educational environment should be protected to eliminate discrimination

problems among users. As Imrie (2012) pointed out “universal design must be integrated as a ‘whole’ at the beginning of the design process to prevent inequality in built environment”. Contemplation of UD principles seems mostly appealing to seek technical compatibility between human functioning and environment. UD should also analyze psychological impacts on users according to the environmental solutions that provide accessibility and usability, because it could easily turn into exclusion by stigmatization rather than inclusion.

Temporary approaches, neither in design nor in construction process, will not be enough for solving spatial problems of inclusive education environments. Educational professionals, chambers, educational ministries should improve the qualifications both in design and education by laws, regulations and legislations with collaboration. There are weaknesses in the regulations in terms of defining environmental necessities for high school level. A strong and constant communication between designer and demander can eliminate the problems in design process. Even though the project is well-prepared in office, construction problems ruin particularity of design on site.

In conclusion, life center unit appears as a support space for students with SEN in inclusive education environment, and seeks a continuum in practice with more extensive content in inclusive education. There must be updated legislations with the concerns of new spatial adaptation to prevent discrimination and segregation problems among students in inclusive education environments.

In this research, defining life center unit’s design criteria, which are blended with universal design principles, creates a common language in order to reinforce and contribute the negotiation of different professionals effectively. These criteria promise full integration for all participants by promoting accessibility and usability in inclusive education environment. Educational environments as a fundamental supplier of a strong society can be away from discrimination and stigmatization due to spatial practices appealing more inclusive and universal intentions. Therefore, life center unit’s design criteria that are specified in this research ensure appropriate intentions for design process of life center unit. This thesis outlines the practical approaches, which respond diverse needs -in other words universal design principles-, in order to guide designers minimizing spatial barriers in life center units.

REFERENCES

- Americans with Disabilities Act (ADA)** (2010). Retrieved March 17, 2016 from www.ADA.gov.
- Coleman, R.** (2001). Designing for Our Future Selves. In W.F.E. Preiser and E.Ostroff (Eds.), *Universal Design Handbook* (pp. 4.1-4.25). New York: McGraw-Hill.
- Council for Disabled Children** (2012). *Information about Cerebral Palsy* Retrieved October, 2016 from <https://councilfordisabledchildren.org.uk/sites/default/files/field/attachemnt/earlysupportcerebral-palsy-final.pdf>.
- Disability Discrimination Act (DDA)** (1995). Retrieved March 17, 2016 from <http://www.legislation.gov.uk/ukpga/1995/50/contents>.
- Dostođlu, N., řahin, E. ve Taneli, Y.** (2009). Tasarıma Kapsayıcı Yaklaşım: Herkes için Tasarım. Retrieved May 23, 2016 from <http://www.mimarlikdergisi.com/index.cfm?sayfa=mimarlik&DergiSai=361&RecID=2062>
- D'souza, N.** (2004). Is Universal Design a Critical Theory?. In: Keates S., Clarkson J., Langdon P., Robinson P. (eds) *Designing a More Inclusive World*. Springer, London. DOI: 10.1007/978-0-85729-372-5_1
- Durak, S.** (2010). *Searching for a common framework for education and architecture through reconsideration of universal design principles for promoting inclusive education in primary schools* (PhD thesis). Middle East Technical University, Graduate School of Natural and Applied Science, Ankara.
- Durak, S. & Erkıılıç, M.** (2012). Inclusive Education Environments from the Teachers' Perspective: An Inquiry in a Turkish Primary School. *Children, Youth and Environments*, 22(1), 304-313. Retrieved from doi:10.7721/chilyoutenvi.22.1.0304
- Erkıılıç, M.** (2011). Conceptual Challenges Between Universal Design And Disability In Relation To The Body, Impairment, And The Environment, Where Does The Issue Of Disability Stand In The Philosophy Of Ud?, *METU Journal Of The Faculty Of Architecture*, (28:2), 181-203.
- Erkıılıç, M.** (2012). Inclusive Schools And Urban Space Diversity: Universal Design Strategies In Use, *METU Journal Of The Faculty Of Architecture*, (29:1), 193-206.
- Erkilic, M. and Durak, S.** (2013). Tolerable and inclusive learning spaces: an evaluation of policies and specifications for physical environments that promote inclusion in Turkish Primary Schools, *International Journal of*

Inclusive Education, (17:5), 462-479, DOI: 10.1080/13603116.2012.685333

- Edwards, C.** (2011). *Interior design: A critical introduction*. Oxford: Berg.
- Education Funding Agency** (2014). *Building Bulletin 102: designing for disabled children and children with SEN*. Retrieved from GOV.UK web site: <https://www.gov.uk/government/publications/building-bulletin-102-disabled-children-and-children-with-sen>
- Erlandson, R., F.** (2008). *Universal and Accessible Design for Products, Services, and Processes* (illustrate ed.). GB: CRC Press.
- Gargiulo, R. M. and Metcalf, D.** (2010). *Teaching in Today's Inclusive Classrooms: A Universal Design for Learning Approach*. Wadsworth: Cengage Learning. International Edition.
- Goldsmith, S.** (1997). *Designing for the Disabled the New Paradigm*. Architectural Press.
- Goldsmith, S.** (2000). *Universal Design*. Architectural Press.
- Fischer, J. and Meuser, P.** (2009). *Construction and Design Manual Accessible Architecture*, DOM Publishers.
- Hammal, D., Jarvis, S.N., Colver, A.F.** (2004), Participation of children with cerebral palsy is influenced by where they live, *Developmental Medicine & Child Neurology*. 2004 May; 46 (5):299-304.
- Hacıhasanoğlu, I.** (2003). Universal Design=Evrensel Tasarım, *Tasarım + Kuram*, (3), 93.
- Hemmingson, H. and Borell, L.** (2001). Environmental barriers in mainstream schools, *Child: Care, Health & Development*, 28:1,57-63.
- Imrie, R.** (2012). Universalism, universal design and equitable access to the built environment. *Disability and Rehabilitation*, 34:10, 873-882. DOI:10.3109/09638288.2011.624250
- Imrie, R., Luck, R.** (2014). Designing inclusive environments: rehabilitating the body and the relevance of universal design. *Disability and Rehabilitation*, 36:16, 1315-1319. <http://dx.doi.org/10.3109/09638288.2014.936191>
- Iwarson, S. and Stahl, A.** (2003). Accessibility, usability, and universal design-positioning and definition of concepts describing person- environment relationships, *Disability and Rehabilitation*, 25:2, 57-66.
- Kargın, T.** (2004). Kaynaştırma: tanımı, gelişimi ve ilkeleri. *Özel Eğitim Dergisi*, 5 (2), 1-13.
- Keates, S. and Clarkson, J.** (2003). *Countering design exclusion: an introduction to inclusive design*. USA: Springer.
- Kırcaali-İftar, G.** (1998). Özel Gereksinimli Bireyler ve Özel Eğitim. In S. Eripek (Ed.) *Özel Eğitim*. Anadolu Üniversitesi Açıköğretim Fakültesi İlköğretim Öğretmenliği Lisans Tamamlama Programı. Eskişehir.
- Mcguire, J. M., Scott, S. S. & Shaw, S. F.** (2006). Universal Design and Its Applications in Educational Environments. *Remedial and Special Education*, 27:3, 166-175. DOI: 10.1177/07419325060270030501

- Mihaylov, S. I., Jarvis, S. N., Colver, A. F., & Beresford, B.** (2004). Identification and description of environmental factors that influence participation of children with cerebral palsy. *Development Medicine & Child Neurology*, 299-304.
- Milli Eğitim Bakanlığı (MEB)** (2000). Özel Eğitim Yönetmeliği, Retrieved April 26, 2016 from <http://mevzuat.meb.gov.tr/html/66.html>
- Milli Eğitim Bakanlığı (MEB)** (2001). Millî Eğitim Bakanlığı Rehberlik Ve Psikolojik Danışma Hizmetleri Yönetmeliği, Retrieved September 25, 2016 from <http://mevzuat.meb.gov.tr/html/68.html>
- Milli Eğitim Bakanlığı (MEB)** (2006). Özel Eğitim Yönetmeliği, Retrieved April 26, 2016 from http://orgm.meb.gov.tr/meb_iys_dosyalar/2012_10/10111226_ozel_egitim_hizmetleri_yonetmeligi_son.pdf
<http://mevzuat.meb.gov.tr/html/66.html>
- Milli Eğitim Bakanlığı (MEB)** (2008a). Kaynaştırma Yoluyla Eğitim Uygulamaları Genelgesi, Retrieved September 25, 2016 from http://orgm.meb.gov.tr/meb_iys_dosyalar/2015_10/08101631_kaynatr_mayoluylaegitimuygulamas Genelgesi.pdf
- Milli Eğitim Bakanlığı (MEB)** (2008b). Zihinsel Engelliler Destek Eğitim Programı, Retrieved April 22, 2017 from http://etiram.meb.k12.tr/meb_iys_dosyalar/06/27/752944/dosyalar/2015_10/16112438_zhnselengellibreyldesteketmprogram%C4%B1.pdf
- Milli Eğitim Bakanlığı (MEB)** (2004). *Bireyselleştirilmiş Eğitim Programı: Yol Haritası*. Ankara: 4. Akşam Sanat Okulu Matbaası. Retrieved April 26, 2016 from http://orgm.meb.gov.tr/meb_iys_dosyalar/2013_09/18015222_bireyse_lletirilmieitimprogram.pdf
- Milli Eğitim Bakanlığı (MEB)** (2013). Kaynaştırma Eğitimi. Ankara. Retrieved April, 2016 from http://www.megep.meb.gov.tr/mte_program_modul/moduller_pdf/Kayna%C5%9Ft%C4%B1rma%20E%C4%9Fitimi.pdf
- Milli Eğitim Bakanlığı (MEB)** (2015). *Milli Eğitim Bakanlığı Eğitim Yapıları Asgari Tasarım Standartları 2015 Yılı Kılavuzu*. Retrieved April 20, 2017 from http://iedb.meb.gov.tr/meb_iys_dosyalar/2015_08/17032245_2015asg_ aritasarmklavuzu.pdf
- Milli Eğitim Bakanlığı Özel Eğitim Kurumları Yönetmeliği** (2012), *TC Resmi Gazete*, 28296, 18 Mayıs 2012.
- Null, R.** (2014). *Universal Design: principles and models*. Boca Raton, Fla. : CRC Press. Retrieved from <http://0-dx.doi.org.divit.library.itu.edu.tr/10.1201/b15580>
- Nussbaumer, L. L.** (2012). *Inclusive Design*. USA: Fairchild Books.
- OECD** (2000). *Inclusive Education at Work: Students with Disabilities in Mainstream Schools*, OECD Publishing, Paris. DOI: <http://0-dx.doi.org.divit.library.itu.edu.tr/10.1787/9789264180383-en>

- Ostroff, E.** (2001). Universal Design: The New Paradigm. In W.F.E. Preiser and E.Ostroff (Eds.), *Universal Design Handbook* (pp. 1.3-1.12). New York: McGraw-Hill.
- Özel Eğitim Hakkında Kanun Hükmünde Kararname** (1997), *TC Resmi Gazete*, Sayı 23011 1. Mükerrer, 06.06.1997. Retrieved from <http://www.mevzuat.gov.tr/Metin.Aspx?MevzuatKod=4.5.573&MevzuatIliski=0&sourceXmlSearch=> , Erişim Tarihi:07-05-2013.
- Persson, H., Ahman, H., Yngling, A.A., Gulliksen, J.** (2015). Universal design, inclusive design, accessible design, design for all: different concepts— one goal? On the concept of accessibility— historical, methodological and philosophical aspects, *Universal Access in the Information Society*, 14:4, 505–526, doi:10.1007/s10209-014-0358-z
- Peters, S. J.** (2007). "Education for all?": A historical analysis of international inclusive education policy and individuals with disabilities. *Journal of Disability Policy Studies*, 18(2), 98-108. Retrieved from <http://160.75.22.2/docview/211212338?accountid=11638>
- Preiser, W. F. E., & Ostroff, E.** (2001). Universal design handbook. New York: McGraw-Hill.
- Scott, S. S., Mcguire, J. M. & Shaw, S. F.** (2003). Universal Design for Instruction: A New Paradigm for Adult Instruction in Postsecondary Education. *Remedial and Special Education*, 24:6, 369-379, doi:10.1177/07419325030240060801
- SERÇEV.** (2016, Ocak 7). Retrieved January 7, 2016 from <http://www.sercev.org.tr/>
- Special Educational Needs and Disability Act (SENDA)** (2001). Retrieved April 13, 2016 from http://www.legislation.gov.uk/ukpga/2001/10/pdfs/ukpga_20010010_en.pdf.
- Steinfeld, E., Maisel, J., & Levine, D.** (2012). *Universal Design: Creating Inclusive Environments* (1). Hoboken, US: Wiley. Retrieved May 12, 2016 from <http://0-www.ebrary.com.divit.library.itu.edu.tr>
- Sucuoğlu, B.** (2004). Türkiye’de Kaynaştırma Uygulamaları: Yayınlar/Araştırmalar (1980-2005). *Özel Eğitim Dergisi*, 5 (2), 15-23.
- The Center for Universal Design (CUD)** (2008). *North Caroline State University: The Center for Universal Design*. Retrieved 26 April, 2016, from <https://www.ncsu.edu/ncsu/design/cud/index.htm>
- The Commission for Architecture and the Built Environment (CABE)** (2008). Inclusion by Design Equality, Diversity and the Built Environment, Retrieved on November 21, 2016, from <https://www.designcouncil.org.uk/sites/default/files/asset/document/inclusion-by-design.pdf>
- Türkiye İstatistik Kurumu (TUIK).** (2016, Nisan 14). Retrieved April, 2016 http://www.tuik.gov.tr/PreTablo.do?alt_id=1017
- United Nations Children’s Fund (UNICEF)** (2011). *The Right of Children with Disabilities to Education: A Rights-Based Approach to Inclusive*

Education. Geneva: UNICEF. Retrieved April, 2017 from [https://www.unicef.org/ceecis/Background_NoteFINAL\(1\).pdf](https://www.unicef.org/ceecis/Background_NoteFINAL(1).pdf).

United Nations Educational, Scientific and Cultural Organization (UNESCO) (1994). *Salamanca statement and framework for action on special needs education*. Retrieved February, 2017 http://www.unesco.org/education/pdf/SALAMA_E.PDF

United Nations Educational, Scientific and Cultural Organization (UNESCO) (2005). *Guidelines for Inclusion: Ensuring Access to Education for All*. France: UNESCO. Retrieved April, 2017 from <http://unesdoc.unesco.org/images/0014/001402/140224e.pdf>

United Nations Educational, Scientific and Cultural Organization (UNESCO) (2009). *Policy Guidelines on Inclusion in Education*. France: UNESCO. Retrieved April, 2016 <http://unesdoc.unesco.org/images/0017/001778/177849e.pdf>

United Nations Educational, Scientific and Cultural Organization (UNESCO) (2010). *EFA (Education for All) Global Monitoring Report: Reaching the Marginalized*. Paris: UNESCO and Oxford: Oxford University Press. Retrieved April, 2016 <http://unesdoc.unesco.org/images/0018/001865/186525E.pdf>

United Nations Educational, Scientific and Cultural Organization (UNESCO) (2015). *Teaching Children with Disabilities in Inclusive Settings*. Paris: UNESCO and UNESCO Bangkok Office. Retrieved April, 2016 <http://unesdoc.unesco.org/images/0018/001829/182975e.pdf>

Url-1 <<http://www.cpl.org.au/childrens-services/newly-diagnosed/cp>>, date retrieved 24.10.2016.

Url-2 < <https://at-aust.org/items/1572/print>>, date retrieved 07.12.2016

Url-3 <<http://www.designcouncil.org.uk/news-opinion/considering-inclusive-environments-and-how-we-rethink-design>>, date retrieved 03.01.2017

Url-4 <<http://www.disability.co.uk/sites/default/files/resources/fundamental%20principles.pdf>>, date retrieved 05.01.2017

Url-5 <http://www.sabancivakfi.org/files/html/programlar/tghp/Tohum_Kaynastirma_Durum_Raporu.pdf>, date retrieved 17.02.2017

Url-6 < <https://www.cerebralpalsy.org.au/services/all-programs-and-services/assistive-technology/>>, date retrieved 18.03.2017

Url-7 <<https://www.ovisonline.com/Assets/PdfS/revashelf/5WB2.pdf>>, date retrieved 15.04.2017

Url-8 <<https://www.ovisonline.com/24-Inch-Pull-Down-Shelf-P628.aspx>>, date retrieved 15.04.2017

Url-9 <<http://sportsconflict.org/wp-content/uploads/2014/12/Inclusion.jpg>>, date retrieved 15.04.2017

Url-10

<<http://webarchive.nationalarchives.gov.uk/20110118095356/http://www.cabe.org.uk/files/the-principles-of-inclusive-design.pdf>>, date retrieved 22.04.2017

Url-11

<<http://tado.co.uk/portfolio/sheffield-childrens-hospital-ryegate-centre-hydrotherapy-pool/>>, date retrieved 08.05.2017

Url-12

<<http://www.designshare.com/index.php/projects/pistorius-schule/intro>>, date retrieved 14.05.2017

Url-13

<<http://www.designshare.com/index.php/projects/park-school-katies-corner-multisensory-and-therapy-rooms/images>>, date retrieved 21.05.2017

Vural, S. & Yücesoy, Ş. (2003), Türkiye’de Özel Gereksinimli Bireylere Yönelik Hizmetlerin Yasal Yapılanmasında Avrupa Birliği’ne Uyum Çabalarının Yansımaları, *Sosyal Bilimler Dergisi 2003-2004*, 141-158 Retrieved from <https://earsiv.anadolu.edu.tr/xmlui/bitstream/handle/11421/506/194893.pdf?sequence=1&isAllowed=y>.

WHO (2001), International Classification of Functioning, Disability and Health, WHO Press, Geneva, Retrieved from <https://unstats.un.org/Unsd/disability/pdfs/ac.81-b4.pdf>.

WHO (2011), World Report On Disability, WHO Press, Retrieved from http://www.who.int/disabilities/world_report/2011/report.pdf.

APPENDICES

APPENDIX A: Life Center Unit's Design Criteria

APPENDIX B: Survey

APPENDIX C: Survey Result

APPENDIX D: TOKI Report (Gölbahar, S., Shoar, A., Cordan, Ö., Dinçay, D., Yurdakul, Ç., SERÇEV Engelsiz Meslek Lisesi İç Mimari Projesi Değerlendirme Raporu, 16 November 2015.)





APPENDIX A

Table A.1 : Life center unit’s design criteria.

HUMAN NEEDS AND FACTORS		UD UNIVERSAL DESIGN PRINCIPLES (Copyright 1997 NC State University, The Center for Universal Design)							
		Life Center Unit Design Criteria	Principle 1_Equitable Use: The design is useful and marketable to people with diverse abilities	Principle 2_Flexibility in Use: The design accommodates wide range of individual preferences and abilities	Principle 3_Simple and Intuitive Use: Use of the design is easy to understand, regardless of the user's experience, knowledge, language skills, or current concentration level	Principle 4_Perceptible Information: The design communicates necessary information effectively to the user, regardless of ambient conditions or the user's sensory abilities	Principle 5_Tolerance for Error: The design minimizes hazards and the adverse consequences of accidental or unintended actions	Principle 6_Low Physical Effort: The design can be used efficiently and comfortably and with a minimum of fatigue	Principle 7_Size and Space for Approach and Use: Appropriate size and space is provided for approach, reach, manipulation, and use regardless of user's body size, posture, or mobility
Key Values and Ethics (Edward, 2011)		Inclusiveness	Choice	Clarity	Clarity	Safety	Comfort	Comfort	
INTERIOR SPACE	Spatial Organization	Public Zone	<ul style="list-style-type: none"> Public zones should be maintained the equitable use in spatial organization. Functions should respond the needs of social model of disability. Public zones should welcome all participants' expectations. Public zones should be located on the ground floor. 	<ul style="list-style-type: none"> Flexibility in spatial organization should be maintained for multi-purpose activities. Possible adaptations in public zone should be considered for future use. Heavy user traffic should be considered in public zones. Entrances to public zone should be provided from both outside and inside of the building. 	<ul style="list-style-type: none"> Public zones should support simple and intuitive use. Use of equipments in public zones should respond medical needs of student with SEN. Unnecessary and non-demanding implementations should be avoided. Automatic sensor use in common areas should be provided for maintaining mobility. 	<ul style="list-style-type: none"> Public zones should maintain perceptible information. Placing signs should be put at junctions or in long passageways to indicate direction or position. Defining routes through large open areas should be provided with contrasting textures or finishes. 	<ul style="list-style-type: none"> Public zones both inside and outside should have appropriate arrangements related to spatial and environmental conditions. 	<ul style="list-style-type: none"> The spatial organisation of public zones should provide efficiency, comfort and with a minimum of fatigue in use. Accessibility with a minimum of fatigue should be provided in spatial organisation. Unnecessary routes between rooms in public zone should be avoided. 	<ul style="list-style-type: none"> Public space should provide proper size and space for approach and use for all users. Distances between rooms in life center unit can be provided minimum for easing mobility.
		Private Zone	<ul style="list-style-type: none"> Private zone accommodates the functions responding individual needs such as changing rooms, bathroom, laundry. Functions should respond the needs of medical model of disability. 	<ul style="list-style-type: none"> Flexibility in spatial organization should be maintained. Rooms in private zones should vary for different needs of students with SEN. Entrances of the rooms in private zones should be provided from public zones by protecting privacy limits. 	<ul style="list-style-type: none"> Private zones should support simple and intuitive use. Use of equipments in private zones should respond medical needs of student with SEN. 	<ul style="list-style-type: none"> Private zones should maintain perceptible information. 	<ul style="list-style-type: none"> Private zones should have appropriate arrangements. 	<ul style="list-style-type: none"> The spatial organisation of private zones should provide efficiency, comfort and with a minimum of fatigue in use. Usability efforts in private zone should be minimized. 	<ul style="list-style-type: none"> Private space should provide proper size and space for approach and use for all users.
		Buffer Zone	<ul style="list-style-type: none"> The needs of student with SEN could be changed the functional requirements. The functions could contribute either private or public zone. 	<ul style="list-style-type: none"> Flexibility in spatial organization should be maintained. Entry and exit to buffer zones should maintain flexibility in use. 	<ul style="list-style-type: none"> Buffer zones should support simple and intuitive use. Use of equipments in buffer zones should respond medical needs of student with SEN. 	<ul style="list-style-type: none"> Buffer zones should maintain perceptible information. 	<ul style="list-style-type: none"> Buffer zones should have appropriate arrangements. 	<ul style="list-style-type: none"> The spatial organisation of buffer zones should provide efficiency, comfort and with a minimum of fatigue in use. 	<ul style="list-style-type: none"> Buffer zone should provide proper size and space for approach and use for all users.
	Room Layout	Room Layout	<ul style="list-style-type: none"> Room layout should provide equitability in use. Sitting arrangements should promote social integration. Parking areas for mobility equipments are compulsory. Storage for mobility aids are necessary. 	<ul style="list-style-type: none"> Flexibility in spatial organisation should be maintained to meet the current and future needs. Flexibility in room layout should be considered especially in activity areas. 	<ul style="list-style-type: none"> Simple and intuitive use should be considered in room layout. 	<ul style="list-style-type: none"> Perceptible information should be considered in room layout. 	<ul style="list-style-type: none"> Room layout should have appropriate arrangements. Using shelter in outdoor areas increase the usability by minimizing effects of rain and sun. 	<ul style="list-style-type: none"> Room layout should provide efficiency, comfort and with a minimum of fatigue in use. Corner applications should be avoided in case heavy traffic in public zone. 	<ul style="list-style-type: none"> Room layout should provide proper size and space for approach and use for all users. Mobility equipments should be considered deciding room layouts. Accompanies of students with SEN should be considered deciding circulations in room layouts of public zones.
		Spatial Dimensions	<ul style="list-style-type: none"> Spatial dimensions should be clarified according to user's profile and standardized for primary, secondary and high school environments. Spatial dimension between the users should give privacy and promote social integration. 	<ul style="list-style-type: none"> Spatial dimensions should maintain the flexibility in use. 	<ul style="list-style-type: none"> Spatial dimensions should maintain the simple and intuitive use. 	<ul style="list-style-type: none"> Spatial dimensions should maintain perceptible information. 	<ul style="list-style-type: none"> Spatial dimensions should have proper size and scale for minimizing hazards and the adverse consequences of accidental or unintended actions. 	<ul style="list-style-type: none"> Spatial dimensions should provide efficiency, comfort and with a minimum of fatigue in use. 	<ul style="list-style-type: none"> Size and space for approach and use should be provided for all users. Width of passing spaces should be determined considering accompanies of wheelchair users. Long and narrow corridors need to be avoided. Enough space should be left around furniture for proper mobility and accessibility.
	Interior Elements	Furniture	<ul style="list-style-type: none"> Laundry equipments should be provided. Mobility aids and equipments should be considered related to furniture layout and design. Furniture choice should be appropriate for wide range of users. 	<ul style="list-style-type: none"> Furniture layout should provide flexibility, accessibility and multi-functionality in use. The size and shape of the furnites should maintain variety of activities Fixed furnitures should maintain flexibility in multi-functional areas. Surfaces of furniture should be compatible for different activities. 	<ul style="list-style-type: none"> Furniture layout should provide simple and intuitive in use. Adjustable furniture is preferable. 	<ul style="list-style-type: none"> Furniture layout should provide perceptible information. Furniture layout could define zones can be coded in same zones for giving general impression about its use. 	<ul style="list-style-type: none"> Furniture layout should minimize hazards. Undesirable actions should be considered in furniture selection. Needs health and safety risk assessments which considers the children's SEN or disability. Furniture should be easy to clean and maintain for infection control. Furniture should be avoided open joints or projections which allow dirt and dust to gather. There should be no sharp edges or projections. Special enclosures for some equipment may need to be incorporated. Counters need to avoid corner applications. 	<ul style="list-style-type: none"> Furniture layout should provide efficiency, comfort and with a minimum of fatigue in use. Adjustable height tables should be preferred. A range of chairs of appropriate size with full back support should be needed. Foot rests and arms on chairs should be provided for additional postural support for some pupils. Pull down systems and push up system could be used in storage cabins. Long passing should have grab bars. 	<ul style="list-style-type: none"> Furniture layout should provide the user's needs with appropriate size and shape. Forward sloping tables could be appropriate, with forward sloping chair. One-piece molded chairs should be preferred for posture durability. Adjustable beds should be preferable for students having postural problems. Storage are not preferable under counter desks. Amount of bed needs to consider in terms of its amount according to users' density and characteristic. Safe clearances should be provided around furniture and equipment, especially for wheelchair users. Surfaces of furniture should be smooth.
		Material	<ul style="list-style-type: none"> Homogeneous finishes should be provided. Material selection should be compatible wide range user type. Functions are should be considered on material selection. 	<ul style="list-style-type: none"> Material selection should provide the flexibility in use. 	<ul style="list-style-type: none"> Material selection should provide the simple and intuitive use. 	<ul style="list-style-type: none"> Material selection should provide perceptible information. Materials could differentiate different routes. 	<ul style="list-style-type: none"> Material selection should minimize hazards and the adverse consequences of accidental or unintended actions. A polypropylene seat should be appropriate considering incontinence problem, and high user traffic. Materials should have fire resistance and 'spread of flame' performance and compliant with health and safety standards. Glass materials should be tamper-proof. Metal material could be avoided because of reflection and thermal performance. Materials should be appropriate strength, impact-resistance and durability. Smooth materials could be chosen to reduce risk of self-harm. 	<ul style="list-style-type: none"> Materials should provide low physical effort in use. Materials should be cleanable. Carpet use should be avoided because of dust and cleanliness problems. Wet areas need to have surface roughness of material. Acoustically reflective materials should be avoided. Plastic-coated foam-filled shapes foam-cushioned support seats or armchairs, rocking and swinging chairs and feeder seats. In practical spaces, work surfaces should be smooth, non-porous, water-resistant and easily cleaned. 	<ul style="list-style-type: none"> Materials should provide user's mobility. Acoustic curtains is acoustically solution in small size room for resting function in private zones.
	Colour & Light	<ul style="list-style-type: none"> Simple color and patterns should be used to help possibility of increasing inclusivity among users. Color coding should be decided according to school level (high school, primary etc.). 	<ul style="list-style-type: none"> Colour schema should provide visual comfort and psychological needs in use. 	<ul style="list-style-type: none"> Color coding can be used for defining zones, room and signs. 	<ul style="list-style-type: none"> Colour coding could be used for defining zones, room and signs. Routes could define the different spaces through using textile, colour and materials. Voice signals could be used for reacting to movement or other triggers. 	<ul style="list-style-type: none"> Color coding should minimize hazards and the adverse consequences of accidental or unintended actions. Shiny surfaces should be avoided. Polish and patterned surfaces should be avoided because of confusing and irritating students. 	<ul style="list-style-type: none"> Color selections should create comfortable atmosphere in space. 	<ul style="list-style-type: none"> Colors should be decided according to function and space size. Window wall should be light in color. 	

Table A.1 (continued): Life center unit's design criteria.

HUMAN NEEDS AND FACTORS		UD UNIVERSAL DESIGN PRINCIPLES (Copyright 1997 NC State University, The Center for Universal Design)							
		Life Center Unit Design Criteria	Principle 1_Equitable Use: The design is useful and marketable to people with diverse abilities	Principle 2_Flexibility in Use: The design accommodates a wide range of individual preferences and abilities	Principle 3_Simple and Intuitive Use: Use of the design is easy to understand, regardless of the user's experience, knowledge, language skills, or current concentration level	Principle 4_Perceptible Information: The design communicates necessary information effectively to the user, regardless of ambient conditions or the user's sensory abilities	Principle 5_Tolerance for Error: The design minimizes hazards and the adverse consequences of accidental or unintended actions	Principle 6_Low Physical Effort: The design can be used efficiently and comfortably and with a minimum of fatigue	Principle 7_Size and Space for Approach and Use: Appropriate size and space is provided for approach, reach, manipulation, and use regardless of user's body size, posture, or mobility
INTERIOR SPACE	Interior Elements	Key Values and Ethics (Edward, 2011)	Inclusiveness	Choice	Clarity	Clarity	Safety	Comfort	Comfort
	Building Construction	Ceiling	* Ceiling layout should be ensured the coordination between tracking for hoists and other elements, roof lights, and equipments.	*Ceiling should support flexibility in use.	*Ceiling should support simple and intuitive use. *Suspended ceilings could hide building services such as HVAC.	*Ceiling should support perceptible information. * Recessed lighting can be preferred for providing homogeneous surfaces on ceiling.	*Ceiling should minimize hazards and the adverse consequences of accidental or unintended actions. *Ceiling should support any equipment which needs hanging from ceiling, preventing any hazards.	* Acoustical performance should be considered.	
		Walls	* Walls should support fixed and/or heavy equipments. * Walls should be compatible with the use of mobility equipments.	* Walls should provide flexibility in use. *Sliding partitions may help to provide flexibility between spaces in case any functional division. *Free wall space should be left.	*Walls should provide simple use.	* Walls should provide perceptible information. *Surfaces could have intangible sensory elements for responding rehabilitation duty of life center unit. *Sensory wayfinding can be provided by visual contrast and texture.	* Walls should minimize hazards and the adverse consequences of accidental or unintended actions. * Corner solutions should be avoided damage because of mobility equipment and students' activity. (heavy traffic) * Non-abrasive wall surfaces should be provided.	* Walls should support low physical effort in use. *Smooth, cleanable, relatively impermeable surfaces should be chosen. * Sound insulation should be provided especially between zones.	* Walls thickness should support any insulation (sound or thermal).
		Floor	* Level changes should not allowed in room layout because of decreasing accessibility problems. *Floor covering should maintain the mobility and accessibility for the students with SEN.	* Floor covering should allow accessibility for maintaining flexibility in use.	* Floor covering should provide simple use.	* Floors should maintain perceptible information. * Floor coverings could be differentiated for indicating different function in use. * Tactile paving should apply for defining routes in outdoor spaces.	*Floors should minimize hazards and the adverse consequences of accidental or unintended actions. *Floors should provide slip resistant and smooth. *Changes in level should be avoided in case accidents. *Floor finishes should consider wheelchair or mobility equipment specifications.	* Floors should provide low physical effort in use. * Floor finishings should have a balance between its softness and strength to ease in use. * The use of mobility equipment should be taken into account for deciding floor finishings.	* Easy cleanable material choice should be provided especially in hygiene spaces.
		Door	*Mobility equipments should be considered deciding dimension of doors. *Doors should allow visibility and accessibility to create an inclusive and welcoming environment.	* Doors should allow accessibility for maintaining flexibility in use.	*Doors should provide simple use. *Doors should be identifiable and user friendly. *Electronic door entry system (automatic sensor- push button) should be provided for especially external doors. *Door is not necessary to ease use and increase simplicity of room in public zone.	*Doors should maintain perceptible information. *Finishings of doors should create contrast between door and wall.	* Doors should minimize hazards and the adverse consequences of accidental or unintended actions. *Anti-finger trap use could be used for preventing any accident. * Protectors should consider to prevent damage by mobility equipment. * Double action hinges (for emergency)should be preferable especially exit doors. * Impact resistance and long durability should be provided for door material.	*Doors should maintain low physical effort in use. * Threshold should have well-drained, firm flush mat. * Ergonomic handle for limited dexterity or strength / easy operation push pull system to use door. * Door materials should be smooth and easily cleaned and maintained. * Using door should be unnecessary in public zone in case functions are related each other.	*Height of voids for providing visibility. *Appropriate height for handle should be provided. *Weight of door need to be decided considering user traffic and mobility aids.
		Window	* Let children should not feel enclosed. * Visual connection between inside and outside should keep maximum in public zone.	*Windows should provide flexibility, visual comfort and privacy in use.	*Windows should provide simple use.	*Windows should maintain perceptible information. * Visual confusion such as silhouetting, glare should be avoided for providing high perceptibility.	* Windows should minimize hazards and the adverse consequences of accidental or unintended actions. * All fittings should be tamper proof. * Metal material use for window should be avoided.	* Windows should maintain low physical effort in use. * Roler curtain can be preferred for ease to use. * Bottom or top hung windows can be preferable.	* Floor length window can prefer to be maintained interaction between interior and outdoor of support spaces. * Window openings should be appropriate size and amount for responding needs in public zone.
		Vertical Circulation	* Vertical circulation - if necessary - should be considered for the needs of student with SEN.	* Service cores should be eligible for future adaptation.	*Vertical circulation should provide easy reach to the life center unit.	* Vertical circulation should provide perceptible information.	*Vertical circulation should minimize hazards and the adverse consequences of accidental or unintended actions. *Lifts could have mirror in case help to arrange positions both students using wheelchair and parents.	* Vertical circulation should provide low physical effort in use.	* Ramp slope should appropriate to propel wheelchair users up themselves. * Clear width of rise ; going, between handrails are decided according to users's density.
		Environmental Services	Lighting	* Lighting level and quality should be considered special needs of students. * Natural lighting should be provided especially in public zones.	*Lighting schema should provide flexibility in use related to different needs of the students with SEN. *Changing mood of a space should be provided by electric dimming and window blinds.	*Lighting schema should provide simple and intuitive use.	*Lighting schema should provide perceptible information. *Intensity of light should allow to percept information without distraction. * Recessed lighting can be preferred for providing homogeneous surfaces on ceiling.	*Lighting schema should minimize hazards and the adverse consequences of accidental or unintended actions. *Lighting schema should preclude poor visibility and poor contrast, contributing to unexpected and unintended accidents.	* Lightings should be avoid glare, silhouetting, reflections or any which cause visual confusion. * Good sight lines for clear view should be provided in life center unit.
	Acoustics		*Acoustical comfort and solution should provide functional and special needs.	*Acoustic curtains could provide flexibility in use and meet privacy needs.		* Absorbency of surface materials should be considered according to the needs of students having hearing impairment.	* Acoustic solutions should minimize hazards and the adverse consequences of accidental or unintended actions.	* Surfaces should contribute to a good acoustic environment. *Sound insulation should be provided, especially between zones.	*Acoustic curtains can acoustically be solution in small size room for resting function in private zones.
	Thermal Comfort		*Thermostatic control should provide functional and special needs.	*Heating systems could provide flexibility in use.			*Thermal comfort should minimize hazards and the adverse consequences of accidental or unintended actions.	*Thermal control should maintain low physical effort.	* Heating systems should be chosen by specialist.
Safety	*Safety should be provided by relevant standard.				* Audible and visual signals could be helpful.	* Implementations should be fit for purpose and compliance with all relevant standards.		* Safety warnings need to place where has good sight.	

APPENDIX B

KAYNAŞTIRMA EĐİTİMİNDE YAŞAM MERKEZİ (YAŞAM EVİ) BİRİMİNİN KULLANIMINA YÖNELİK ANKET

1- Velisi olduğunuz öğrencinin engeli hangi karakteristiğe sahiptir? (birden fazla seçeneđi işaretleyebilirsiniz)

- Nörolojik bozukluklar
- Eklemler rahatsızlıkları
- Kas rahatsızlıkları
- Görme
- İşitme
- Özgöl öğrenme güçlüğü
- Diğer (belirtiniz)

2- Velisi olduğunuz öğrenci engeli dolayısıyla hangi yardımcı ekipmanı kullanmaktadır? (birden fazla seçeneđi işaretleyebilirsiniz)

- Akülü sandalye (Scooter)
- Tekerlekli sandalye
- Koltuk değneđi
- Yürüteç
- Diğer.....

3- Yaşam merkezi (yaşam evi) kullanıcısı mısınız?

- Evet.
- Hayır(5. Sorudan devam ediniz).

4-Yaşam merkezi kullanım sıklığı ne kadardır?

- Her gün
- Haftada bir
- Ayda bir
- Seyrek
- Hiç

5-Yaşam merkezi (yaşam evi) biriminin özel eğitim gereksinimi olan çocuklar açısından gerekli ve yararlı olduğunu düşünüyor musunuz?

- Evet.
- Hayır.

6-Yaşam merkezi (yaşam evi) biriminin özel eğitim kapsamında, gerekli ve bulunması gereken bir mekân olduğunu düşünüyor musunuz?

- Evet.
- Hayır.

7-Yaşam merkezi kullanım amacınız nedir? (birden fazla seçeneđi işaretleyebilirsiniz)

- Ders içi aktiviteler
- Ders dışı aktiviteler
- Öğrenciye refakat etme
- Öğrencinin bireysel ihtiyaçları için
- Diğer(belirtiniz)

8-Yaşam merkezi (yaşam evi) birimi hangi öğrenciler kullanmaktadır?

- Genel eğitim sınıflarındaki özel eğitim gereksinimi olan öğrenciler
- Özgöl öğrenme güçlüğü olan öğrenciler
- Okuldaki tüm öğrenciler
- Diğer(belirtiniz)

9- Yaşam merkezinin (yaşam evi) velilere yönelik mekânsal niteliklere ve etkinliklere sahip olması gerektiğini düşünüyor musunuz?

- Evet.
- Hayır.

10-Yaşam merkezi biriminin nasıl bir mekân özellik/özelliklerinin bulunması gerektiğini düşünüyorsunuz? (birden fazla seçeneđi işaretleyebilirsiniz)

- Ev ortamına sahip olması
- Öğrencilerin sosyalleşme mekanı
- Öğrencilerin derslerini çalışabileceđi bir mekân
- Okuldaki tüm kullanıcıların (veli-öğrenci) beraber eğitim aldığı ve etkinlikler düzenleyebileceđi bir mekân
- Özel eğitim gereksinimi olan öğrencilerin bireysel ihtiyaçlarını karşılayabileceđi mekanı
- Özel eğitim gereksinimi olan öğrenciler için etkinlikler düzenlenebilecek bir mekân
- Diğer(belirtiniz).....

Figure A.1 : Survey page 1

11-Yaşam merkezi (yaşam evi) biriminde özel eğitim gereksinimi olan öğrencilerin kullanımı açısından hangi muhtemel mekânsal aksaklıklar yaşandığını düşünüyorsunuz?

	EVET	HAYIR
Yaşam merkezinin bina içerisindeki konumu sınıflara çok uzaktır.		
Öğrenciler yaşam merkezine girerken mekânsal düzenleme nedeniyle zorluk çekmektedirler.		
Yaşam merkezinde öğrencilerin kullandığı yardımcı ekipmanlar için bir alana ihtiyaç vardır.		
Yaşam merkezindeki mobilyaların konumları öğrencilerin rahatça dolaşımını engellemektedir.		
Yaşam merkezindeki mobilyalar özel eğitim gereksinimli öğrencilerin kullanımına uygundur.		
Öğrenciler koltukları kullanmakta zorlanmaktadır.		
Öğrenciler masaları kullanmakta zorlanmaktadır.		
Öğrenciler sandalyeleri kullanmakta zorlanmaktadır.		
Bulaşık ve çamaşır yıkamak için ekipmanlara ihtiyaç vardır.		
Öğrenciler mutfak malzemelerine erişebilmekte zorlanmaktadır.		
Yaşam merkezinde bulunan yatak kullanan öğrencinin dinlenme ihtiyacını karşılamak içindir.		
Yaşam merkezinde yatak sayısı yetersizdir.		
Televizyonu konumu öğrenciler tarafından izlemeye elverişli değildir.		
Öğrenci kullandığı yardımcı ekipmanlarıyla yaşam merkezinde dolaşmakta zorlanmaktadır.		
Yaşam merkezinde grup olarak oturabilecek alan yaratmakta zorlanılmaktadır.		
Öğrenci, yaşam merkezinden bahçeye çıkmakta zorlanmaktadır.		
Yaşam merkezinin bahçe ile bağlantısı olması gerekmektedir.		
Yaşam merkezi gürültülü bir ortamdır.		
Yaşam merkezi çok kalabalık olmaktadır.		
Yaşam merkezi öğrencilerin dinlenme ihtiyacını karşılamamaktadır.		
Yaşam merkezi ilgimi çekmiyor.		
Yaşam merkezi öğrencinin bireysel ihtiyaçlarını karşılamamaktadır.		
Yaşam merkezinin barındırdığı renkler kullanıcılara cazip gelmemektedir.		
Aydınlatmalar yeterli değildir.		
Yaşam merkezi yeteri kadar ısıtılamamaktadır.		
Yaşam merkezi yeteri kadar havalandırılmamaktadır.		

12-Yaşam merkezi biriminin zayıf bulduğunuz yönleri var mıdır?

- Yok.
- Var (açıklayınız)

13-Yaşam merkezinin kullanım koşullarının iyileştirilmesine yönelik varsa önerileriniz? (zorunlu değildir)

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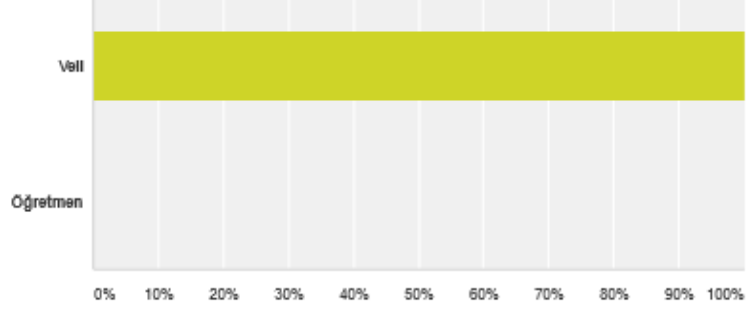
Ankete katıldığınız için teşekkür ederim.
 Simge GÜLBAHAR
 İstanbul Teknik Üniversitesi
 Sosyal Bilimler Enstitüsü

Figure A.2 : Survey page 2

APPENDIX C

Anketi çözen...

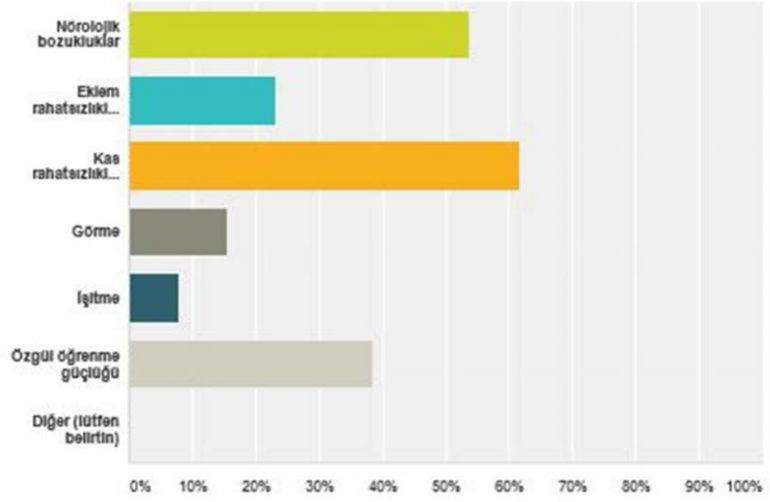
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Yanıt Seçenekleri	Yanıt
Velî	%100,00 13
Öğretmen	%0,00 0
Toplam	13

Velisi/öğretmeni olduğunuz öğrencinin engeli hangi karakteristiğe sahiptir? (birden fazla seçeneği işaretleyebilirsiniz)

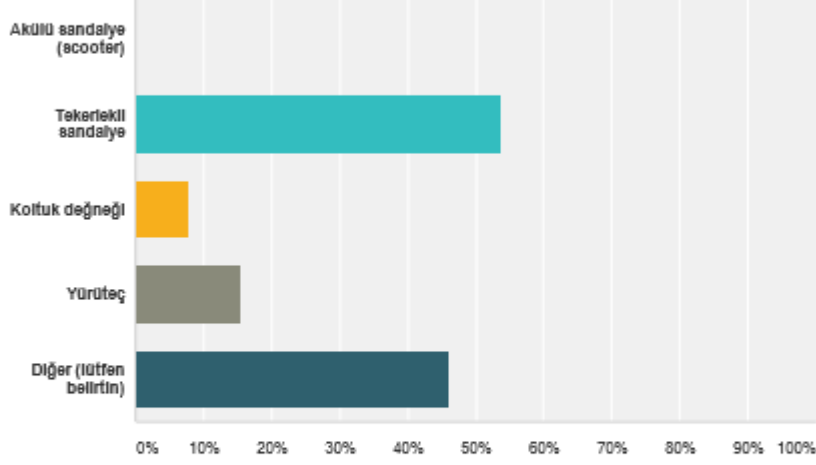
Yanıtlanan: 13 Atlanan: 0



Yanıt Seçenekleri	Yanıt
Nörolojik bozukluklar	%53,85 7
Eklem rahatsızlıkları	%23,08 3
Kas rahatsızlıkları	%61,54 8
Görme	%15,38 2
İşitme	%7,69 1
Özgül öğrenme güçlüğü	%38,46 5
Diğer (lutfen belirtin)	Yanıtlar %0,00 0
Toplam Yanıtlayan: 13	

Velisi / öğretmeni olduğunuz öğrenci engeli dolayısıyla hangi yardımcı ekipmanı kullanmaktadır? (birden fazla seçeneği işaretleyebilirsiniz)

Yanıtlanan: 13 Atlanan: 0

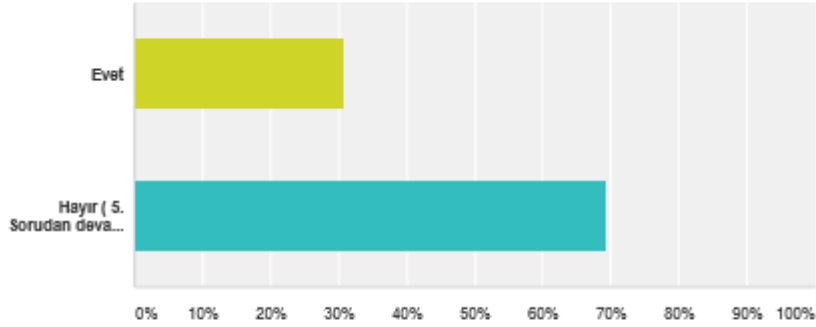


Yanıt Seçenekleri	Yanıtlar
Akülü sandalye (scooter)	%0,00 0
Tekerlekli sandalye	%53,85 7
Koltuk değneği	%7,69 1
Yürüteç	%15,38 2
Diğer (lutfen belirtin)	Yanıtlar %46,15 6

Toplam Yanıtlayan: 13

Yaşam merkezi kullanıcısı mısınız?

Yanıtlanan: 13 Atlanan: 0

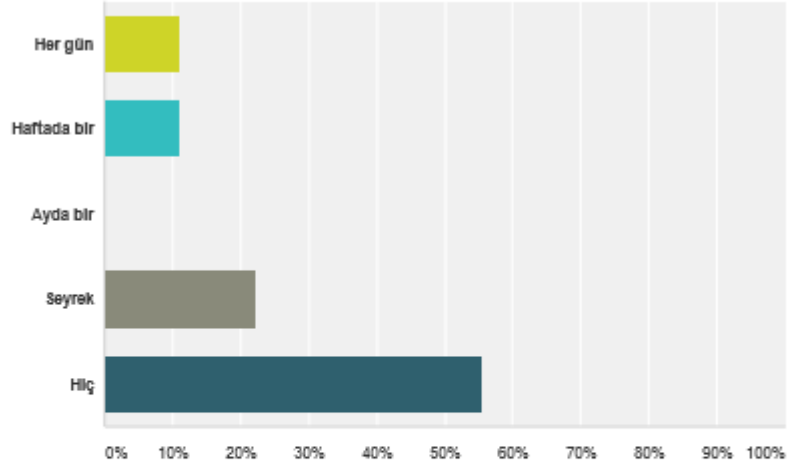


Yanıt Seçenekleri	Yanıtlar
Evet	%30,77 4
Hayır (5. Sorudan devam ediniz)	%69,23 9

Toplam Yanıtlayan: 13

Yaşam merkezi kullanım sıklığı ne kadardır?

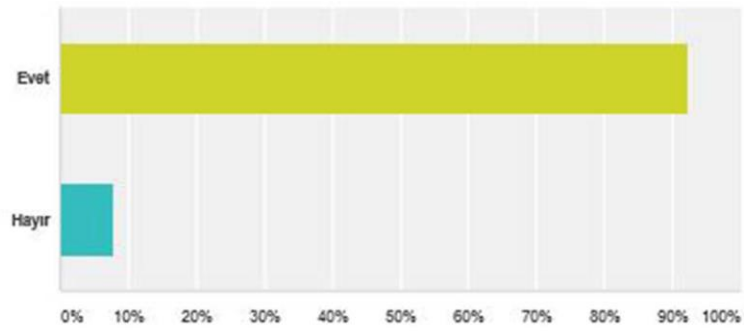
Yanıtlanan: 9 Atlanan: 4



Yanıt Seçenekleri	Yanıtlar	
Her gün	%11,11	1
Haftada bir	%11,11	1
Ayda bir	%0,00	0
Seyrek	%22,22	2
Hiç	%55,56	5
Toplam		9

Yaşam merkezi biriminin özel eğitim gereksinimli çocuklar açısından gerekli ve yararlı olduğunu düşünüyor musunuz?

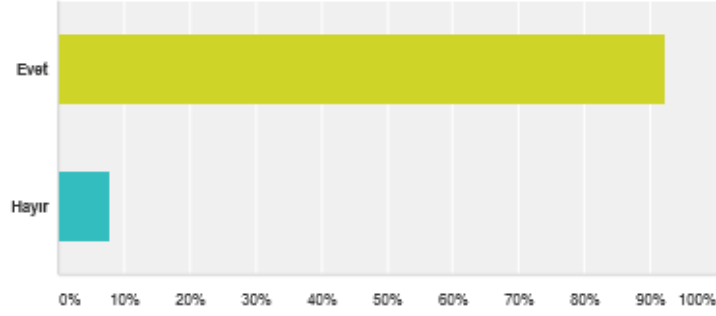
Yanıtlanan: 13 Atlanan: 0



Yanıt Seçenekleri	Yanıtlar	
Evet	%92,31	12
Hayır	%7,69	1
Toplam		13

Yaşam merkezi biriminin özel eğitim kapsamında, gerekli ve bulunması gereken bir mekan olduğunu düşünüyor musunuz?

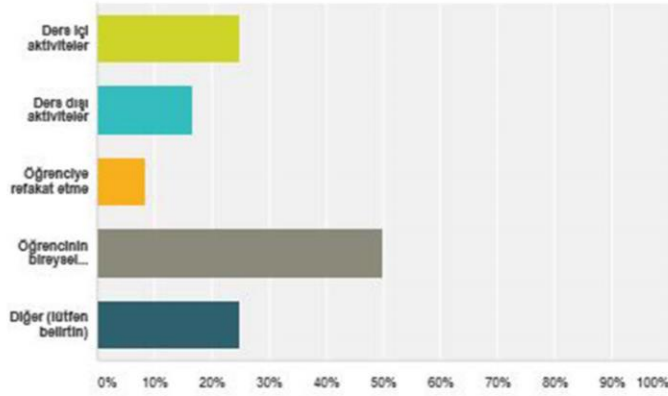
Yanıtlanan: 13 Atlanan: 0



Yanıt Seçenekleri	Yanıt	Oran (%)
Evet	12	92,31
Hayır	1	7,69
Toplam	13	

Yaşam merkezi kullanım amacınız nedir?

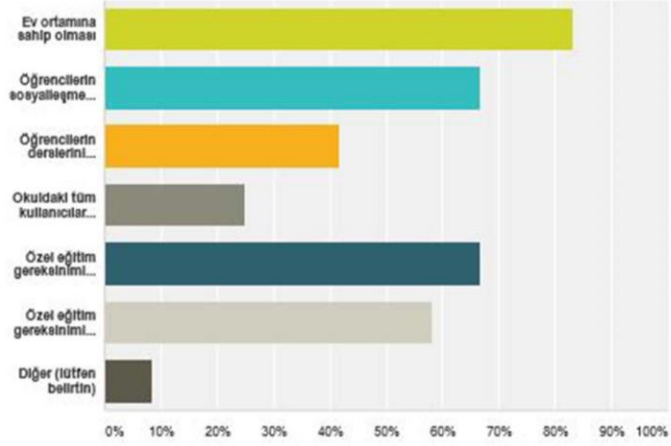
Yanıtlanan: 12 Atlanan: 1



Yanıt Seçenekleri	Yanıt	Oran (%)
Ders içi aktiviteler	3	25,00
Ders dışı aktiviteler	2	16,67
Öğrenciye refakat etme	1	8,33
Öğrencinin bireysel ihtiyaçları için	6	50,00
Diğer (lutfen belirtin)	3	25,00
Toplam Yanıtlayan:	12	

Yaşam merkezi biriminin nasıl bir mekansal özellik/özelliklerinin bulunması gerektiğini düşünüyorsunuz?

Yanıtlanan: 12 Atlanan: 1

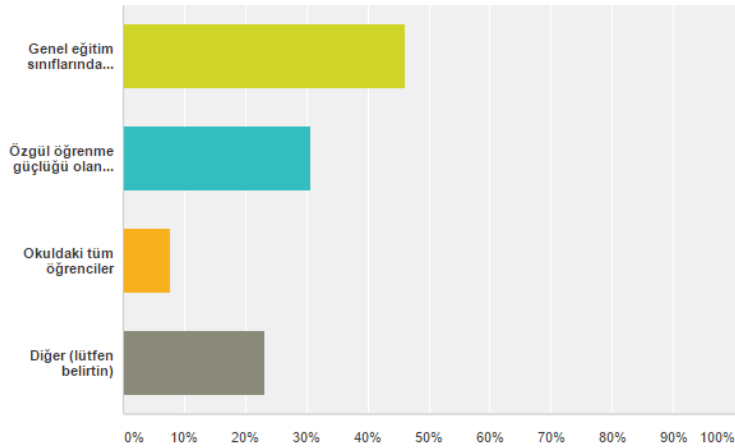


Yanıt Seçenekleri	Yanıtlar
Ev ortamına sahip olması	%83,33 10
Öğrencilerin sosyalleşme mekanı	%66,67 8
Öğrencilerin derslerini çalışabileceği bir mekan	%41,67 5
Okuldaki tüm kullanıcıların (veli-öğrenci) beraber eğitim aldığı ve etkinlikler düzenleyebileceği bir mekanı	%25,00 3
Özel eğitim gereksinimi olan öğrencilerin bireysel ihtiyaçlarını karşılayabileceği mekanı	%66,67 8
Özel eğitim gereksinimi olan öğrenciler için etkinlikler düzenlenebilecek bir mekan	%58,33 7
Diğer (lütfen belirtin)	Yanıtlar %8,33 1

Toplam Yanıtlayan: 12

Yaşam merkezi birimini hangi öğrenciler kullanmaktadır?

Yanıtlanan: 13 Atlanan: 0



Yanıt Seçenekleri	Yanıtlar
Genel eğitim sınıflarındaki özel eğitim gereksinimi olan öğrenciler	%46,15 6
Özgül öğrenme güçlüğü olan öğrenciler	%30,77 4
Okuldaki tüm öğrenciler	%7,69 1
Diğer (lütfen belirtin)	Yanıtlar %23,08 3

Toplam Yanıtlayan: 13

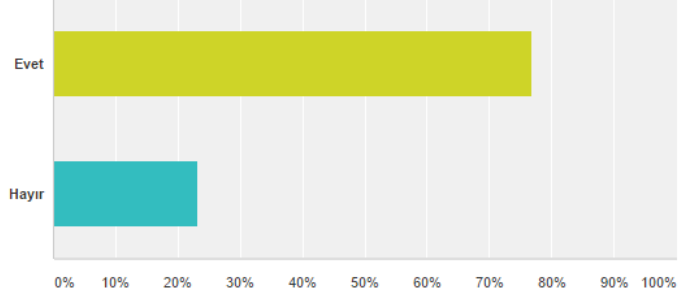
**Yaşam merkezi biriminde özel eğitim
gereksinimi olan öğrencilerin kullanımı
açısından hangi muhtemel mekansal
aksaklıklar yaşandığını düşünüyorsunuz?**

Yanıtlanan: 13 Atlanan: 0

	Evet	Hayır	Toplam
Yaşam merkezinin bina içerisindeki konumu sınıflara çok uzaktır	%15,38 2	%84,62 11	13
Öğrenciler yaşam merkezine girerken mekansal düzenleme nedeniyle zorluk çekmektedir	%7,69 1	%92,31 12	13
Yaşam merkezinde öğrencilerin kullandığı yardımcı ekipmanlar için bir alana ihtiyaç vardır	%58,33 7	%41,67 5	12
Yaşam merkezindeki mobilyaların konumları öğrencilerin rahatça dolaşmasını engellemektedir	%15,38 2	%84,62 11	13
Yaşam merkezindeki mobilyalar özel eğitim gereksinimli öğrencilerin kullanımına uygundur	%41,67 5	%58,33 7	12
Öğrenciler kottukları kullanmakta zorlanmaktadır	%38,46 5	%61,54 8	13
Öğrenciler masaları kullanmakta zorlanmaktadır	%30,77 4	%69,23 9	13
Öğrenciler sandalyeleri kullanmakta zorlanmaktadır	%41,67 5	%58,33 7	12
Bulaşık ve çamaşır yıkamak için ekipmanlara ihtiyaç vardır	%53,85 7	%46,15 6	13
Öğrenciler mutfak malzemelerine erişebilmekte zorlanmaktadır	%53,85 7	%46,15 6	13
Yaşam merkezinde bulunan yatak kullanan öğrencinin dinlenme ihtiyacını karşılamak içindir	%61,54 8	%38,46 5	13
Yaşam merkezinde yatak sayısı yetersizdir	%61,54 8	%38,46 5	13
Televizyonun konumu öğrenciler tarafından izlemeye elverişli değildir	%15,38 2	%84,62 11	13
Öğrenci kullandığı yardımcı ekipmanlarıyla yaşam merkezinde dolaşmakta zorlanmaktadır	%46,15 6	%53,85 7	13
Yaşam merkezinde grup olarak oturabilecek alan yaratmakta zorlanılmaktadır	%38,46 5	%61,54 8	13
Öğrenci, yaşam merkezinde bahçeye çıkmakta zorlanmaktadır	%38,46 5	%61,54 8	13
Yaşam merkezinin bahçe ile bağlantısı olması gerekmektedir	%84,62 11	%15,38 2	13
Yaşam merkezi gürültülü bir ortamdır	%23,08 3	%76,92 10	13
Yaşam merkezi çok kalabalık olmaktadır	%38,46 5	%61,54 8	13
Yaşam merkezi öğrencilerin dinlenme ihtiyacını karşılamamaktadır	%38,46 5	%61,54 8	13
Yaşam merkezi ilgili çekmiyor	%16,67 2	%83,33 10	12
Yaşam merkezi öğrencinin bireysel ihtiyacını karşılamaktadır	%30,77 4	%69,23 9	13
Yaşam merkezinin barındırdığı renkler kullanıcıları cazip gelmemektedir	%30,77 4	%69,23 9	13
Aydınlatmalar yeterli değildir	%30,77 4	%69,23 9	13
Yaşam merkezi yeterli kadar ısıtılmamaktadır	%7,69 1	%92,31 12	13
Yaşam merkezi yeterli kadar havalandırılmamaktadır	%15,38 2	%84,62 11	13

Yaşam merkezinin velilere yönelik mekansal niteliklere ve etkinliklere sahip olması gerektiğini düşünüyor musunuz?

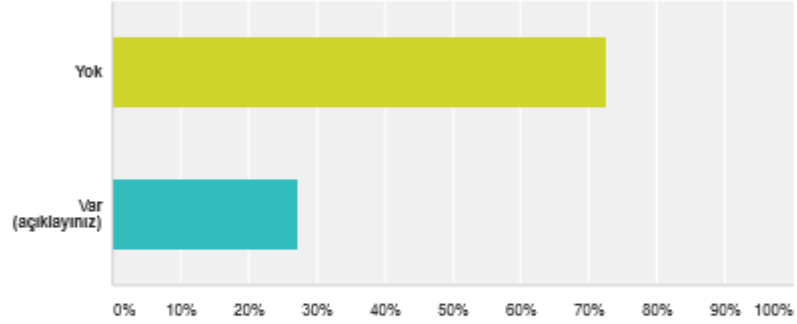
Yanıtlanan: 13 Atlanan: 0



Yanıt Seçenekleri	Yanıtlar
Evet	%76,92 10
Hayır	%23,08 3
Toplam	13

Yaşam merkezi biriminin zayıf bulunduğu yönleri var mıdır?

Yanıtlanan: 11 Atlanan: 2



Yanıt Seçenekleri	Yanıtlar
Yok	%72,73 8
Var (açıklayınız)	%27,27 3
Toplam	11

Yaşam merkezinin kullanım koşullarının iyileştirilmesine yönelik varsa önerileriniz? (Zorunlu değildir)

Yanıtlanan: 1 Atlanan: 12

Yanıtlar (1) Metin Analizi Kategorilerim

Gösterilen: 1 yanıt

yaşam merkezini sadece özel eğitimciler kullanıyor
15.05.2017 02:21 [Yanıtlayanın yanıtını görüntüle](#)

APPENDIX D

SERÇEV ENGELSİZ MESLEK LİSESİ İÇ MİMARİ PROJESİ DEĞERLENDİRME RAPORU

16.11.2015

Hazırlayanlar

Simge Gülbahar, İç mimar

Ali Shoar , Mimar

Proje Yürütücüsü:

Doç.Dr. Özge CORDAN

Proje Danışmanları:

Dr. Demet DİNÇAY

Öğr.Gör.Dr. Çağrı YURDAKUL

TOKİ BAŞKANLIĞI'na;

İTÜ Mimarlık Fakültesi İç Mimarlık Bölümü Uluslararası Yüksek Lisans Programı (IMIAD) kapsamında yürütülmekte olan 'Interior Architecture Project III' dersini alan öğrenciler, -ders yürütücüsü hocaları ile birlikte, kendi belirledikleri proje konu, yer ve kapsam dahilinde, 1 dönem boyunca ileri düzeyde iç mimari proje çalışmaları yapmaktadırlar.

2015-2016 eğitim-öğretim yılı güz döneminde bu dersi almakta olan, Simge Gülbahar ve Ali Shoar adlı öğrenciler, dönem projesi olarak hali hazırda TOKİ tarafından inşa edilmekte olan 'SERÇEV Engelsiz Meslek Lisesi' ni seçmişlerdir.

Dersin başlangıç aşamasında, öğrenciler Ankara'ya giderek SERÇEV yetkilileri ile görüşmüşler ve inşaat alanını yerinde ziyaret etmişler, ayrıca İstanbul'da yer alan muadil okulları da incelemişlerdir. Ayrıca, bu kapsamda dünya çapında gerçekleştiren örnekleri de literatürden taramaktadırlar. İkinci aşamada, mevcut mimari proje analiz edilmiştir. Bu aşamada; planlama kararları ve mekan kullanımının başta engelli öğrenciler olmak üzere, diğer kullanıcılar ve refakatçiler için ne derece erişilebilir, güvenli, konforlu ve iletişim kurmaya elverişli olduğu analiz edilmiş ve değerlendirmeler yapılmıştır. Değerlendirmeler ışığında; mimari proje üzerinde yapılabilecek bazı değişikliklerin ve mekansal kullanıma ilişkin revizyonların, okulun tüm kullanıcıları için başta 'erişilebilirlik' olmak üzere daha konforlu ve katma değeri yüksek mekanlar yaratacağı düşünülmektedir. 'SERÇEV Engelsiz Meslek Lisesi' projesi üzerindeki çalışmalar, dönem sonuna kadar sürdürülecek ve bazı hacimlerin iç mekanları ve mekan tefrişi detaylı olarak çalışılacaktır. Talep edilmesi halinde, ders kapsamında üretilen çalışmaların, uygulama detay projeleri ile kurumunuza iletilmesi mümkündür.

TOKİ olarak yürüttüğünüz özverili çalışmaya bir parça katkıda bulunabilmek ve ortak bir sosyal sorumluluk bilinci ile hareket etmek adına, mimari proje kapsamında şu ana dek tespit edilen sorunlar ve bazı çözüm önerileri ekli raporda sunulmuştur. Uygulama aşmasındaki yapıya erken ve yerinde müdahalenin, ekonomik ve işgücü anlamında kayıpları engelleyebileceği görüş ve düşüncesiyle gereğini bilginize önemle arz ederiz.

Saygılarımızla,

SERÇEV ENGELSİZ MESLEK LİSESİ PROJE RAPORU

SERÇEV Vakfı'nın iştirakiyle Mimar Gökhan AKSOY tarafından tasarlanan ve TOKİ tarafından inşası sürmekte olan 'Serçev Engelsiz Meslek Lisesi Projesi'nin iç mekanlarının düzenlenmesi ve uygun mobilya seçimi, tefrişi ve tasarlanması, İç Mimari Tasarım Uluslararası Yüksek Lisans Programı-IMIAD öğrencilerinden Ali Shoar ve Simge Gülbahar tarafından ve Doç.Dr.Özge Cordan'ın yürütücülüğünde, IMIAD Interior Architecture Project III dersi kapsamında çalışılmaktadır. Proje çalışmalarına, Dr.Demet DİNÇAY ve Öğr.Gör.Dr.Çağrı YURDAKUL, danışman olarak katkı vermektedirler. Ders kapsamında ele alınan proje, 2015-2016 eğitim-öğretim yılı güz yarıyılı itibariyle sonlandırılacak, adı geçen öğrenciler yüksek lisans tezlerini de bu konuda geliştireceklerdir.

'Serçev Engelsiz Meslek Lisesi Projesi', Ankara Çayyolu mevkinde konumlandırılmış olan bir kaynaştırma lisesidir. Proje; (CP)-Cerebral Palsy'li öğrencilerin sosyal yaşama entegrasyonunu sağlamak amacıyla akranları ile aynı mekanda eğitim-öğretimlerine devam etmesi düşüncesi üzerine geliştirilmiş önemli bir sosyal sorumluluk girişimidir.

Kullanıcı profilini; CP'li özel eğitime ihtiyacı olan öğrenciler, çeşitli düzeylerde fiziksel engeli olan cerebrelal palsy'li öğrenciler (tekerlek sandalye kullanan, yürüteç ile hareket edebilen,...) ile engelsiz öğrenciler oluşturmaktadır. Bina programı; Radyo-TV, Gazetecilik ve Bilişim alanlarında eğitim-öğretim veren bir içeriktedir.

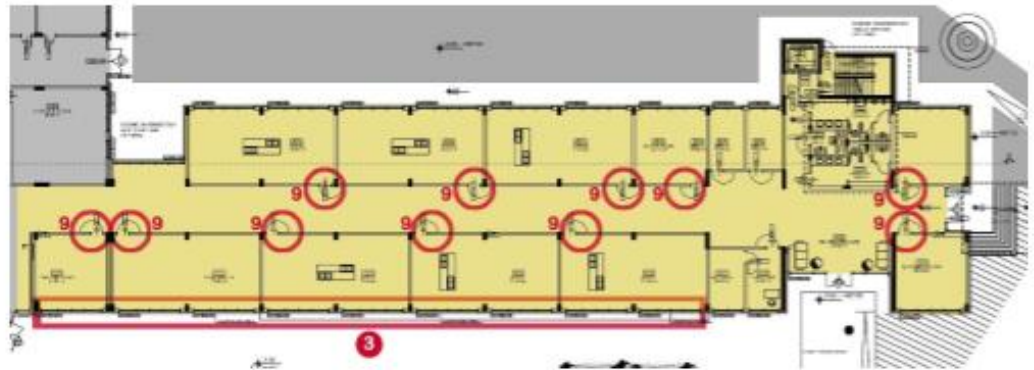
2015-16 eğitim-öğretim yılı güz yarıyılı itibariyle sürdürülmekte olan yüksek lisans proje çalışmasında proje incelenmiş, kullanıcı ihtiyaçları açısından ayrıntılı biçimde analiz edilmiştir.

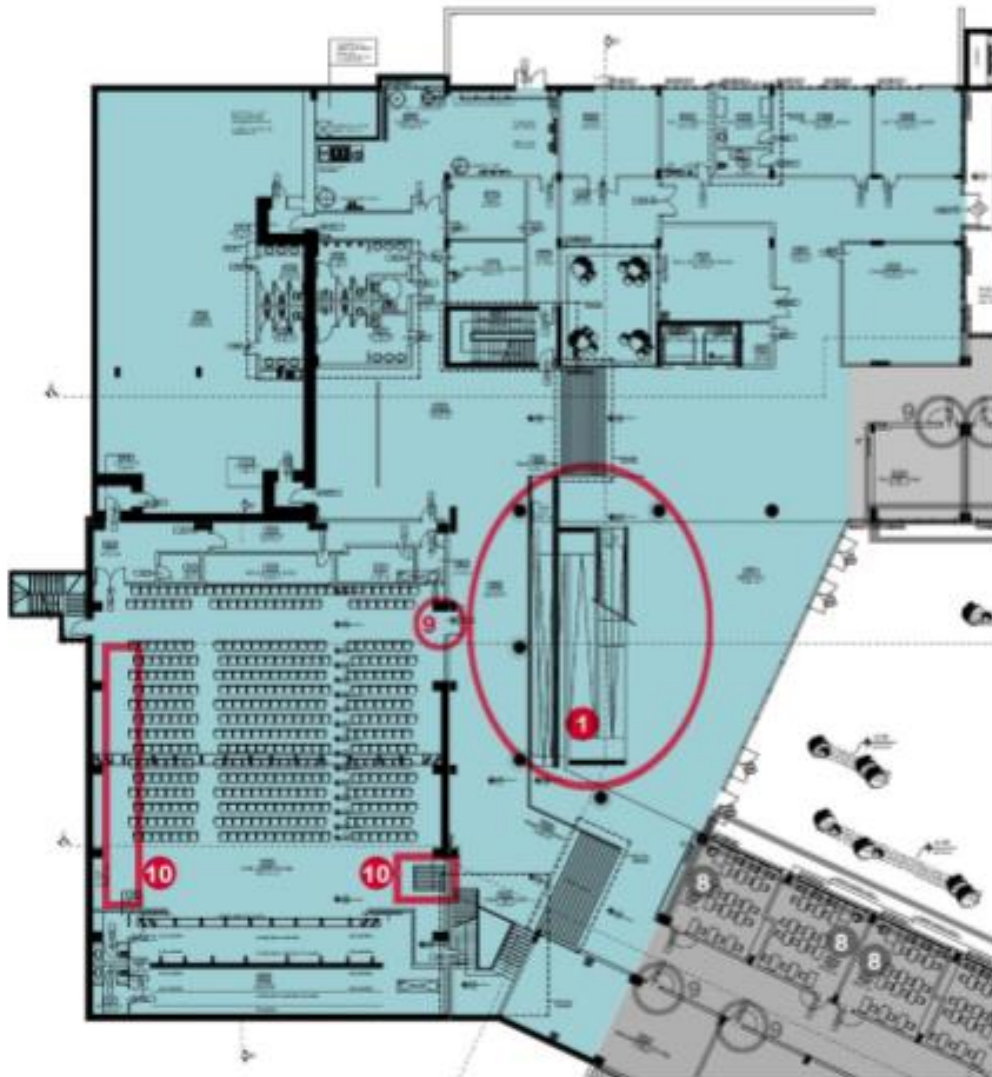
Mimari planlamada, İki kol halinde ve bir avlu etrafında gelişen yapı iki katlı olup, her iki kottan da zeminle ilişkilendirilmiştir. Bu durum, özellikle 'erişilebilirlik' ve 'herkes için tasarım' gibi evrensel tasarım kriterleri açısından doğru bir yaklaşımdır. Meksansal yerleştirmede, sözkonusu okulun toplam 32 sınıf ve 353 kişi kapasiteli olduğu belirlenmiştir. Ayrıca 1 adet konferans salonu, kütüphane, 1 yaşam merkezi, 1 adet spor kompleksi, idari bölümler, laboratuvarlar, yemekhane, teras seraları mevcuttur.

Yapılan analizler sonucunda proje hayata geçirildiğinde iç mekan işleyişi ve kullanıcı konforu bakımından sorun yaratabilecek noktalar tespit edilmiştir. Uygulama aşamasındaki erken müdahaleler ile sorunların giderilebileceği düşüncesiyle sorunlu görülen hacimler plan düzleminde numaralandırılarak aşağıdaki gibi gösterilmiştir.

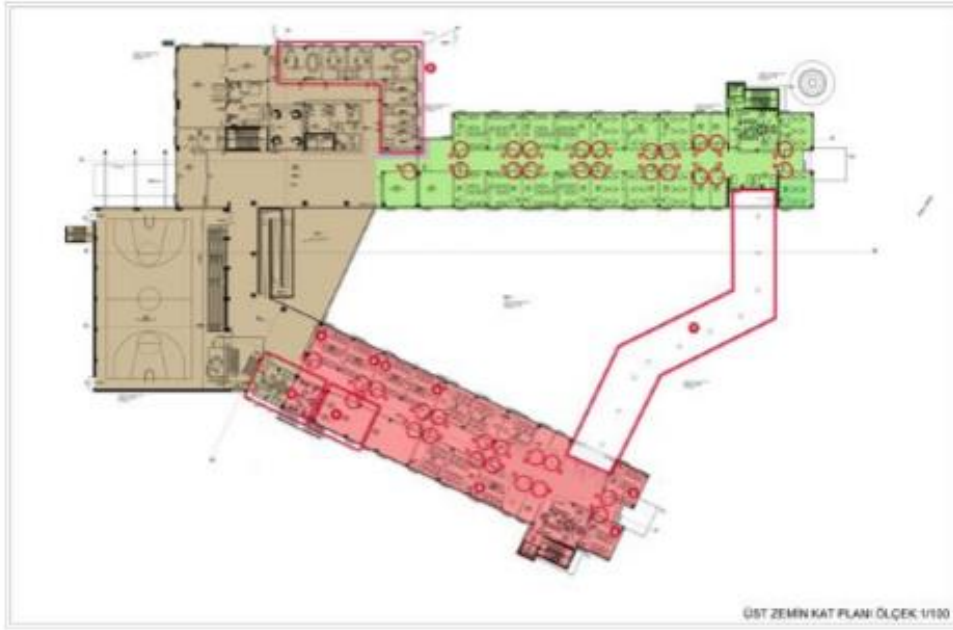


Alt Zemin Kat

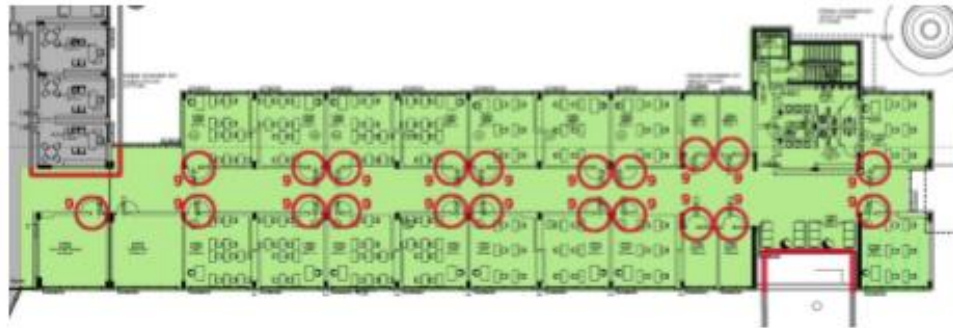


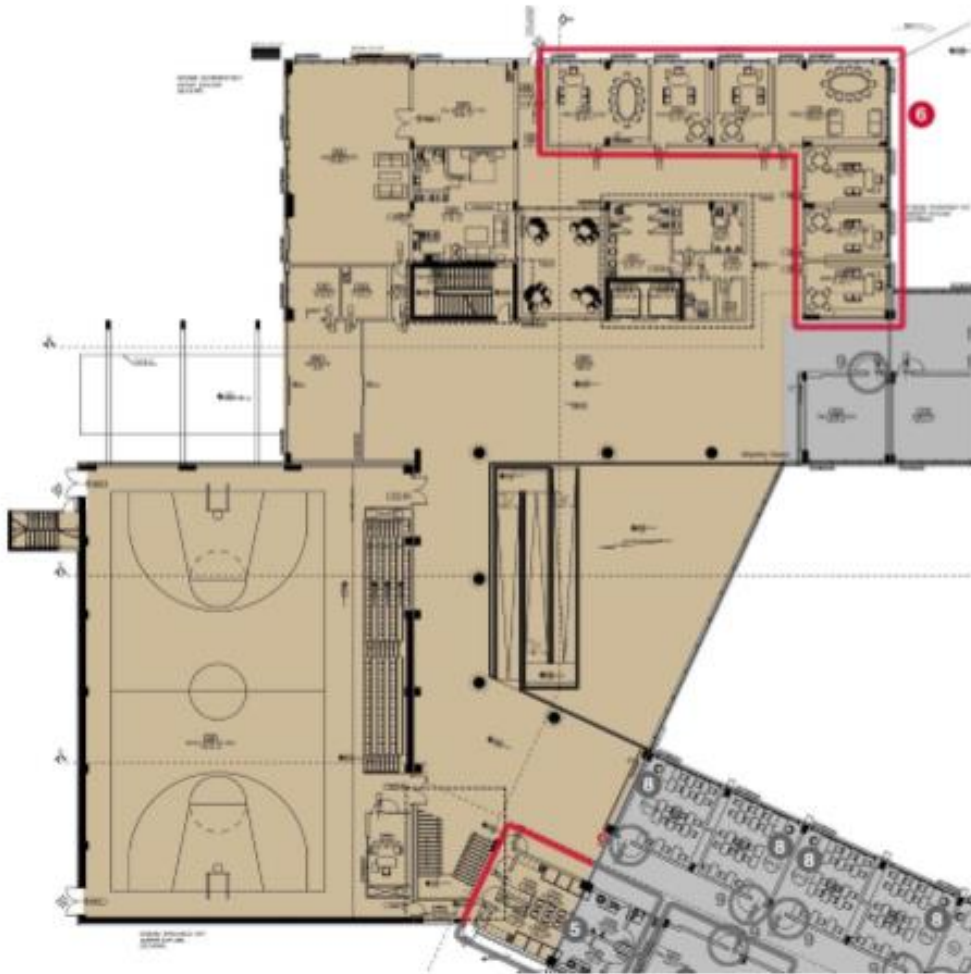


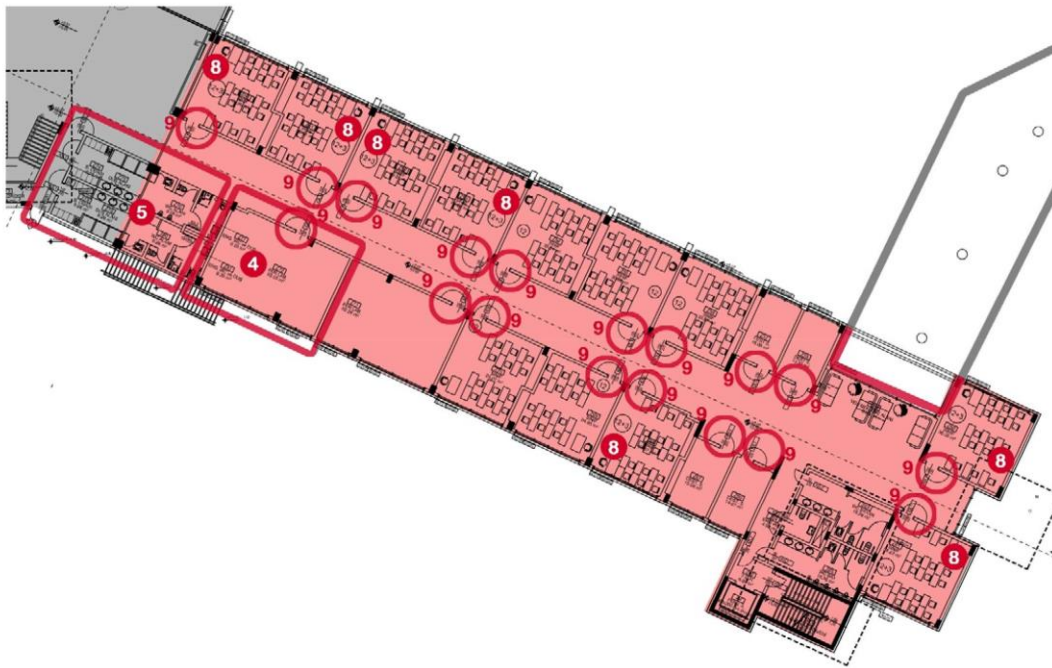




Üst Zemin Kat



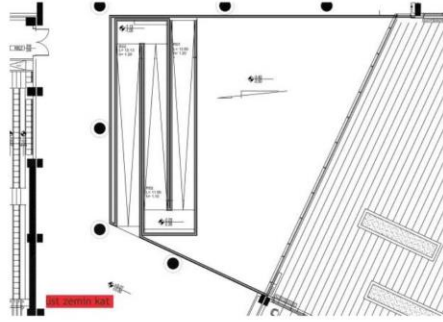




SERCEV Engelsiz Meslek Lisesi Projesi kapsamında yukarıda renklendirilmiş ve numaralandırılmış olarak görülen 10 sorunlu alan ve olası çözüm önerileri, aşağıda gerekçeleri ile birlikte açıklanmıştır:

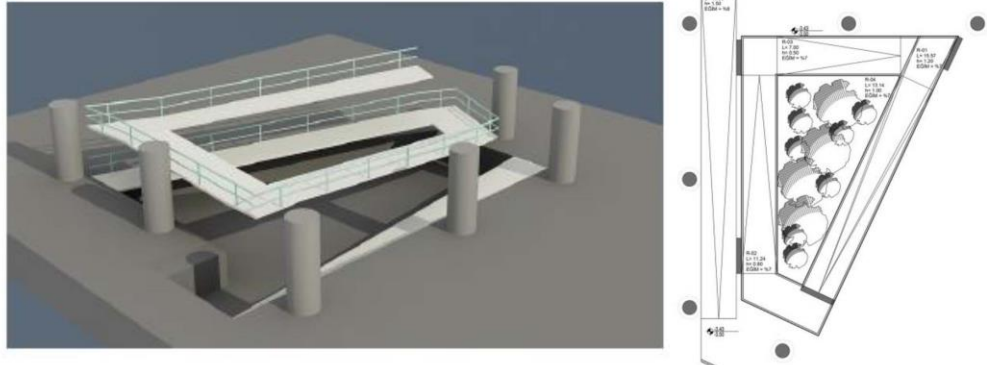
1_Rampa

Mevcut durum: Binanın kollarının bulunduğu orta alanda konumlandırılan ve alt zemin ile üst zemini birbirine bağlayan rampanın eğimi %9 dur. Söz konusu rampa, 170 cm kol genişliğine sahip, 3 kollu bir rampadır. (Şekil-1)



Şekil 1

Öneri: 3 kollu olarak tasarlanan mevcut rampanın biçimi değiştirilerek 4 kollu hale getirilmiş ve bu sayede eğimi % 7'ye düşürülmüştür. Böylece rampanın formu, içinde yer aldığı boşluğun formu ile uyumlu hale getirilmiştir. (Şekil-1.1)



Şekil 1.1

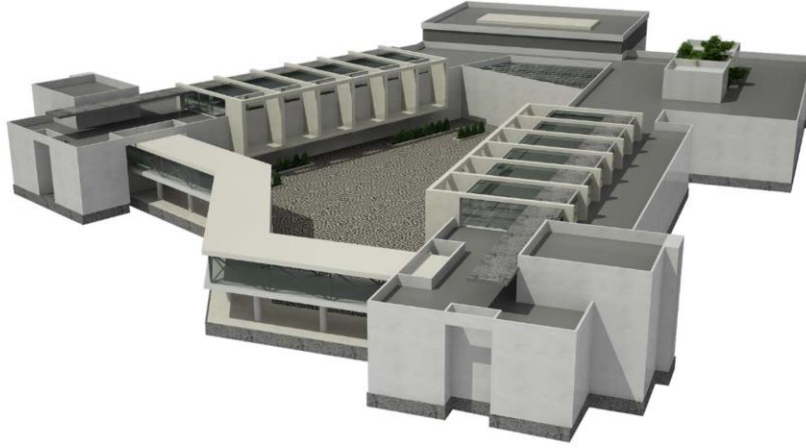
2_Kollar arası bağlantı

Mevcut durum: Bina, iki kollu 'V' harfi formundadır. Her iki kolun uzunluğu 70m. dir. Bu mesafenin, özellikle 'erişilebilirlik' açısından değerlendirildiğinde, azaltılması gerekmektedir.



Şekil 2

Öneri: Yapının kuzey girişinde bulunan ve iki kolu birleştiren mevcut saçağının , üzerinin kapatılarak iki kolu bağlayan bir tüp köprü haline getirilmesi düşünülmektedir. (Şekil-2)



Şekil 2.1

3_İç-Dış Mekan İlişkisi & Alt zemin Katta Yeralan Doğramalar

Mevcut durum: Alt zemin katta bulunan mekanlardan avluya erişim, yalnızca yemekhaneden sağlanmaktadır. (Şekil 3)



Şekil 3

Öneri: Alt zemin katta avluya bakan mekanların avluyla ilişkilendirilmesi, hem güvenlik açısından hem de bahçenin kullanılabilirliğini ve erişilebilirliğini artırmak adına önemlidir. Bu nedenle, mevcut planda pencere olarak çizilen alt zemin kat doğramaların avluya açılan kapılar olarak yeniden gözden geçirilmesi önerilmektedir. (Şekil 3.1)



Şekil 3.1

4_ Fizik Tedavi ve Rehabilitasyon Alanı

Mevcut durum: Yapıda böyle bir mekan tanımlanmamıştır.

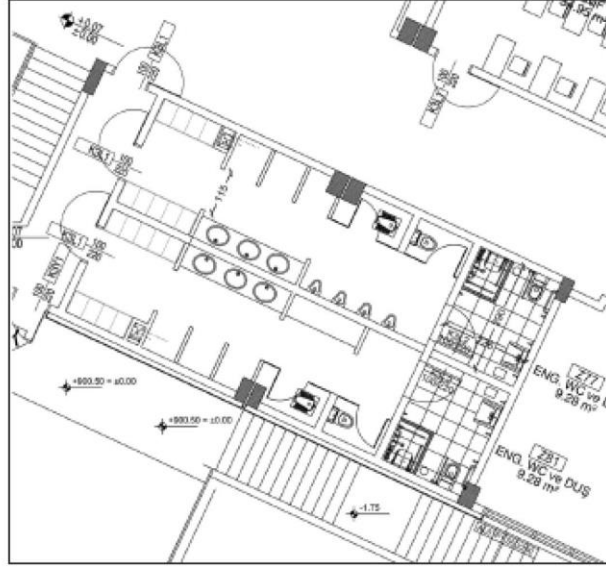
Öneri: Sözkonusu mekanın, mevcut planlama içine dahil edilmesi (Şekil 4) ve bedensel aktivitelere hizmet eden bu mekanın spor salonuna yakın bir alanda çözümlenerek, (Laboratuvarlardan biri bu işlevle kullanılabilir) soyunma odaları ve wc'lerin de bu işlev için tekrar düzenlenmesi öngörülmektedir.



Şekil 4

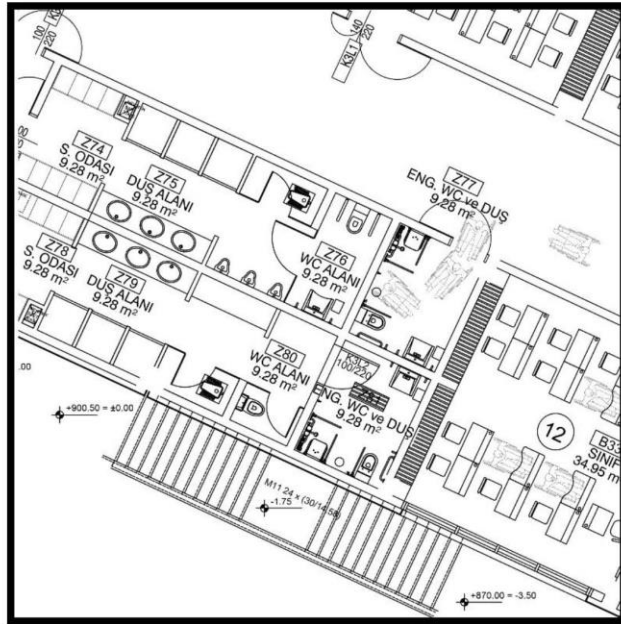
5_ Islak Hacimler

Mevcut durum: Spor salonuna hizmet edecek şekilde tasarlanan ıslak hacimlerde, engelliler için ayrılan duşların mekanın en sonunda yer aldığı ve dar bir kullanım alanından geçilerek ulaşıldığı tespit edilmiştir. (Şekil 5)



Şekil 5

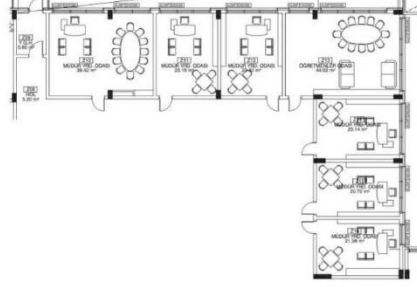
Öneri: Söz konusu mekânın yeniden düzenlenerek engellilere ait duşların, diğer soyunma odalarından bağımsız çalışması öngörülmektedir.



Şekil 5.1

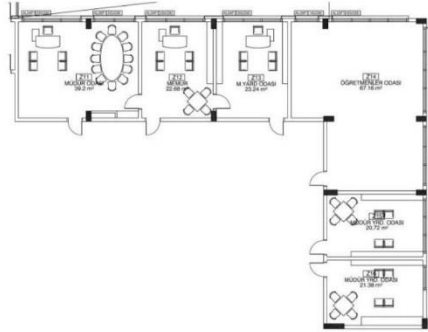
6_ İdari Birimlerin Birbiri ile İlişkisi

Mevcut durum: İdari birimler için ayrılan mekanlar, hem ihtiyaç duyulan mekan sayısı hem de büyüklük olarak yetersizdir. Ayrıca, öğrenciler, öğretmenler, idari personel ve veliler aynı ıslak hacimleri kullanmaktadır. Herhangi bir mutfak veya çay ocağı da tanımlanmamıştır. (Şekil 6)



Şekil 6

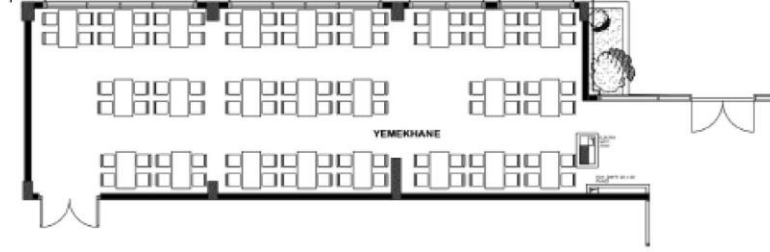
Öneri: Müdür, müdür yardımcıları, çalışan memur ve öğretmenler odasının genişletilmesi öngörülmektedir. (şekil6.1)



Şekil 6.1

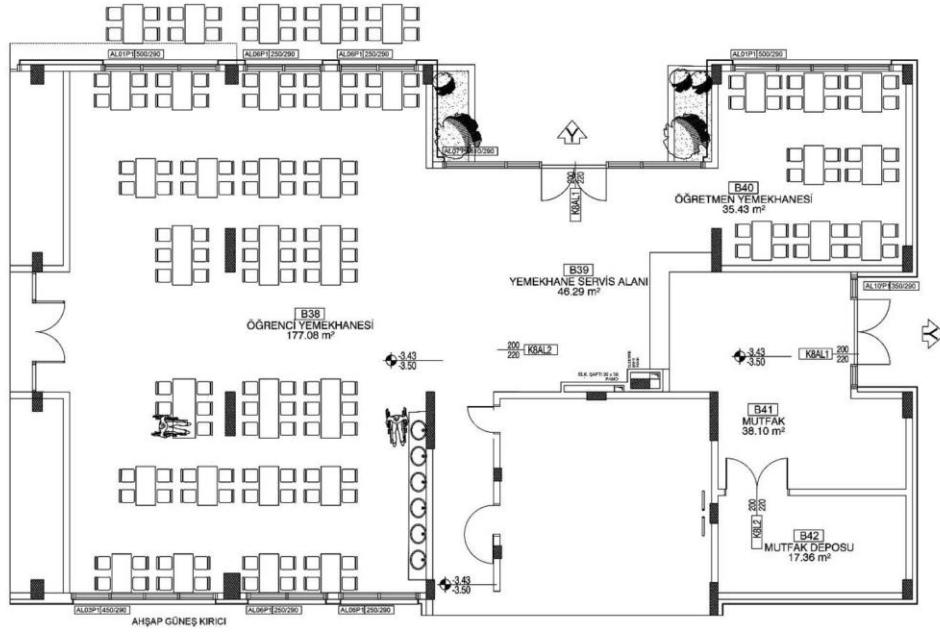
7_Yemekhane

Mevcut durum: Yemekhanenin hizmet kapasitesi, mevcut durum için yetersizdir. Ayrıca, hizmet dışarıdan alınmıyor ise, mutfak için ayrılan hacim de yeniden gözden geçirilmelidir. (Şekil 7)

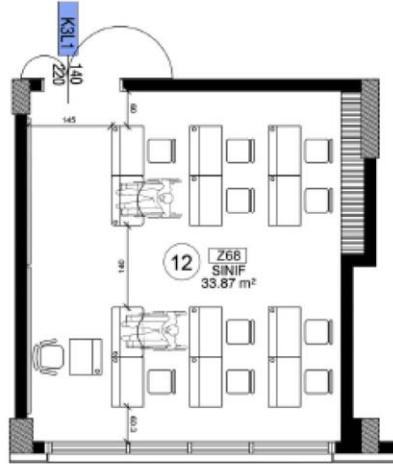


Şekil 7

Öneri: Yemekhane bloğunda yer alan , sınıfların üst kote alınması ve bir işteknik atölyesinin iptali ile yemekhanenin büyütülmesi öngörülmektedir. (Şekil 7.1)



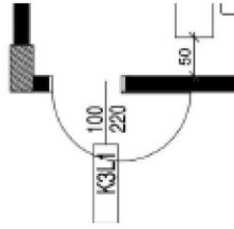
Şekil 7.1



Şekil 8.1

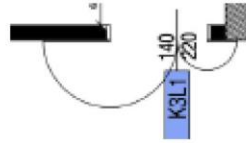
9_Kapılar

Mevcut durum: Sınıf kapı açıklıkları 100 cm' dir. Uygulamada kapı kasası yerleştirildikten sonra açıklığının yaklaşık 90 cm'ye düşeceği ve bu durum tekerlekli sandalye kullanıcıları için sorun yaratacaktır. (Şekil 9)



Şekil 9

Öneri: Uygun koşulun sağlanması için 140 cm'lik kapı açıklığı gerekmektedir. (Şekil 9.1)



Şekil9.1

Öneri:

Genel anlamada salon taşıyıcıların doğrultularının değiştirilmesi mümkün olabilirse rampa ve geçişlerin rahatlayacağı açıktır. Bunun sağlanamaması halinde, İzleyici kapasitesinin azaltarak rampanın uygun genişliğe kavuşturulması gerekmektedir.

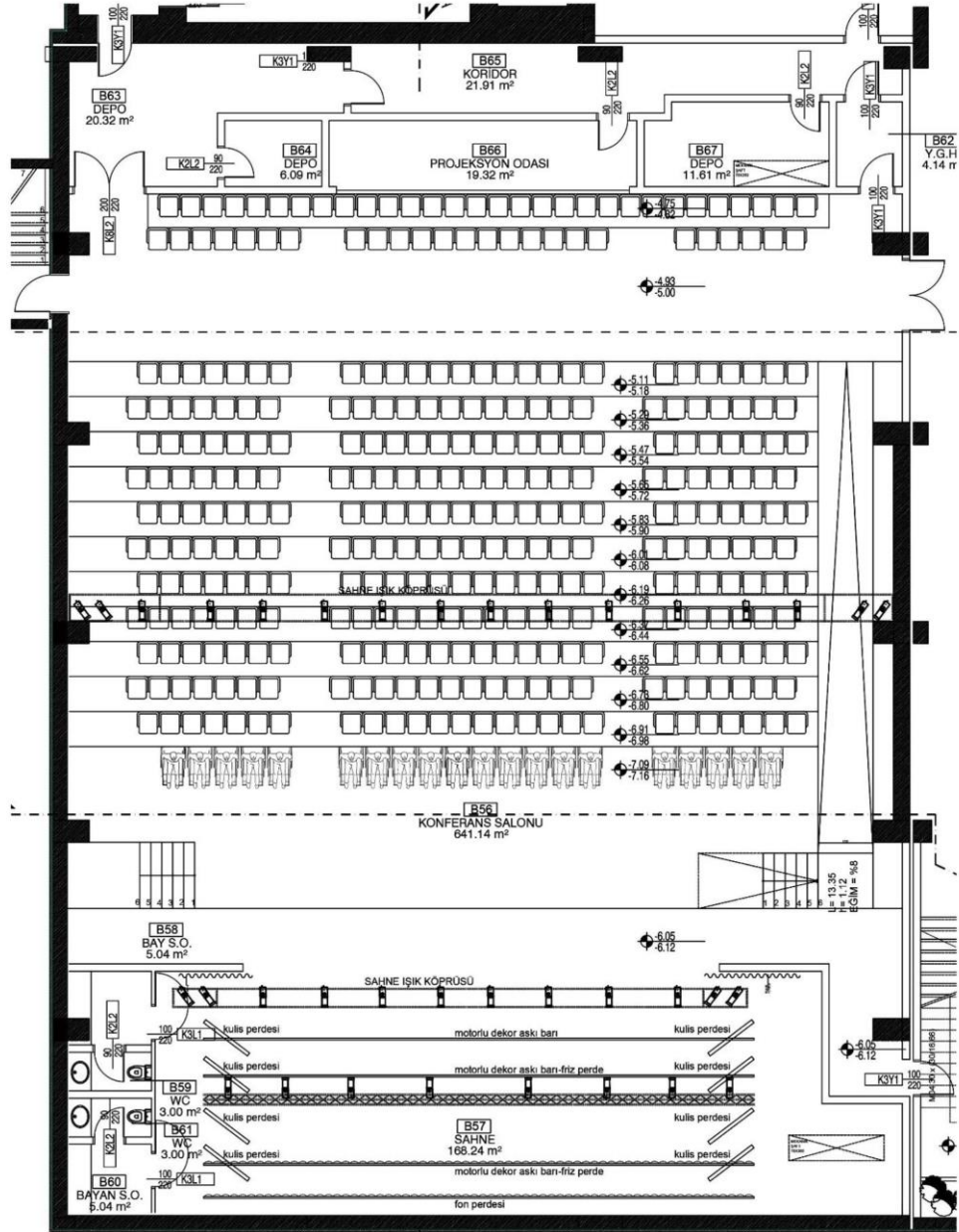
Giriş kapısının kaydırılması ve giriş hattına denk gelen koltuk sırasının iptali

Sahneye çıkan merdivenin kaydırılması.

Sahne iniş rampası soldan sağa alınarak engelli öğrencilerin salon içinde daha hareketini rahatlatmak düşünülmüştür. Sahne önüne yerleştirilecek ek rampa ile engelli öğrencilerin en ön sıradan izlemesi sağlanabilir.

İzleyici sıralarındaki azaltma ile salonun üst ve sahne kotlarında da iyileştirme sağlanmış olacak, sahneye inen rampa eğimi %8 e çekilecektir. Bu büzenleme salon kapasitesi 387 kişiden, 361 e düşürmektedir.

Engelli izleyici kapasitesinin artması istenirse, giriş kotundaki üst sıranın tekerlekli sandalye kullanıcılarına tahsisi düşünülebilir.



Şekil 9.1

Ayrıca ;

-Tüm ıslak hacim mekanlarının engelli erişimi anlamında yeniden gözden geçirilmesi,

- Yaşama ünitesinin 1 ana, bir de uydu olacak biçimde her iki katta da kurgulanması,

-Her iki katta da günlük fiziksel aktivite yapmaya uygun mekanlarının yer alması öngörülmektedir.

-Alt zemin kattaki fen laboratuvarlarının bir bölümün sınıf, bir bölümünün ise meslek lisesi'nin müfredatına uygun mekansal ihtiyaçlar için kullanılmak üzere dönüştürülmesi düşünülmektedir.



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PUBLICATIONS, PRESENTATIONS AND PATENTS ON THE THESIS:

- Gülbahar, S., Cordan, Ö., 2017. The Life Center Unit Design for Inclusive Schools: Case of Gökkuşuğu Primary School in Turkey. Third International Conference on New Trends in Architecture and Interior Design, April 28-30, 2017 Helsinki, Finland.