



Transitional architecture for intellectually disabled youth.
From formal education towards autonomous living.

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INTRODUCTION

Key words: *intellectual disability, independent living, autonomy, adulthood, living and learning, transition architecture*

Intellectual disability among young adults

According to the definition provided by American Psychiatric Association, intellectual disability involves difficulties with general mental abilities in intellectual and adaptive functioning (Schaepper et al., 2021). The former case refers to learning, problem solving and judgment, while the latter defines activities of daily life, including communication and independent living. Independent living problems in the case of intellectual disability can mean lack of empathy, social judgment, communication, as well as inability to perform personal care and financial management.

Intellectual disability is usually diagnosed before a child turns 18 years old. At the time of diagnosis, a parent's involvement in treatment and future-planning is the most cited predictor of a successful transition from childhood to adult life (Foley et al., 2012, p. 13). For parents to make a well-informed and conscious choice of a development strategy they must be provided with suitable options from their doctor, health organizations, community, or other public resources. According to the study of 45 parents of children with intellectual disabilities, 88.7% of the participants expressed their need in information of current and future services available in the society and intellectually disabled community (Sahay et al., 2013, p. 5).

Currently there are several tracks that parents can consider contributing to their child's development: home schooling, public schools (in case of mild intellectual disability), Charter and Magnet schools ¹, Waldorf and Montessori schools ², therapy, or disability-specific school, and most commonly schools for intellectually disabled children. However, as soon as a child outgrows the age of 22, the formal (i.e. primary and secondary) education system can no longer support the individual development and procession to independent living (Tortorello,

2013). In some cases, young adults start attending workshops (i.e., arts and crafts) or consider the jobs as a cashier, janitor, or shop assistant (Attitude, 2016). Despite that these options aim at providing activity and interactions in the life of disabled youth, some adults experience frustration as they compare a workshop to a jail, having to come there every day without their personal will or motivation (Hosche & Wilms, 2021). Hence a problem of individual's self-actualization arises, as intellectually disabled youth are rarely equipped to reach their full potential in the modern-day society.

¹ public school with individualized attention to individual needs of the children with disabilities

² private schools that practice teaching students visually and kinesthetically



Figure 1 Collage: transitional phase of young adults with intellectual disability

PROBLEM STATEMENT

Life after school for intellectually disabled youth

Leaving school and proceeding with higher education, or work, while being a young adult is both mentally and physically complex. At this moment youngsters undergo a transition phase – the moment of moving from the protected life of a child to the autonomous life of an adult. In the case of intellectually disabled individuals this stage in life involves confusion and stress due to the unreadiness of the parents and YAID to move out and proceed with their personal development paths. Families of young people with an intellectual disability transitioning from school have compared this phase of life to the time when their child was initially diagnosed (Foley et al., 2012, p. 13). Moreover, due to the poor safety and social skills training, parents express unreadiness for their child's transition to adulthood. Safety and risk have been described as a major concern for the over-protectiveness of the families (Foley et al., 2012, p. 13).

The fear of parents regarding the unreadiness of their neurodiverse children can be resulted from “the greenhouse effect” in educational facilities. (Figure 1) The term is used to describe the learning environments that are catered specifically to children with intellectual disabilities to the point that mainstream public spaces become unrecognizable to YAID. Such facilities negatively affect YAID's Quality-of-Life because these spaces limit their choice and dignity. To control the behavioral response of YAID the architectural spaces are usually tailored to feel sterile or inhuman (Roos et al., 2022, pp. 2-3).

The research problem is based on the Quality of Life of YAID during the period of leaving their parents' house. This phase carries many risks to the neurodiverse youth and their families, but this study is focused on encouraging YAID to take a step towards independent living after they are done with the formal education. Practical and

generalizable knowledge is currently lacking in many secondary educational facilities, which later causes the problem of poor adaptation period or inability to live independently. Stimulating architectural characteristics of the educational and living spaces (i.e., urban context, materialization, layout, programmatic organization) can be used to train YAID and prepare them to make a step towards independent living.

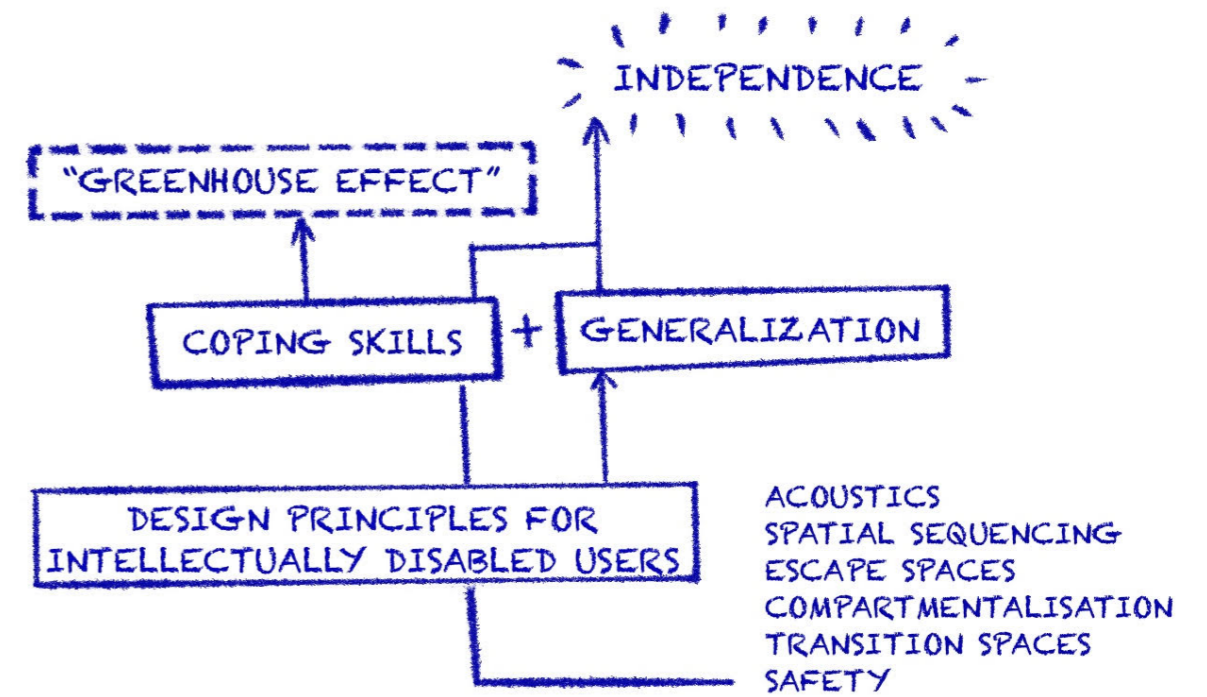


Figure 2 Pathway to Learning Concept: Children with ASD (Giles, 2020).

The “greenhouse effect” is reached when the facilities are strongly based on design principles for intellectually disabled users with generalizable design patterns. The coping skills of the students make YAID too used to the spatial configuration of the school, but mentally and physically uncomfortable in mainstream educational facilities (Giles, 2020).

Education facilities should include spaces that help YAID build a tolerance to environmental stimuli in order to prepare them for the challenges and problems they will face in everyday life. Cocooning the pupils with intellectual disabilities will not help them to reach their full potential in life (Pearson et al., 2016)

RESEARCH QUESTION

What are the design principles that encourage and discourage individuals with mental disabilities to occupy the interior, or exterior, space?

Which spaces do YAID most frequently go attend throughout their daily routine?

What other user groups contribute to the life of YAID and in what way these stakeholders participate in the spaces occupied by YAID?

How can **architectural design** enable **young adults with intellectual disabilities (YAID)** to make a step towards **autonomous living** after their completion of the **formal education** to establish a smooth transition into adulthood?

How does a secondary education facility design (and other educational facilities for YAID) encourage/discourage independence and independent living skills?

What architectural design concepts encourage independence in dwellings for intellectually disabled users?

THEORETICAL FRAMEWORK

The research related to intellectual disabilities was addressed in the fields of human and environmental psychology, medicine, and sociology. However, this research paper will accumulate the basis of these disciplines and aim to translate the knowledge to built environment. The theories of Environmental Preference, Sensory Integration, Deinstitutionalization and Quality of Life Concept are explained as the basis of the theoretical framework for the future design proposal as the outcome of this research.

2.1 Environment and behaviour

According to a psychologist Kurt Lewin, human behaviour is a function of individual person and the environment. With this innovative concept in 1936, Lewin hypothesized that an individual's behavior is directly linked with the environment. The idea was further developed by M. Powell Lawton in 1982, who suggested that despite the objective environment, the formula must consider an individual's perception of the environment (Pearson et al., 2016, pp. 11-12). Thus, the role of architecture in understanding human behavior was discussed early in the field of human psychology without explicitly recalling the field of architecture and urbanism.

a) Environmental preference theory

When human perception of the environment became an acknowledged factor of the general human behavior, environmental psychologists started speculating on the question of "How do people develop the feelings of spatial perceptions and preferences?". Environmental Preference Theory is based on the human preference of spaces that are engaging, rather than 'boring'. It becomes an appropriate theory to study when addressing human self-actualization, because it offers design methods for engaging scenes to sustain a skill-sets, talents and increase one's self-esteem. Complexity and mystery are the two factors that positively engage users and can be distinguished in the quantity and variety of architectural components in a scene, geometry, and composition (Pearson et al., 2016, p. 12).

The four principles of Environmental Preference Theory - Complexity, Coherence, Legibility and

Mystery - examine the relationship between people and their perception of spaces. This framework suggests the methods to create "preferred environments" that stimulate and comfort specific user groups.

b) Sensory Integration Theory

The theory refers to the detection, integration, organization, and use of the sensory information that helps a person interact with his environment. Due to sensory integrative dysfunction, neurodiverse individuals may feel confusion, irritation, or inability to participate and act in a way that the mainstream society can. The foundation of the Sensory Integration Theory is that proper integration of human sensory systems fosters the growth of language, attention, organization, motor skills, interpersonal relations, and academic learning (Pearson et al., 2016, p. 14).

2.2 Deinstitutionalization movement

Normalization was one of the early concepts that related to the individuals with intellectual disorders. In the early 1980s, the new concept advocated for the improved quality of life for people with developmental disabilities by offering a greater access to culturally typical activities and settings (Dieffenbach, 2012). The philosophy of normalization grew alongside the idea of least restrictive environment. Initially it was seen rather radical to the society since the individuals with disabilities were viewed as targets for pity. Over the time, normalization became a concrete framework that challenged society to provide for the intellectually disabled adults in a more humanizing way: "(adults with developmental disabilities) should have their desires and choices respected, and should be able to live as non-disabled people do" (Parish, 2005, p. 219). Throughout the process of deinstitutionalization, a significant amount of people had relocated from institutional settings towards the new emerging architectural typologies. The new environments called for the new models of community living, such as group-homes and day-care centers. Unlike the institutional care, which did not hinder participation in community life, the new forms of living aimed to express a disabled individual "as a full citizen". Over the following years, residential services were further developed to host activities and education to support the development of the normalization principle. According to the Convention on the Rights of persons with Disabilities (CRPD) held in 2006, inclusive education is essential to realize without discrimination. Equal opportunities in education were addressed with the development of special guidelines for primary and secondary educational trajectories, and facilities that host these programs.

2.3 Quality of life measurement

As notions like “happiness” and “quality of life” are rather qualitative, there is no standard definition or an agreed form of measurement of the human Quality of Life. In 2005, Brown defined (a high) quality of life as being able to live successfully and happily within the environment. Before the social indicators movement of the 1960s and 1970s, Quality of Life was interpreted in terms of material goods and the GDP indicators. However, with the rise of social indicators, Quality of Life was understood through social sciences and built environment with the rapid increase of publications in the 1990s.

Although there are multiple interpretations based on the researchers’ perspectives, it is agreed that Quality of Life (QoL) is a multidimensional concept applicable on varying spatial levels. Different studies suggest different sets of QoL components depending on the purpose of the studies. The core elements in the framework are called domains, while details for each domain are called indicators. In 2004, Robert Schalock suggested eight core QoL domains (and 19 indicators): emotional well-being, interpersonal relations, material well-being, personal development, physical wellbeing, self-determination, social inclusion, and rights. In 2010, Wil Buntinx and Robert Schalock developed a conceptual model for QoL measurement for intellectually disabled people based on three factors: independence, social participation, and wellbeing (Buntinx & Schalock, 2010, p. 287).

After combining the assembly of research by Robert W. Marans and Robert Stimson (2011) and Mark Rapley (2003), Quality of Life can be measured in the following ways according to the subjective, objective and behavioural indicators (Mohit, 2013, p. 9).

2.4 Individual position

As the society shifts from deinstitutionalization towards inclusion of individuals with intellectual disabilities at all stages of their life, educational and living facilities associated with the transitional phase of YAID should integrate the sensory experiences of users to create a comfortable yet stimulating environment. Implementing complexity in the design of spaces for neurodiverse individuals should positively influence the adaptation of YAID to live as independent as possible among the mainstream society.

FACTORS	DOMAINS	EXEMPLARY INDICATORS
Independence	Personal development Self-determination	Education status, adaptive behavior Choices, autonomy, personal goals
Social participation	Interpersonal relations Social inclusion Rights	Social network, friends, relationships Community integration, roles, support Human and legal rights
Well-being	Emotional well-being Physical well-being Material well-being	Safety, security, lack of stress Health, nutrition, recreation, leisure Employment, housing, possessions

Table 1 Quality of life conceptual and measurement tool (Buntinx & Schalock, 2010, p. 287).

Objective social indicators	Subjective social indicators	Behavioural indicators
Life expectancy Crime rate Unemployment rate GDP Poverty rate School attendance Working hours per week Suicide rate	Sense of community Material possessions Sense of safety Happiness Satisfaction with life Relationship with family Job satisfaction Sex life Perception of distributional justice Class identification Hobbies and club membership	Public transit use Participation in sports Amount of walking Amount of cycling Visited to cultural amenities and events Visits to parks Visits to to clinics and doctors Amount of neighboring Participation in voluntary organizations Participation in local decision making organizations Residential mobility

Table 2 Subjective, objective and behavioural indicators for QOL (Mohit, 2013, p. 9).

1800s

1900

1925

1950

1975

2000

2010

TOWARDS DEINSTITUTIONALIZATION

SEGREGATION OF INTELLECTUALLY HANDICAPPED' (1800s)
institutionalization of intellectually and mentally handicapped people in mental wards

PSYCHOPAEDIC HOSPITALS (1940-1960)
understanding the needs for specially designed therapeutic spaces for intellectually disabled

NORMALIZATION OF INTELLECTUALLY DISABLED INDIVIDUALS (1980)
Provide services for intellectually disabled people in a more humanizing way

DEINSTITUTIONALIZATION (1990s)
transitions from hospitals to community-based living

NEW HOUSING AND CARE TYPOLOGIES FOR INTELLECTUALLY DISABLED PEOPLE
assisted living, community homes, independent living

EDUCATION FOR ALL: UPDATED VERSION (1990)
An individual transition plan for intellectually disabled students must be developed to help transition to the post-secondary-education life

QOL FOR INTELLECTUALLY DISABLED (2010)
Independence, social participation and wellbeing (Buntinx and Schalock, 2010)

'QUALITY OF LIFE' MEASUREMENT

SOCIAL INDICATORS MOVEMENT (1960s, 1970s)
Quality of life should not be measured in relation to material goods (such as GDP), but through social indicators.

BEING, BELONGING AND BECOMING QOL BY RAPHAEL ET AL. (2001)
Being (who one truly is), belonging (to one's social group), becoming (achievements and goals)

SCHALOCK'S QUALITY OF LIFE DOMAINS (2004)

ENVIRONMENT AND BEHAVIOUR

BEHAVIOR AS A FUNCTION OF PERSON AND ENVIRONMENT (1936)
 $B=f(P,E)$ (Lewin, 1936)

ENVIRONMENT PREFERENCE THEORY (1982)

BEHAVIOR AND PERCEIVED HUMAN ENVIRONMENT (1982)
 $B=f(P,E,P \times E)$ (Lawton, 1982)

SENSORY INTEGRATION PREMISES (1991)
Three postulates of sensory integration for intellectually disabled users

SENSORY INTEGRATION THEORY (1972)

DESIGN GUIDELINES FOR INTELLECTUALLY DISABLED USERS (EARLY 2000s)
Cognitive impairment, access and the built environment (2004)
An architecture for autism: concepts of design interventions for autistic user (2008)
Designing for Autism Spectrum disorders (2016)

RESEARCH AIM

This research aims to resolve the disconnection between the tailored educational facilities for intellectually disabled youth and the unreadiness of the youngsters for autonomous living. The proposed architectural integration should bridge learning and practice of independence for YAID by making the learning process both physically and mentally comfortable for YAID and generalizable for their future life as autonomous adults in a mainstream society.

4.1 Addressing Quality of life (QoL) to reach self-actualization of YAID

The concept of the Quality of life became the center of discussion in the 1990s, when De-institutionalization was proposed to reduce the costs of care and improve the wellbeing of intellectually disabled (Schalock, 1990). In his later publication, Schalock aimed to define quality of life through eight core QoL domains: emotional wellbeing, interpersonal relations, material wellbeing, personal development, physical wellbeing, self-determination, social inclusion, and rights (Schalock, 2004, pp. 369-384).

The Quality-of-Life indicators will be used throughout the research paper to categorize design recommendation findings and build-up the

4.2 Limitations

For this research, QoL is addressed with the understanding of domains that relate quality of life concept to architecture and urban environment. In this way, emotional and physical wellbeing of YAID is addressed with the design principles to provide positive effects on health and behavior of intellectually disabled individuals in spaces. Interpersonal relations domain relates the building design and encouraged social interactions and support through the transition phase of YAID. Ability to continue individual's achievements, such as semi-independent living or sheltered working program, beyond formal education is related to personal development domain. Independence and ability to perform individual choices regarding one's living, studying, or working environment rep-

resents the self-determination domain. Lastly, social inclusion is understood at the urban scale by integrating the facilities occupied by YAID into a community by assigning special values and roles to the YAID and their spaces.

Although this research is based on the interventions in the built environment, QoL of YAID should be addressed in a multidisciplinary team of designers, medicine personnel, education and behavioral experts to create a well-rounded proposal for the transitional personal development strategy for YAID.

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4.3 Research objectives and outputs

Research objective	Outputs
Research objective 1. Understand the physical and emotional responses of intellectually disabled individuals to the different characteristics of architectural spaces. Outline the architectural and urban design principles to encourage positive and healthy spatial experiences	Design recommendations with conceptual sketches and written descriptions based on the literature study of Designing for Autism Spectrum Disorders (2016), Cognitive impairment, access, and the built environment (2004) and An architecture for autism: Concepts of design intervention for autistic user (2008).
Research objective 2. Define methods that formal education facility designs use to encourage YAID independent behavior. Outline the limitations, strengths, and opportunities to learning of independent living skills at educational facilities for intellectually disabled students.	Design toolkit with conceptual sketches and written descriptions based on the interviews with three architects: Marlies Rohmer, Andrea Möhn and Ron van Logchem. Each of the professionals has designed an educational or care facility for disabled youth in the past, namely Heliomare Heemskerk School, De Boomhut, and Kiem Special Care school.
Research objective 3. Determine the goals and personal values of YAID regarding the architecture of transitional phase. How do YAID envision their ideal adulthood?	A list of requirements and wishes from the urban and architectural environments for YAID, composed from the documentaries, scientific articles, and interviews. The perspective of YAID, their parents and caretakers is acknowledged to provide the overview of the needs and wishes.
Research objective 4. Outline the problems associated with transition phase faced by YAID that have already graduated from a formal facility. Analyze the options of the facilities that are currently accessible for graduated YAID.	A list of requirements based on the findings from the existing residential and learning typologies for YAID. The quality of life of the individuals is investigated through interviews and visual discoveries. Individual studio, group home and a day care for intellectually disabled individuals are attended for the fieldwork study too. YAID, teachers, study coaches and counselors are interviewed. The activities are documented in terms of YAID behavioural habits and interactions with spaces.

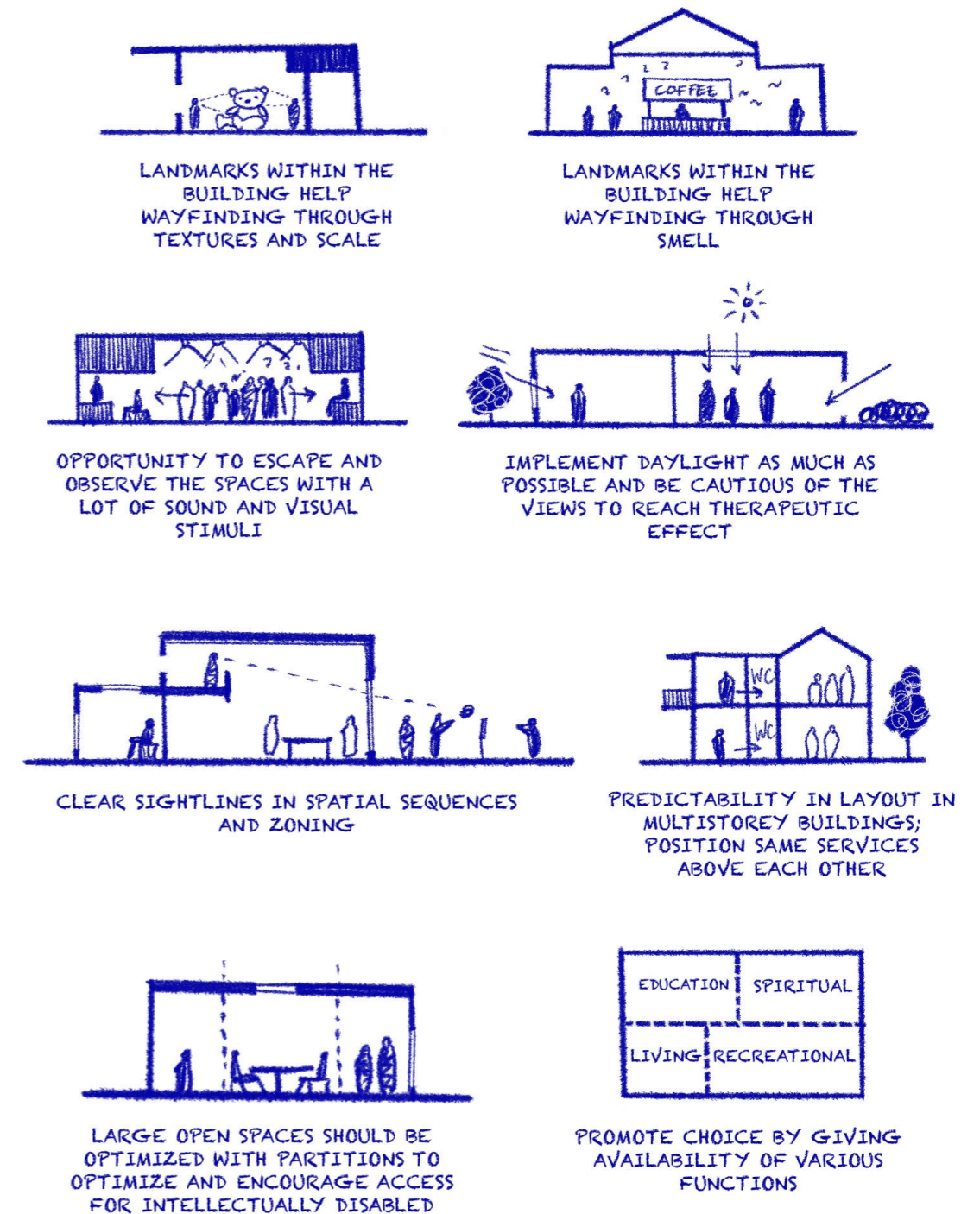
Diagram 1 Research objectives and methods

RESEARCH METHODS

a) Literature review

The preliminary research method is the literature review. A study of research papers, scientific publications and books is performed to understand the available publications on psychological and physical requirements to design spaces for intellectually disabled users. The book *Designing for Autism Spectrum Disorders* (2016) explained the influence of the natural and man-made environment on individuals with autism spectrum disorders (ASD) and some forms of intellectual disabilities based on the latest research in the fields of environmental psychology and education. (Pearson et al., 2016) The influences of colour, lighting, space organization, textures, acoustics, and ventilation are explored to encourage positive influence of space on the target group. This information applies to designs of homes, therapeutic spaces, work environments and outdoor spaces. The research performed by Magda Mostafa in 2008 is used to understand the general architectural design guidelines tailored to the needs of autistic users. (Mostafa, 2008) In the publication, the researcher aims to create an inclusive built environment that positively influences behaviour of individuals with autism as well as inclusivity. In addition, the report *Cognitive impairment, access and the built environment* (2004) gave an insight into the ways in which people of all ages with severe neurological impairment, navigate and experience the built environment. (Tuckett et al., 2004) In the book *Personal Space: The behavioural basis of design* (1969), Robert Sommer presented a summary of research related to human psychology and behaviour in different spaces. In this way, the environmental psychologist includes the statements with design guidelines for learning, social and private spaces. The literature review findings are expressed in a design toolbox (Figure 3), which stores the conceptual drawings and key statements related to design for intellectually disabled users.

To understand the research problem on a personal level, I referred to the use of documentaries and video materials with interviews. With this data I could gain an insight into the problems that intellectually disabled individuals face throughout the period of transition. Portia wants a job: *Living with a learning disability* (2016) and *Living with learning disabilities - training as teachers* (2021) introduced the issues of unemployment and dependency on family members, as YAID experience difficulties to move-out from their parents. Further needs and issues faced by YAID are explored in the research paper *Independent Living Needs of Young Adults with Intellectual Disabilities* (2020) stressing the needs for employment, daily life routine and self-determination through phenomenological research. (Yıldız & Cavkaytar, 2020) The analysis of this data provided an insight into programmatic requirements, personal needs and wishes from the built environment to become a self-sufficient and independent adult, while living with an intellectual disability.



il. 5

Figure 3 Design toolbox example

Design principles sketches based on the book *Designing for Autism Spectrum Disorders* (2016)

b) Primary data - Fieldwork

The research is accompanied by primary data obtained from the fieldwork conducted by the author. Architectural studies are conducted to learn the principles behind building typologies occupied by young adults with intellectual disabilities. Andrea Möhn (Andrea Möhn Architects), Ron van Logchem (Mecanoo) and Marlies Rohmer (Marlies Rohmer Architects & Urbanists) are addressed individually to speak about their experience with designing for disabled young adults. The findings of the interviews and the supporting case studies were documented in a written format as design recommendations, as well as conceptual sketches.

Besides the architectural understanding of the spaces occupied by YAID, a study of the target group is conducted to understand their values, needs and daily schedules. Firstly, I performed a study into the daily life of Robin (the name was changed to keep the person's confidentiality), a 35-year-old working individual living with multiple disabilities. To understand a typical schedule of Ruby, I have spent one day overlooking his activities, making notes and sketches of the spaces and objects he interacts with. In order to give an assessment of Robin's quality of life, the findings of his activities were accompanied by the interview responses with his parents, his advisor and Robin himself. Secondly, I visited Willem Felsoord – a day care center by Ipse de Bruggen organization in Delft. The visit has allowed me to understand the activities and the support that is needed for the cases of severe disabilities. The findings of the tour around the building were noted down in textual form and sketches. Next, a group home by Pamerijer in the South of Rotterdam served as a study of a form of transitional architecture with 24-hour support to the vulnerable youth with intellectual and other disabilities. By observing the residents' living spaces and interviewing the staff about their

daily schedule I have gained the knowledge over the lifestyle of group home facility residents, and what they enjoy or lack for a better independence and quality of life. Lastly, an interview with the TU Delft Student Onbeperk association board member has touched upon the subject on the life of university students with disabilities. Corné Arentze, TU Delft Bachelor student and the third board member of Student Onbeperk introduced the vision of the association, the problems that disabled students face on campus, and his own experience of living in a student house.

Data Evaluation

Primary and secondary research data is evaluated and organized into the three factors of Quality of Life: Independence, Social participation, and Wellbeing. In addition, the findings are clustered according to the stakeholder occupation. In this way, design recommendations and design concepts are clustered into the data provided by the individuals with ID, architects (and environmental psychologists), parents of individuals with ID, and the healthcare staff. In this way, a database of recommendations is assembled and ready to use for the designing process.

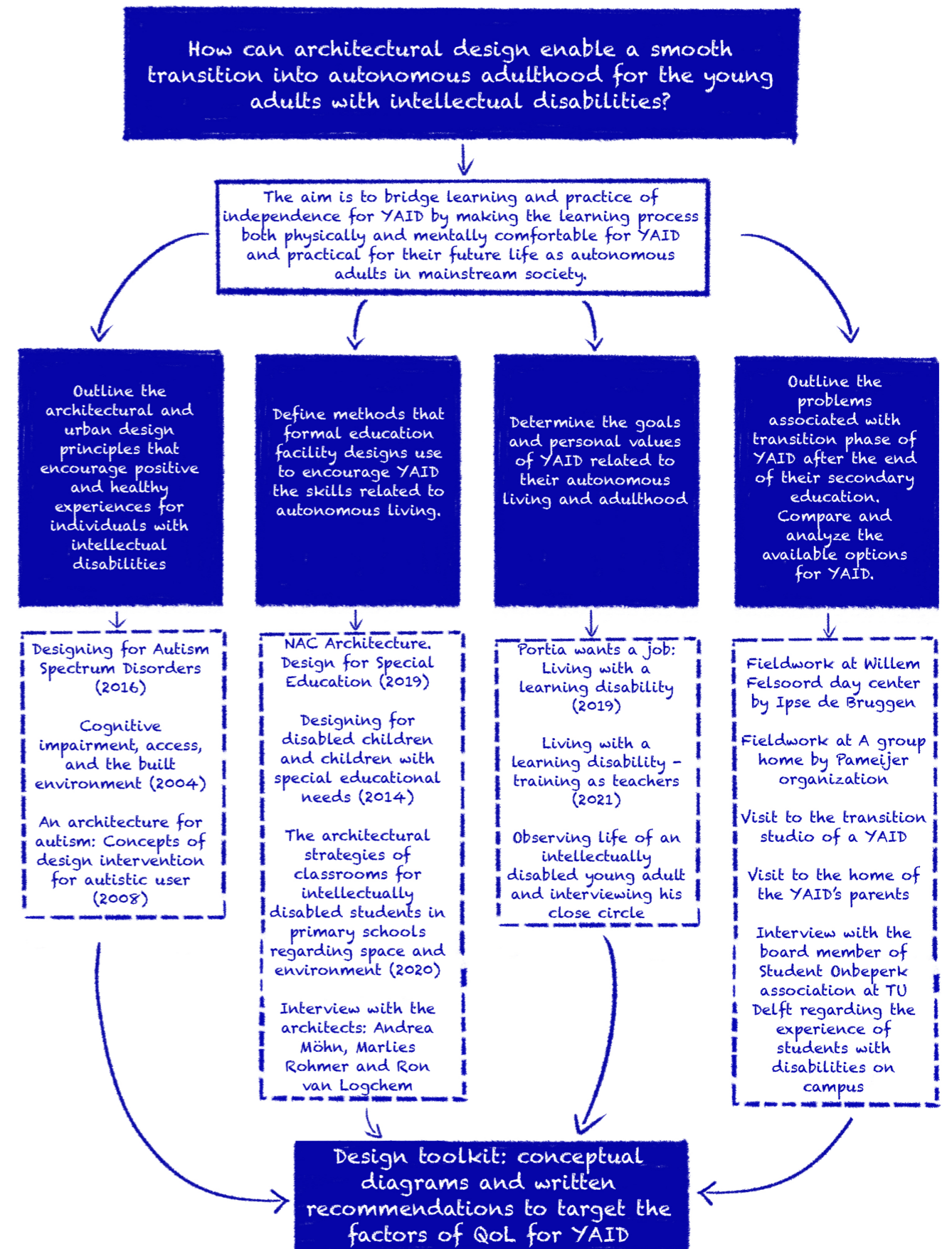


Figure 4 Research diagram
Research question - research aim - objectives - methods - outcomes

RESEARCH TIME LINE: P1



il. 6

Week 1.1

Individual Fascination and background knowledge of intellectual disability and related architectural typologies



il. 7-8

Week 1.2

Case study of the Sweetwater Spectrum Community (LMS Architects)
Exercise 1: Learning to observe the surroundings by vision, hearing and smell



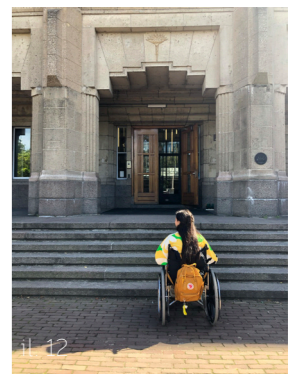
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Week 1.3

Exercise 2: Studying the narrative photography as a way of anthropological study. The works of Diane Arbus

Week 1.4

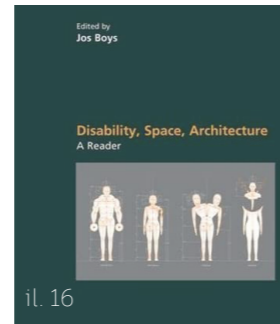
Exercise 4: Understanding the user's perspective (Wheelchair and visual impairment experiment)



il. 6

Week 1.7-1.8

Fieldwork preparation: contact organization and create and plan of activities, or observation strategies



il. 16



il. 15



il. 13

Interview with Andrea Mohn

Human-centered approach, healing environment and case studies

Week 1.5

Generic studio booklet: Literature review
Research plan draft: Research problem, Research aim, Methodology,

Studying available literature

Annotating Design guidelines for intellectually disabled users



il. 17

Life of a YAID

Fieldwork: spending a day with a YAID and his family; visits to YAID's apartment and childhood home



il. 18

Interview with the architects

Ron van Logchem and Marlies Rohmer



il. 19

A day at Willem Feloord daycare



il. 20

Interview with Pameijer advisors

Week 2.1

P1 presentation: position, aim, method, preliminary findings, literature, fieldwork, future steps

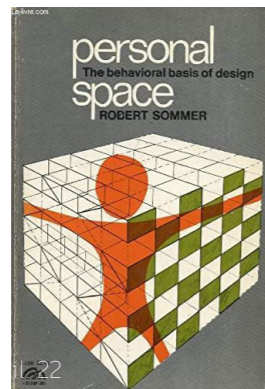
RESEARCH TIME LINE: P2



il. 21

Week 2.2

Site Selection and site requirements for the analysis



Literature on personal space designs
Robert Sommer
Personal Space: The behavioral basis of design

Week 2.6
Preparation towards P2 material
Defining site strategies by making diagrams, sketches and models



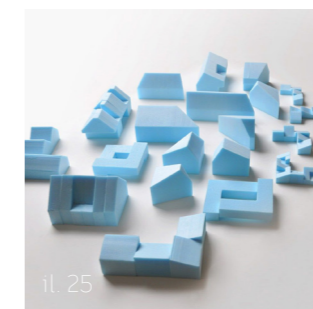
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Exploring existing typologies: visit to Pameijer group home
Learning about the existing architectural typologies for YAID



Site visit to Kiem School Dordrecht

Learning about the existing architectural typologies for YAID

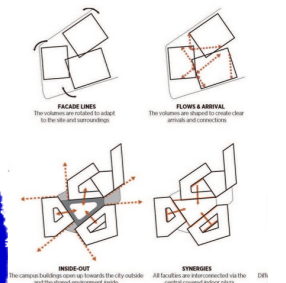


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Week 2.3

Design site analysis findings +
Outline design ambitions, design brief

il. 26



Week 2.4

Design site analysis findings +
Volumetric studies

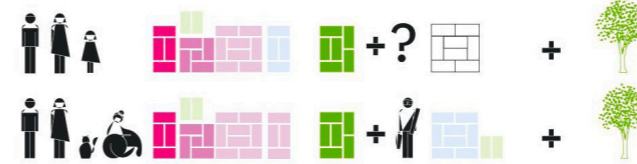
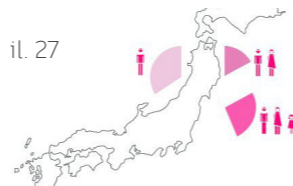
Week 2.7

Feedback and necessary changes towards the site analysis, volume, and proposals for design brief

Week 2.8

Preparation of the presentation material for P2. Link strategies with research findings of P1

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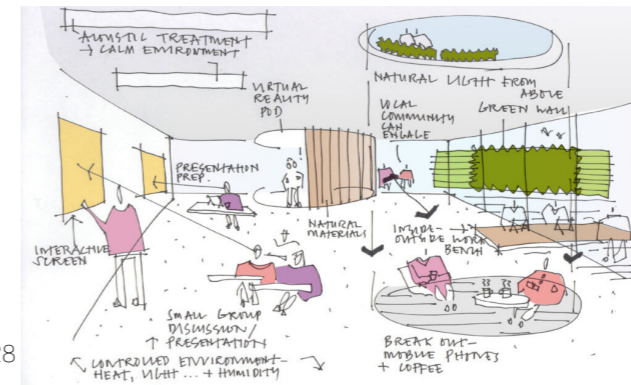


Demographics study
Program definition

Week 2.9 - 2.10

P2 Presentation + Individual Research report
Individual research presentation, design concepts, mass studies, first design steps

il. 28



DEFINITIONS

Intellectual disability: generalized neurodevelopmental disorder that is characterized by impairments in intellectual and adaptive functioning; identified by an IQ score being below 70.

Young adults with intellectual disabilities (YAID): individuals between 18-25 that have been diagnosed with an intellectual disability in their childhood.

Formal education: primary and secondary school education; in the context of the Netherlands formal education includes primary schools (basisonderwijs) and secondary schools (voortgezet onderwijs: VMBO, HAVO, VWO).

Transitional period: the moment of moving from the protected life of a child to the autonomous life of an adult.

Developmental strategy: a path consisting of individualized services of education, help and support that allows intellectually disabled individuals to perform personal growth in the spheres of education, adaptation, transition planning, and integration in the society.

Self-actualization: the realization or fulfillment of one's talents and potentials, no matter of the disability levels of the individual.

Autonomy: ability to perform safely and comfortably certain, or all, daily activities independently based on one's intellectual and physical abilities.

Inclusive design: design of mainstream services and spaces that are accessible to, and usable by people of any kind of disability, without the need for special adaptation in behavior.

APPENDIX

Appendix A. Quality of Life domains (Schalock, 2004, pp. 369-384):

1. Emotional wellbeing
 - i. Contentment (satisfaction, moods, enjoyment)
 - ii. Self-concept (identify, self-worth, self-esteem)
 - iii. Lack of stress (predictability, control)
2. Interpersonal relations
 - i. Interactions (social networks, social contacts)
 - ii. Relationships (family, friends, peers)
 - iii. Supports (emotional, physical, financial, feedback)
3. Material wellbeing
 - i. Financial status (income, benefits)
 - ii. Employment (work status, work environment)
 - iii. Housing (type of residence, ownership)
4. Personal development
 - i. Education (achievements, status)
 - ii. Personal competence (cognitive, social, practical)
 - iii. Performance (success, achievement, productivity)
5. Physical wellbeing
 - i. Health (functioning, fitness, nutrition)
 - ii. Activities of daily living (self-care skills, mobility)
 - iii. Leisure (recreation, hobbies)
6. Self-determination
 - i. Autonomy/personal control (independence)
 - ii. Goals and personal values (desires, expectations)
 - iii. Choices (opportunities, options, preferences)
7. Social inclusion
 - i. Community integration and participation
 - ii. Community roles (contributor, volunteer)
 - iii. Social supports (support network, services)
8. Rights
 - i. Human (respect, dignity, equality)
 - ii. Legal (citizenship, access, due process)

Illustrations

il. 1:
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il. 2:
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il. 4:
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il. 5,6,7,8: by author

il. 9, 10:
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il. 11, 12: by author

il. 13:
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<https://www.amazon.com/Designing-Autism-Spectrum-Disorders-Kristi/dp/0367030462>

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il. 18:
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