Intellectual Output 1
Digi-holistic Teaching Learning Module

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ABOUT THE MODULE

Project

Integrating Special Needs Individuals into Digi-Holistic Education with the acronym INSIDE

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SECTION A

1. Background

Individuals with mild intellectual disabilities (MID) experience difficulties characterised by limitations in cognitive and academic skills, daily living skills, social relationships, and expressive language skills (Dykens, 2000). Although the difficulties experienced by individuals with MID in these areas may differ according to their age and developmental characteristics, they also bring about limitations in functioning in society and displaying the skills necessary for independent living. Thus, structured programs with effective and evidence-based methods and rich stimulant environments are needed for individuals with ID (Price, Morris & Costello, 2018). Such interventions aim to develop academic, communication, social, game, self-care and social adaptation skills (Jacobson, Mulick & Rojahn, 2007). Today, with the spread of teaching technologies, the need to benefit from technology in the field of special education and with individuals with MID, which is the project's target group, has arisen.

Kurt and Kurtoğlu Erden (2020) stated that studies in which a single skill selected among academic and self-care skills are performed with smart devices more commonly. However, these individuals have different learning characteristics and inadequacies in more than one field. In particular, individuals with MID experience more limitations in abstract skills such as decision-making, self-management, and empathy in the social-emotional field (Woodman et al., 2014). For this reason, there is a need for improved software applications that are suitable for the characteristics of individuals and also cover different skill areas. Although the most commonly used technology application for individuals with MID is the software developed for intelligent devices, it is seen that the applications developed are limited to applications developed for a single learning area. For this reason, it is planned that the digital-holistic application will cover more than one area that requires more abstract thinking, such as emotional awareness, organising interpersonal relationships, personal care, life skills, decision-making and problem-solving. In this context, it is thought that the module can be a concrete guide for applying abstract skills.

In studies in which technology tools and applications are used with individuals with MID, it is seen that such teaching methods as the direct teaching method, modelling with video, errorless teaching methods, constructive feedback, and line fading are generally used. It is seen that the number of these teaching methods is more limited than the existing methods and te-

chniques. With many current teaching methods, the subject of technology can be blended, and more modern applications can be achieved (Deveci Topal, Kolburan Geçer & Çoban Budak, 2021). There are shortcomings in how methods will be used, how they will be organised in classroom environments, and how they will be adapted with appropriate individualisation. This module was created to be a rich guide for experts and practitioners as it deals with all methods used by students with MID.

Evaluation of the training processes of the students with MID is essential for both the creation of training plans and the determination of the usefulness of the activities. Formal and informal evaluations provide detailed information to the instructors about the student (McLean, Hemmeter & Synder, 2014). In this module, students with MID stand out with their strengths in evaluation, technology applications, and teaching methods. Information texts are included to ensure that families and trainers can easily monitor the results of the application.To sum up, this module, which deals with the education and technology of individuals with ID in a holistic and eclectic way, was needed to provide guidance for teachers and families. In addition, it will be a guiding resource for experts in the field as it covers topics such as teaching process, methods and techniques and evaluation. The needs analysis conducted by the partner countries during the development process of the output also has strong characteristics in terms of being the product of a multidisciplinary scientific study, which has enabled the module to be constantly updated.

1.1. Purpose of this Module

It is seen that the use of technology has increased rapidly over the world. With the proliferation of options and developments, it is observed that the use of technological applications with exciting content for children has risen by families with the diversification of day-to-day. It is widely used in the education of typically developing children and the educational environments of children with intellectual disabilities. Tablets and smart boards are used in the teaching of concepts such as number, shape, colour, and size to support the academic skills of children and to integrate them into daily life; they are taught the skills of withdrawing money from the ATM they need, using electronic devices at home and communicating by phone. It is inevitable to use technology for all these educational activities.For this reason, it is essential to teach the use of technology to individuals with MID and to support their skills through technology. For innovative applications to be used while supporting students to be more effective and efficient, it is imperative to have knowledge about diagnosis, individual characteristics, training methods and evaluation processes of individuals with intellectual disabilities. This module was created to provide a flow in terms of addressing the concept of special education, providing information about how special education practices take place in our country and in the world and handling the characteristics of students with intellectual disabilities, technology, and intellectual disabilities. It aims to provide information about which tools are used to educate individuals with MID by integrating the subject of ID and technology. In addition, it is a guide in terms of including the methods and techniques used in teaching technology applications to individuals with intellectual disabilities. It is aimed to guide teachers and families in the implementation processes by addressing the planning of teaching processes, teacher and parent roles, points to be considered and evaluation processes of individuals with intellectual disabilities. The Digi-holistic approach includes supporting multiple skills by approaching digital applications holistically with individuals with ID. Emphasising the purpose and importance of explaining this approach in detail in the module guides the integration and better interpretation of the module

and the approach. For teachers and families who read the module, it is aimed at obtaining a holistic perspective and being informed about the use of technology for a Digi-holistic approach in individuals with MID. Finally, it was aimed to evaluate individuals with MID during the use of the product and to provide feedback to families.

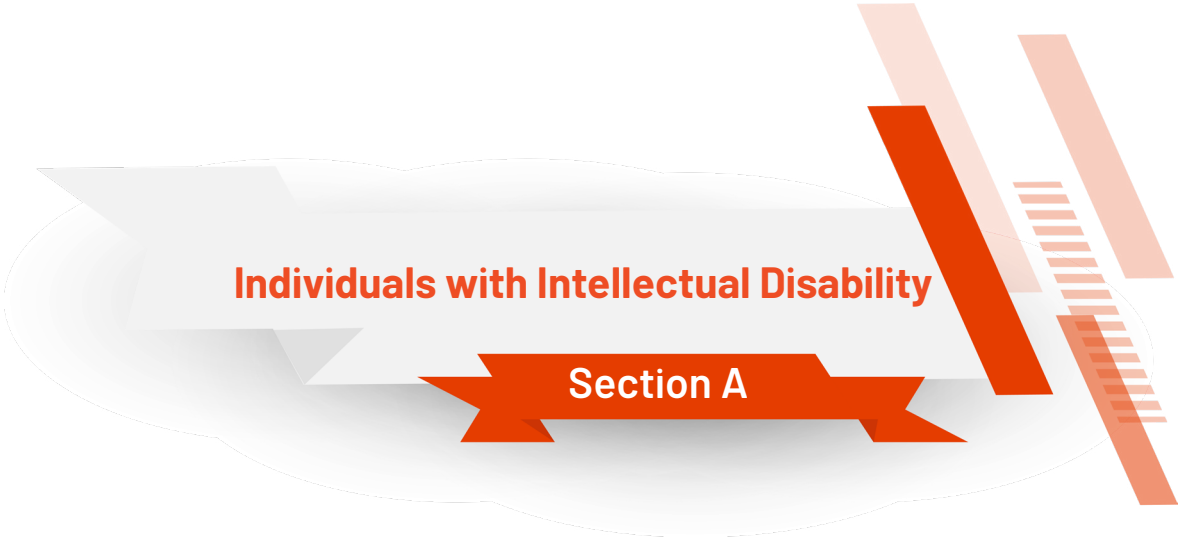
1.2. Importance of this Module

With the inclusion of technology in education life, the tools used in education and training environments are diversified and replaced by new technological tools. The books carried in the bags were replaced by e-books on tablets, the blackboards used in the classroom were replaced by smart boards, and projection tools and computers replaced the overhead projectors. Including these educational technologies increases the quality and efficiency of education by ensuring that multiple sensory organs are involved in the education process.

Since education should have the least restrictive educational environments, today, with the introduction of technological tools, opportunities are provided to students who have difficulty in learning or can learn with different senses by enabling them to benefit equally from education. Considering that every student cannot learn in the same way and with the same methods and that they have individual differences, learning becomes easier with technological opportunities appealing to multiple senses, and the knowledge learned can be more permanent. The use of technology is also essential in the education of students with MID, where individual differences are highly visible. Based on this importance, there is a need to create this module to express its Digi-holistic approach better.

Furthermore, considering the 2030 Agenda (United Nations, 2015), and specifically Sustainable Development Goal (SDG) 4, there is international recognition of the need to develop educational strategies and processes to reduce inequalities among students and thus promote equity. Therefore, the 2030 Agenda for Sustainable Development (United Nations, 2015) is committed to embarking on a path of transformation by enabling all people to have an enabling environment for fully realising their rights and capabilities. In this regard, it is also worth highlighting the influence that some international milestones in the field of human rights have had, such as the Salamanca Statement (UNESCO, 1994), which has served as a source of inspiration for education systems around the world, leading the way towards more inclusive schools.

One of the features that make this module necessary is that a unique product has emerged within the scope of the project that deals with students with MID and the use of technology and is a guide for families and teachers. The fact that the module content includes subjects such as special education, students with MID and their education, individual characteristics, technology and intellectual disability, evaluation, individualisation, and suggestions in the use of technology is another feature that makes this module important. This module, which emerges as a project product, is considered significant in terms of guiding teachers and parents in planning technology-based teachings for individuals with MID. The inclusion of evaluation steps is considered necessary not only for the use of teaching practices but also for individuals to see their performance progress. In addition, the module is essential in creating a resource for other studies in which technology applications are made for students with MID. To get to know the individuals with MID who are the target audience of the module, first of all, information about the definition, classification, characteristics and education are given in this section. Then, the integration of technology into the education of individuals with MID and the conceptual framework that led to the emergence of the module was presented.



2. Individuals with Intellectual Disability

2.1. Definition

The best way to understand ID is to examine the terms made to describe them and the different definitions made. The American Association on Intellectual and Developmental Disabilities (AAIDD) states that "Intellectual disability is a condition characterised by significant limitations in both intellectual functioning and adaptive behaviour that originates before the age of 22" (AAIDD, 2021). According to this definition, updated in 2021 by the AAIDD, there are various perspectives on the age of onset of the disability, the continuation of brain development until the 20s and the end of the developmental period. Consequently, the starting age of 18 years, found in the 9th to 11th editions of the AAIDD Guidelines, has changed from the 12th edition of the Guidelines to "must have been diagnosed before a person reaches 22 years of age" (Schalock, Luckasson & Tassé, 2021). In the World Health Organization (WHO) International Classification of Diseases and Health Conditions (ICD-10) system, ID is the inadequate development of the mind during developmental periods and is characterised by impairments in cognitive, social and language-related abilities. However, in 2019, with ICD-11, mental disability was changed to an intellectual developmental disorder. In 2013, the American Psychiatric Association changed the term 'mental disability in the DSM V Handbook, an updated version of DSM IV, to 'intellectual disability/intellectual developmental disorder'.

When we look at the definition of ID in countries, it is seen that different definitions have been made from past to present. For example, in the Basque Country, the delimitation of the ID concept is under constant revision. The current model of disability has developed beyond the World Health Organisation's international classification of disability, which interprets disability as a limitation in a person's activity due to pathology or impairment (O'Young et al., 2019). ID is understood as a disability characterised by significant limitations in intellectual functioning and adaptive behaviour, encompassing many social skills and daily practices. This disability originates before the age of 22" (AAIDD). DSM-V defines intellectual disabilities as "neurodevelopmental disorders that begin in childhood and are characterised by intellectual difficulties as well as difficulties in conceptual, social, and practical areas of living" (APA, 2014, p.33). The manual distinguishes ID as mild, moderate; severe; profound; and profound concerning adaptive functioning. So, as DSM-5 does, in the Basque Country, the diagnosis of children with ID requires the

satisfaction of three criteria: (1) Deficits in intellectual functioning—"reasoning, problem-solving, planning, abstract thinking, judgment, academic learning, and learning from experience"—confirmed by clinical evaluation and individualised standard IQ testing; (2) Deficits in adaptive functioning that significantly hamper conforming to developmental and sociocultural standards for the individual's independence and ability to meet their social responsibility; and (3) The onset of these deficits during childhood. Students with ID present considerable difficulties in intellectual functioning, therefore, learning, reasoning, problem-solving, planning, abstract thinking, etc., are usually affected compared to other students of the same age. Still, they differ from one student to another (Basque Government, 2020). In that sense, once diagnosed and with more emphasis on difficulties in conversational skills than on the specific IQ range, children with ID are grouped under the terminology of "mild", "moderate", "severe", and "profound", thus describing the severity of their condition. These difficulties have an impact on adaptive behaviour, and guidelines for intervention are needed, such as example, facilitating discrimination and access to learning ,uclei; providing the appropriate conditions in environments, situations, and activities in which they participate so that they can assume them with guarantees of success (Basque Government, 2014). The presence of students with ID in mainstream schools is a relatively recent reality. Undoubtedly, to adapt the educational response to their characteristics and needs, knowledge of their existence and the development of regulations and programmes from the moment they are enrolled in the system until their subsequent schooling are required.

In England, it is more than likely that the term Mild Learning Disabilities or Difficulties is used rather than Mild Intellectual Disabilities, which is more likely to be used in the US. As the policy reports, students with mild learning difficulties in England and those with moderate learning difficulties can usually be included in government-funded mainstream education. This is the case even though their IQs might be I below the average IQ of those students, particularly in secondary mainstream schools. Students with mild learning disabilities/difficulties had an IQ = 50-70, or mental age of 9-12 years, while students with moderate learning disabilities had an IQ = 35-49, or mental age of 6-9 years (https://www.nhsggc.org.uk/). Sometimes these students might be in a resource base within a mainstream school where they can get extra support for their needs; other times, they learn alongside their mainstream peers.

In Ireland, the terminology concerning special educational needs (SEN) has varied and changed throughout the latter part of the 20th century and into the 21st. Currently, the Education for Persons with Special Educational Needs (EPSEN) Act (Government of Ireland, 2004) defines SEN as "a restriction in the capacity of the person to participate in, and benefit from, education on account of an enduring physical, sensory, mental health or learning disability, or any other condition which results in a person learning differently from a person without that condition and cognate words shall be construed accordingly" (p.6). Ireland adopted the classification system the World Health Organisation (WHO, 2010) has adopted to identify and categorise General Learning Disabilities (GLDs). Based on this system, participants for this current research project are classified as MGLD- which can be indicated by a score within the range of 50-69 on standardised IQ tests.

The terms and definitions used in Turkey have varied over the years. In the Special Education Services Regulation published in 2000, the term 'intellectual learning disability' was used instead of the definition of mental retardation. It was classified as mild, moderate, severe and very severe. This regulation, which was updated in 2018, has no definition of ID, but there are light-moderate-heavy-very strict classifications and definitions of each. Accordingly, the target

group of the project, mild ID individuals, is defined as "an individual in need of special education and support education services at a limited level due to his/her mild inadequacy in conceptual, social, and practical adaptation skills with mental functions (Official Gazette [OG], 2018).

As a result, it is clear the terms, classifications and definitions used in the countries that are project partners are less and less marginalising and more emphasising the need level of individuals. Therefore, in general terms, there is a positive development in the definition of ID and related to it in terms of individual rights, educational measures and the perspective of society. In the coming years, it can be predicted that labelling will disappear in all countries, and the educational opportunities provided will further develop.

2.2. Frequency and Prevalence

To provide appropriate services to individuals with ID, it is essential to know the frequency and prevalence of these individuals. Frequency is the number of new cases identified over a period of time. Prevalence is the total number of all cases in the population in a particular place at a specific time. Frequency and prevalence should be used in a variety of ways. According to statistical acceptance, it can be assumed that 2.27% of the population has an ID (Hallahan & Kaufmann, 2003). However, when this statistical assumption is applied to the country's population, it is seen that the available data contradicts the obtained data (Turkish Institute of Statistics, 2009; U.S. Department of Education, 2007). From this point of view, the intelligence score, environmental factors, diagnostic approaches, and socio-political factors are effective in the prevalence rate.ID is the most common group among SEN. When the ratio of individuals with ID in the project partner countries is examined, it is seen that in Spain, 0.759% of students attending school in 2021/2022 have an intellectual disability (Spanish Ministry of Education, 2022). It is 4% in England, (identified as pupils with health and care (EHC) plan (https://explore-education-statistics.service.gov.uk/find-statistics/special-educational-needs-in-england), but 12.6% of pupils with SEN support, it is 1.4% in Ireland (Central Statistics Office, 2016), and it is 0.5% in Turkey (Turkish Institute of Statistics, 2009). Individuals with mild ID (MID) generally account for 80% to 90% of students with ID (Henley, Ramzey, & Algozzine, 2006; Snell et al., 2009). Some approaches argue that MID has different prevalence rates in other regions. The reason for this is generally stated as whether the learning disability area is in the diagnostic system in other countries and the differences in the structure of adaptive behaviour criteria and intelligence score evaluations (Ysseldyke & Algozzine, 1995). Although individuals with ID are the most widely educated group among the disability groups in separate institutions and general education classes, this rate decreased from 72.7% to 55.3% with the inclusion practices that became widespread in the 1990s. It is known that individuals with MID benefit more from inclusion practices (Artar & Cavkaytar, 2020; Williamson et al., 2006). Socio-economic characteristics and prevalence rates reveal the relationship between intellectual level and environmental conditions (Artar & Cavkaytar, 2020).

2.3. Characteristics of Individuals with Intellectual Disability

It is necessary to know their characteristics to provide appropriate educational services to individuals with ID. Individuals with ID are highly heterogeneous, and it is difficult to give general information about their characteristics (Kauffman & Hung, 2009). While some individuals cannot do basic self-care unaided (severe ones), others may have characteristics that are almost similar to their peers. Some can learn to read and write, while others can only scribble. Howe-

ver, to draw a general framework, it may be helpful to include the most characteristic features of individuals with intellectual disabilities here. However, teachers should not miss the point that each individual is unique and different from their peers and their developmental characteristics. Therefore, they should try to determine each individual's strengths and weaknesses without limiting such generalisations and find the best way for his/her development.

2.3.1. Physical development characteristics

The physical appearance of some of the individuals with ID differs from their peers with typical development. The general health status and physical appearance of these children vary according to the type and degree of their disability. For example, while the motor skills of children with MID are generally close to their typically developing peers, they show a certain level of delay. Children with Down Syndrome have specific physical characteristics such as weak muscle tissue, flexibility, short and wide hands, short toe, wide feet, flat nasal bridges, short and thick necks, small or large head structure, small ears, and large ratio difference between head and body. In addition, these children are accompanied by issues/difficulties such as various injuries to their internal and external organs, dental caries, heart failure, strabismus, short-sightedness or farsightedness, and hearing and speaking disorder. Since children with Down Syndrome have low body resistance, respiratory problems and frequent illnesses can be seen (Hooper & Umansky, 2004). From a different perspective, the level of perception of individuals with ID determines their motor skills performance. Individuals who have difficulty perceiving the given instructions cannot physically perform well (Sparrow & Day, 2002). It is observed that there are delays and some limitations compared to other peers in acquiring psycho-motor skills in children with ID. Inadequacies are seen in their use of large and small muscle skills. It was determined that most children with Down Syndrome walked due to the flexibility in their muscles, and they had difficulty providing control while learning to walk. It is seen that some of these children walk with their legs wider and their feet apart, and some of them gain to walk normally. In addition, it is seen that there are difficulties in studies that require small muscle skills such as hand-eye coordination, cutting, glueing, tearing and construction. To gain movements that require complex coordination, they need longer time, continuous practice and repetition (Hooper & Umansky, 2004).

2.3.2. Language development characteristics

Language skills are closely related to cognitive development. Inadequacies in using language are one of the criteria used to identify individuals with ID. Research indicates that individuals with ID and children with typical development have similar stages of language acquisition, but individuals with ID progress more slowly and show more speech disorders (Blackhurst & Berdine, 1993). It has been observed that language and speech problems increase as these children's intellectual disabilities increase. Children with MID start talking later than their typical peers. In other words, they show speech disorders such as skipping some sounds, adding sounds or saying similar sounds incorrectly, and difficulty understanding verbal instructions and explanations about how to carry out tasks. Some can communicate verbally with those around them with limited words and sentences.On the other hand, children with moderate and severe ID express their thoughts and desires by using much more limited words and sentences in addition to the problems experienced by individuals with MID. Some children do not have sound output (Allen & Cowdery, 2005). individuals with ID have higher receptive language levels than expressive language levels. Generally, they experience problems understanding long and complex sentences,

distinguishing voices, articulation disorders, and delayed speech. The most common speech problems in children with Down Syndrome are limited vocabulary, delayed speech, and articulation disorders. Children with Down Syndrome have large tongues and breathing problems, which prevents them from speaking fluently and making some sounds. Hearing loss caused by middle ear inflammation in some of them also leads to delayed language and speech problems (Blackhurst & Berdine, 1993). Studies examining the morphological and syntax characteristics of the language in individuals with ID show that these children gain all the morphological characteristics of language, but this is slow (Hooper & Umansky, 2004).

2.3.3. Cognitive development characteristics

Cognitive skills are essential for children's participation in social life. These skills affect children's academic skills, peer interaction, and direct teacher-student interactions (Messick, 1984). In their study, Vygotsky (1978) states that there are limitations in the cognitive skills of children with intellectual disabilities. Studies are showing that the mental skills of mentally retarded children are lower than those of children with typical development (Cohen, Leslie & Frith, 1985). These children have difficulty focusing their attention on learning activities. They are distracted and short-lived. During their studies that support cognitive skills, their interest was dispersed, and they showed frustration quickly and experienced problems adapting to new situations. This situation prevented their motivation for learning. Past unsuccessful experiences and the tensions created by these experiences can cause children to be uneasy in fulfilling the task given and cause low motivation (Culatta & Tompkins, 1999; Gargiulo, 2003). Individuals with ID have difficulties in memory skills. Both short-term and long-term memory problems and problems in the repetition processes required to transfer information to long-term memory are seen. They are unable to use appropriate learning and memory storage strategies. These children have difficulty noticing learning strategies and encounter problems when metacognition strategies such as repeating information, recalling information and generalising are used (Culatta & Tompkins, 1999; Turnbull et al., 2004). Generalisation is the ability to transfer the learned information or behaviour to other details or behaviour and to transfer it to different environments. Individuals with ID have difficulties generalising the skills they learn at school to the home environment and society. This is because these children's home and community environments are more complex than regulated environments and contain more stimuli (Bee & Boyd, 2006; Turnbull et al., 2004).

2.3.4. Social and emotional development characteristics

Social skills facilitate children's adaptation to society. Skills expressed as appropriate social skills are the current expectations from individuals with disabilities about how they will behave at home and in society. Social skills can be listed as interacting with peers and adults in different environments, trusting acquaintances outside the family, noticing and opposing inappropriate behaviours of peers or adults, playing games, understanding the interests and needs of others by developing empathy, and working in harmony with both individual and groups (Allen & Cowdery, 2005).

Individuals with ID have problems communicating and tend to be dependent on others. They have difficulty making friends, initiating and maintaining interaction, perceiving and responding to social cues, recognising their emotions and those of others, making choices, and sharing and exhibiting appropriate social behaviours (Fenning & Baker, 2012). In addition, they need help

understanding and obeying the rules. Problematic behaviours such as aggression, stubbornness and dissonance are seen in some individuals (Gargiulo, 2003). Children with Down Syndrome interact at a more limited level than their typically developing peers but do not avoid doing activities together. In addition, they usually respond to the communication effort of the other party and interact more socially than their other peers with ID (Mc Donald & Mc Donald, 1996).

2.3.5. Psychological characteristics

When the studies are examined, it is seen that studies are generally conducted with families who have children with intellectual disabilities (Chang & Tang, 1995; Abbeduto, Seltzer, Shattuck, Krauss, Orsmond, et al. I, 2004). When the limited number of studies with disabled children were examined, it was observed that individuals with learning disabilities and mental dysfunctions exhibit more complicated psychological characteristics (Sturmey & Corbett, 1991). When psychiatric disorders are examined, permanent loss of function disorders is listed as intellectual disability, schizophrenia, paranoia, and atypical and pervasive developmental disorders. Temporary loss of function disorders is brain damage, anxiety, mood disorders and personality disorders (Henderson, 2004). The frequency of anxiety-provoking caregivers is higher in individuals with a chronic diagnosis. Risky situations such as depression, suicide and anxiety can be observed (Brawman-Mintzer, Monnier, Walitzky & Falsetti, 2005). The health problems experienced by the individual and the level of disability affect life satisfaction. It is stated that there is a negative relationship between life satisfaction and the interaction of a disability's bodily integrity (Uppal, 2006).

Undoubtedly, the individual's social environment and the meaning they give to disability also shape the behaviours regarding social adaptation. An environment consisting of individuals who approach the issue of disability more moderately contributes to a person's psychological well-being.

2.3.6. Behaviour characteristics

When children in the behavioural risk group are examined, it has been observed that behavioural problems are more intense in groups with lower intelligence scores, such as autism or learning disability. Although these problems are impulsive, they can also appear as outwardly directed problem behaviours (Petrenko, 2013). It is stated that special-needs individuals exhibit behaviours such as mobility, lack of interaction or hyperactivity. It is stated that emotional problems are associated with behavioural problems. In addition to behavioural problems, emotional problems such as insecurity, lack of interaction, and poor concentration are observed (Hassan, 2005). Behavioural problems exhibited by children also cause stress to families and cause them not to manage crises correctly (Roberts, Mazzucchelli, Studman &Sanders, 2006).

3. Specific Educational Services in the Partner Countries

Education systems aim to increase individuals' knowledge level, enabling them to make sense of the world more easily and to create desired behaviours. Individuals who develop basic life skills and adaptation skills through education systems contribute more to production in society (Bhardwaj, 2016). The needs, individual differences and strengths of each individual who is a part of the education process differ. Individuals can benefit from the education system and function as a part of society if the educational opportunities offered by the state are accessible (Leicht, Heiss & Byun, 2018).

There are no major differences between individuals with typical development in terms of access to educational facilities and development. They do not encounter major problems in benefiting from general educational services. However, in addition to the children who typically develop in the education process, some students need more careful and detailed planning and individualised education services (McLean et al., 2014). For individuals whose biological and physical characteristics, special education programs they need, and learning characteristics differ, the term 'students with SEN' appears as an umbrella term. Since the individual characteristics, needs and requirements of SEN are different from each other, the training services offered differ from each other. Countries organise these services in accordance with the characteristics of students with SEN while shaping their education policies. This section contains explanations on the development of special education services for students with SEN and, in parallel, for individuals with IDs in the partner countries of this project.

3.1. Legal Arrangements

In order to understand the countries' education systems, it is necessary to examine the relevant laws. In the historical process, we can see that each country has different regulations within itself, and the educational opportunities of individuals with special needs are shaped in the light of these regulations. In the following section, information on the legal regulations of the project partner countries regarding special education is shared.

3.1.1. Basque Country

In Spain, the first law that regulates education is the General Education Law (GEL, 1970).

Special Education was strongly enhanced with this law. GEL is the first legal text that refers to aspects related to special education in Spain. In fact, in Title I, special education is officially recognised within the educational system (Casanova, 2011), enabling the education of the "deficient" and "misfits" with profound anomalies in special education centres while promoting schooling in special education units under the ordinary regime for the mildly "handicapped". With this, the GEL (1970) organises the educational response to children with disabilities and is regulated for the first time, and the response to diversity begins to move forward.

Later in this direction, a new stage of reform occurred since Spain had become a democratic country. The 1978 Spanish Constitution established a decentralised and symmetrical model of the State:

- by which educational powers are shared between all levels of government
- where the educational powers exercised by the Autonomous Communities are the same

One year later, in 1979, the Statute of Autonomy of the Basque Country was also approved. Its 16th article states that in applying the stipulations in the First Additional Provision of the Constitution, the responsibility lies with the Autonomous Community of the Basque Country for education in its entirety, regardless of what level, degree, kind, or speciality it may be. According to Orcasitas (2005), the commitment to inclusive, quality education in the Basque Country dates to the 1980s. The year 1982 saw the publication of the Special Education Plan that went beyond clinical and specialisation approaches to propose a change: a school for all children. This stipulated that there are no parallel education systems, one for ordinary pupils and another for pupils with disabilities, but a single education system and common education that adapts to the specific features of each pupil. This plan was subsequently reviewed, and the results and recommendations were outlined in the Report by the Special Education Commission (1988) "Una Escuela Comprensiva e Integradora", "An Understanding, Integrating School". This report states that "...the goals of education for children and young people with special educational needs are the same as for all the others." Thus, pupils with disabilities attend ordinary schools and the teaching, learning and organisation are adapted.

Later, the Organic Law of the General Organization of the Educational System of Spain (LOGSE, 1990) enabled SEN to be educated in their local mainstream school. The need to adapt the Spanish legislation to the autonomous region of the Basque Country led the Basque Government to develop:

- The Basque Public School Act (Law 1/1993), which tried to go further and recognise the need to take measures to help redress inequalities and integrate diversity. The Basque system is organised according to the outline proposed by Delors (1996): learning to know, learning to do, learning to live together, and learning to be.
- The Decree 118/1998 regulation of the educational response to SEN students within a comprehensive school framework recognises the principles of normalisation, integration and comprehension in education (BOPV, 07-13-1998). This law incorporated the LOGSE in the Basque Country, ensuring that students with SEN would be integrated into mainstream schools. Among SEN students were those students with intellectual disabilities. This law is currently in force, and it is developed in different Basque government minor laws, for instance, the Order of July 30, 1998, which establishes criteria for the schooling of SEN students and the provision of resources for their proper attention within the different stages of the educational system (BOPV, 31-08-1998).

After 2006, a new Spanish legislative act, the Organic Law of Education (LOE, 2006), strengthened the inclusive approach. The concept of SEN was replaced by a new one: students with Specific Educational Support Needs (SESN). This term expands the SEN term by including other groups of students who, without being classified as disabled, also require specific educational support. In the Basque Country, this was developed in Decree 175/2007. To undertake the change process required by this new approach, the Basque government education department adopted the Index for Inclusion (Ainscow & Both, 2000) for use in the Basque education system in 2005. It was under the title "Guide for assessment and improvement in inclusive education". In 2008, the government published a document entitled "Priority lines for educational innovation". In this document, the government laid down the principles of inclusion, diversity, fairness, and a view to the future as the guiding principles of the policy of change. These measures led to changes ranging from how the structure and organisation of schools and facilities were designed to how the teaching responds appropriately to each pupil's features and needs. To this end, in 2012, the Basque government education authorities set up a series of measures, resources and guidelines to create inclusive cultures, policies and practices. The process led to the "Strategic Plan for Attention to Diversity within the framework of the inclusive school 2012-2016". This plan fits into the inclusive trend in education promoted by UNESCO.

In 2013, the improvement of educational quality act (LOMCE) argued that it is the educational authorities' job to assure the necessary resources for pupils who require educational attention out of the ordinary to develop their abilities as far as possible. Like the previous Spanish acts, LOMCE affected the Basque education system. To cater for the idiosyncrasies and specific needs, the Basque Government (2014) and its education authorities developed the HEZIBERRI 2020 plan. The curriculum lines from this plan for basic education are taken up in Decree 236/2015, bearing in mind, as well as all the SEN pupils' needs, all possible forms of diversity: linguistic diversity, cultural diversity, diversity of abilities, sexual orientation, gender and social/economic means. Providing a quality response adapted to all this diversity, the school is considered the space where genuine transformations take place. There is a need to develop regulations, plans and programs to make possible a response adapted to all pupils.

Finally, the much-criticized LOMCE (2013) was repealed in 2020, when the current Organic Law for the Improvement of the LOE (LOMLOE, 2020) came into force. This last educational norm, recently approved, is the current norm, and, as its name suggests, it is a modification of the Educational Organic Law (LOE, 2006). It is one of the most ambitious and reformist educational reforms, trying to change the educational course towards teaching-learning strategies based on developing abilities and skills to leave behind traditional rote learning. Regarding attention to diversity, LOMLOE (2020) goes a step further and states that it is necessary to create inclusive school climates to guarantee the active participation of all girls and boys throughout their school years, especially for those vulnerable situations or at risk of exclusion. It was stated in the LOMLOE Article 73 (2020) that:

Students with special educational needs are understood to be those who face barriers that limit their access, presence, participation or learning derived from disability. They also have serious behavioural, communication and language disorders for a period of their schooling or throughout it, requiring specific educational support and attention to achieve the learning objectives appropriate to their development.

3.1.2. England

In England, it is more likely to refer to students with moderate or mild learning difficulties (MLDS) than with intellectual disabilities. The following newer Education Acts, other relevant Acts, circulars, policies and regulations will apply to students with mild and moderate learning disabilities. The Government Green Paper 'Every Child Matters: Change for children (December 2004) came out of the investigation into the death of Victoria Climbie. It indicated national and local priorities for Children's Services and set out an Outcomes Framework, which includes the five Outcomes for Children and Young people. The five outcomes expected were:

- Being healthy.
- Staying safe.
- Enjoying and achieving.
- Making a positive contribution.
- Achieving economic well-being.

All children and young people with SEND have the right to these outcomes. The Common Assessment Framework (CAF) and the Team Around the Child (TAC) process both came out of the ECM agenda and improved professional accountability for individual cases through assessment processes and increased parental involvement in decision-making in their children's care and education.

The Children's Act (2004) reinforced that all people and organisations working with children have a responsibility to help safeguard children and promote their welfare. The guidelines in this act allow anyone working in an educational or non-educational setting and working with children to know how a child should be looked after in the eyes of the law. This Act's ultimate purpose is to make the UK a safer place for children and led to the creation of a Children's Commissioner, as well as each local authority needing to appoint a director of children's services. It also allows the government to create electronic records for every child in England, Scotland and Wales, making it easier to trace children across local authorities and government services.

Several other government documents around this time included schools and learners and were also an attempt to eradicate child poverty.

- DfEE. 1997. Excellence in schools. London: The Stationery Office.
- DfES. 2004c. Five-year strategy for children and learners. London: The Stationery Office.
- DfES. 2005a. Excellence and enjoyment: Social and emotional aspects of learning: Guidance. In Primary national strategy, ed. DfES. London: DfES.
- DfES. 2005b. Extended schools: Access to opportunities and services for all. London: DfES.
- DfES. 2005d. School collaboration on behaviour management, persistent truancy, and alternative provision: Follow up to Secretary of State's letter of February 1. Letter from Rt Hon Jacqui Smith MP, Minister of State, July 4. Emotional and Behavioural Difficulties
- DfES. 2007. School partnerships to improve behaviour and tackle persistent absence. Letter to Directors of Children's Services and Academy Principals from Jim Knight MP, Minister of State for Schools and 14–19 Learners, January 9.

Another UN Convention, the UN Convention on the Rights of Persons with Disabilities, was agreed upon in December 2006 and came into force on May 3, 2008. The Convention builds on existing international human rights instruments to "promote, protect and ensure the full enjoyment of all human rights and fundamental freedoms by all persons with disabilities" (House of Lords House of Commons Joint Committee on Human Rights, First Session 2008-2009).

Children and Young Persons Act 2008 introduces a wide range of reforms to the laws about children. It introduces various changes to several areas in the field, including looked-after children, caring for disabled children, private foster care and residence and special guardianship orders. The main goal of the Act was to - in a child's best interest- provide boundaries and support for local authorities and/or other entities to regulate official intervention.

Also, in 2008, the Learning and Skills Act was introduced, which raised the statutory school leaving age. The Bill contains measures to encourage more young people to participate in learning post-16 and achieve higher skill and qualification levels. The Government aspired that by 2013, all 17-year-olds and by 2015, all 18-year-olds were participating in some form of education or training.

The Equality Act 2010 ensures that all the protected characteristics - age, disability, gender reassignment, marriage and civil partnership, pregnancy and maternity, race, religion or belief, sex, and sexual orientation - are protected. Under this Act, a person is classed as disabled if they have a physical or mental impairment that has a substantial and long-term adverse effect on their ability to carry out normal day-to-day activities.

Schools and local authorities have legal duties and requirements to show how they address issues in the Equality Act. As outlined in guidance from the Department of Education, schools must publish a report on the school's policy for pupils with SEND, including details on the school's admission arrangements for pupils with SEND or disabilities, the steps the school has taken to prevent pupils with SEND from being treated less favourably than other pupils, access facilities for pupils with SEND and the accessibility plan the governing body has written in compliance with paragraph 3 of Schedule 10 to the Equality Act 2010. All schools, including academies, have a clear legal duty to do their best to meet the needs of children with SEN. The Department for Education has produced an Academy SEND Factsheet Section 1 of the Academies Act 2010 that requires academy funding agreements to contain equivalent SEND obligations to those placed upon the governing bodies of maintained schools by Chapter 4 of the Education Act 1996.

The Children and Families Act (2014) was followed by the Coalition Government's Green Paper "Support and Aspiration" (2011). In Section 20 of this Act, a child is considered to have a learning difficulty if she or he has: a significantly greater difficulty in learning than the majority of others of the same age; or has a disability which prevents or hinders them from making use of facilities generally provided for others of the same age in mainstream schools. This Act, too, dealt with required statements of special educational needs for children in schools to be replaced with a combined Education, Health and Care Plan (EHC plan).

Sources of SEND Guidance SEND Code of Practice (April 2014) provides statutory guidance relating to Part 3 of the Children and Families Act 2014. Supporting pupils at school with medical conditions (April 2014). Section 100 of the Children and Families Act (2014) places a duty on schools to support pupils at their schools with medical conditions. Schools must have due

regard for this guidance. They must ensure that all children with medical conditions, in terms of physical and mental health, are properly supported in school so that they can play a full and active role in school life (including school trips and physical education), remain healthy and achieve their academic potential.

From September 1, 2014, all Local Authorities must publish a detailed summary of the services available to support children and young people with SEN named the 'Local Offer'. It should cover services for education, health and social care services and include information about services available in neighbouring boroughs. Further, regarding the Local Offer, Schedule 2 Special Educational Needs and Disability Regulations 2014 provides a standard framework for the Local Offer, which must include information about:

- special educational, health and social care provisions for children and young people with SEN (including online and blended learning);
- details of how parents and young people can request an assessment for an EHCP;
- arrangements for identifying and assessing children and young people's SEND should include arrangements for EHC needs assessments.
- other educational provisions, for example, sports or arts provisions, paired reading schemes.
- post-16 education and training provision; apprenticeships, traineeships and supported internships.
- information about provisions to assist in preparing children and young people for adulthood.
- arrangements for travel to and from schools, post-16 institutions and early years providers.
- support to help children and young people move between phases of education (for example, from early years to school, from primary to secondary).
- sources of information, advice and support in the Local Authority's area relating to SEN, including information and advice provided under Section 32 Children and Families Act 2014, forums for parents and carers and support groups.
- childcare, including suitable provision for disabled children and those with SEND.
- suitable leisure activities.
- support available to young people in higher education, particularly the Disabled Students Allowance (DSA) and the process and timescales for making an application for DSA.
- arrangements for resolving disagreements, mediation, and details about making complaints.
- parents' and young people's rights to appeal a decision of the Local Authority to the First-tier Tribunal (SEND & Disability) in respect of SEND and provision.
- the Local Authority's accessibility strategy (under Equality Act 2010, Schedule 10, paragraph 1).

The Local Offer should also cover support available to all children and young people with SEND from universal services such as schools and GPs; targeted services for children and

young people with SEND who require additional short-term support over and above that provided routinely as part of universal services; specialist services for children and young people with SEND who require specialised, longer-term support.

HM Government Working Together to Safeguard Children 2015 is about safeguarding children and young people. The guidance states the need for policies and procedures to this effect, including the need to be appropriate for those working or caring for them. This guidance also outlines how in England and Wales, every council area has its own Local Safeguarding Children Board (LSCB) - a partnership made up of the local council, schools, social services, NHS, Police, Probation Service, Emergency Services, and other local organisations involved with children. The LSCB is legally responsible for putting into practice a child-centred approach and working together to oversee the safety and well-being of children and young people in their area.

The Code of Practice 2015 (Department for Education and Department of Health) was underpinned by the 2014 Act and applied to all those with SEN from 0 to 25 years. It updates the Code of Practice (2001). It was seen as radical in its content when it was brought in. The 2015 Code of Practice also lists what the Local Offer (see above) should include: up-to-date comprehensive information about the available provision and how to access it; and to target provision specifically to meet local needs and aspirations. Local Authorities should involve children and young people with SEND along with their parents and service providers in developing and reviewing the Local Offer. This Code of Practice identified four broad areas of need that schools can use to help identify and support children and young people with SEND. The four areas of need included communication and interaction, cognition and learning, social-emotional and mental health, and sensory and/or physical needs.

The Code of Practice also defines what schools must do regarding children with SEND. Firstly, schools have to have systems in place to identify children in need of support and to assess, monitor and provide appropriate support for any SEN they may have. It then sets out under paragraph 6.2 what schools must provide for identified children/young people, such as to use their best efforts to make a child with SEND get the support they need. Other requirements involve

- having a designated teacher for coordinating SEN provision known as the SEN coordinator (SENCO);
- making sure children and young people engage in activities alongside those without SEN;
- letting parents know when they are providing for their child's SEN needs and providing an SEN information report. This report must establish the school's arrangements for admitting disabled children and young people;
- the steps taken to make sure disabled children/young people are not treated less favourable than others; the facilities available to allow school access for disabled children/young people and their accessibility plan showing how going to improve access if needed in the future. Schools are also required to involve parents in the requirements process.

The Code of Practice additionally states that schools are provided with additional money to support children with SEND, called their delegated budget. Each child with SEND is entitled to receive up to £6,000 in funding which their school spends per year to support their needs. There has been some debate amongst some academics and charities over whether the 2015 Code of Practice has improved SEN provision for children and young people. For instance, later in 2015, less than a quarter of parents surveyed by the National Autistic Society, who had

been through the new Education, Health, and Care Plan (EHCP) process were satisfied with it. The same charity found fewer EHCPs were being issued compared with the former Statements of Special Educational Needs. (Child Lawadvice, see https://childlawadvice.org.uk/information-pages/special-educational-needs/).

On April 30, 2020, the Code of Practice added a link to guidance on 'Changes to the law on education, health and care need assessments and plans due to coronavirus'. It was subsequently withdrawn in September 2020, with schools being referred to the Code of Practice for guidance.

3.1.3. Ireland

Ireland has, in some cases, been acknowledged as a latecomer to inclusion in their legislative practices (Banks & McCoy, 2017; MacGiolla Phádraig, 2007). Other authors go further, such as Swan (2000), as cited in Flood (2013), who "described the progression of special needs education in Ireland in three phases: the era of neglect and denial, the era of the special school and the era of integration or inclusion" (Flood, 2013, p.5). It seems to be widely accepted that Ireland's progression into the era of integration and inclusion was marked by the publication of the Report of the Special Education Review Committee (SERC), which dealt with the concept of integration as opposed to inclusion, with "as little segregation as is necessary" (Department of Education and Science, 1993, p.23). This left space for a dual education system, where children could be taught in special classes and special schools, which can still be seen in our schools today.

However, this is not to diminish the role of the SERC, as their recommendations paved the way for the Education Act (Government of Ireland, 1998). This Act made it a constitutional right of children with disabilities and other special educational needs to receive appropriate education and laid out provisions for all children. The Education Act was followed in 2004 by the Education for Persons with Special Educational Needs (EPSEN) Act (Government of Ireland, 2004), which detailed a statutory framework for inclusive education. It is important to note here that the full implementation of EPSEN was postponed due to the economic downturn in the late 2000s, and there are elements of the Act which still have not been implemented.

With the implementation of EPSEN (Government of Ireland, 2004), the National Council for Special Education (NCSE) was established. Sections 19 through 33 of the EPSEN Act detailed the establishment, role, and powers of the NCSE. These roles can be categorised broadly into four areas. Firstly, when established, the NCSE was responsible for allocating low-incidence (resource) hours in primary schools through their network of SENOs. Secondly, the NCSE coordinates the education and health service support for children with SEN through a cross-sectoral group. Finally, the last two roles of the NCSE are interlinked. The NCSE researches inclusive education in Ireland and uses the findings to advise the Minister for Education on matters relating to Special Education (Government of Ireland, 2004).

The EPSEN Act (2004) placed inclusion, as opposed to integration, firmly to the forefront of educational provision for children with SEN by stating explicitly that children with SEN should be educated in an inclusive environment alongside their peers who do not have additional needs (Government of Ireland, 2004). However, it is important to note that the movement towards more inclusive practices in Irish schools is still ongoing. In 2019 the NCSE published their progress report, mindful that in 2018 Ireland had ratified the United Nations Convention on the

Rights of the Person with Disabilities (UNCRPD) (United Nations, 2007). The UNCRPD will play a significant role in reimagining the inclusivity of Irish schools, particularly Article 24, which relates to education provision. The NCSE (2019) notes that the consistent interpretation of Article 24 by the UNCRPD Committee is that parallel education systems, such as Ireland's mainstream and special school system, are incompatible with its view of inclusion and, as such, are not considered inclusive.

When the Irish state's legal regulations are examined, there are legal regulations that guarantee the educational rights of students with special needs to receive an education. These legal regulations are the Education Act (1998), the Equal Status Act (2000), the Equality Act (2004), the Education (Welfare) Act (2000), the Information Protection Act (1988 and 2003), the Individuals with Special Needs Act (2004) and the Disability Act (2005). The Department of Education of Ireland established the basis of education policies within the framework of these laws. Different state institutions carry out other procedures related to educating children with special needs (European Agency, 2018a).

3.1.4. Turkey

Turkey has regulations concerning the education of students with special needs on the axis of international and national legal texts. There are many legal regulations to regulate the services provided to individuals with special needs in Turkey. With the 41st, 42nd, 49th, 50th, 60th, and 61st articles of the Constitution of the Republic of Turkey, it is stated that everyone is equal before the law in terms of the family's right to education, training, and work and the right to social security (Grand National Assembly of Turkey, 1982). Article 6, on the other hand, states that '...The State shall take measures to make those who need special education due to their situation useful to society;'. These articles of the Constitution of the Republic of Turkey shed light on the regulations that should be created for individuals with special needs. In other words, Turkey must provide free education to every child, including children with ID, that best suits their needs.

When we look at the legal regulations directly related to special education, the first of these is Law No. 2916 on the Children in Need of Special Education, which came into force on October 12, 1983 (OG No. 18192, 1983). Law No. 2916 has made significant contributions to the field of special education. It aimed to provide education and training to students aged 0-18 who could not or partially benefit from the normal education system due to their physical, mental, psychological, emotional, social, and health conditions. It is said that "necessary measures are taken to raise children with suitable conditions and characteristics together with their normal peers in schools and educational institutions opened for the education of children who are not originally such." This statement is also the official beginning of inclusive education in Turkey.

In the 15th Article entitled "education and training" of 5378, numbered Law concerning Handicapped and Amending of Some Decrees with Power of Law ", With no reason, cannot be prevented the disabled from getting an education (OG No. 25868, 2005). All people in all responsibilities will act without hesitation while doing their job about the statement, "To the disabled children, youngsters and adults, equal education chances will be provided with the normal ones by taking their differences and special conditions into consideration.".

In Turkey, the most important of the legal regulations is the Decree-Law No. 573 on Special Education adopted in 1997 (OG No. 23011, 1997). With Decree-Law No. 573, educational diag-

nostic services besides medical diagnosis have been made compulsory. The Least Restrictive Environment principle is stated for the first time in regulation. It is obligatory to prepare an individualised education plan (IEP) that specifies the current performance level, needs, annual goals, type, and duration of the support education services that the individual can receive for the SEN, whose special education needs are determined by the educational diagnosis, monitoring and evaluation team at the Counselling and Research Centres (CRC). In Decree-Law No. 573, early education, family, and inclusive education services are also guaranteed. In this law, lower and upper age limits have been eliminated to ensure lifelong education.

The Regulation for Special Education Services, which was first issued in 2000 and was last updated in 2018 in OG No. 30471, is the regulation that regulates the execution of special education services in Turkey. A comprehensive special education service delivery is outlined in this regulation. Regulation for Special Education Services requires schools to develop an IEP for each student with special needs, whether or not they are being educated in inclusive settings. In the regulation, an individual with MID is defined as "an individual who needs special education and support education services at a limited level due to her mild inadequacy in intellectual functions and conceptual, social and practical adaptation skills" (OG, 2018).

The Regulation on Special Needs Assessment for Children includes the Special Needs Report for Children ``ÇÖZGER" (OG, 2019). The ÇÖZGER aims to determine the needs of children and young people with special needs to ensure that they benefit from health, education, rehabilitation, and other social and economic rights and services since the regulation was published in 2019. The Ministry of National Education (MoNE) Preschool and Primary Education Institutions Regulation (OG No.29072, 2014) and The MoNE Secondary Education Institutions Regulation (OG No. 29871, 2016) include provisions in support of the legislation on special education. In both regulations, emphasis is given to the role of CRC in determining which children have special needs and the importance of preparing IEP for them. According to the 11th article of the MoNE Preschool and Primary Education Institutions Regulation, children referred to pre-primary and primary education institutions via a CRC report are registered in whichever school they wish, regardless of their home addresses.

The same article also includes the following provision on registration for pre-primary education and the composition of the classroom: "Based on the report prepared by the Special Education Evaluation Board established within counselling and research centres, children, aged 37-66 months, who are referred to mainstreaming preschools are registered in these institutions. Classrooms are arranged to include two children with special needs in classes with 10 students and one in classes with 20 students. The 8th article of the Secondary Education Institutions Regulation states that children with special needs may attend secondary education institutions "to develop their life skills and meet their learning needs, taking into account the developmental characteristics based on their competencies". According to the regulation, students are placed in secondary education institutions based on their abilities, health conditions, and home address.

3.2. Educational Environments

Special education legislation has served to increase the number of educational environments for individuals with ID to include separate educational institutions. Diversification of practices is necessary for the services provided to individuals with ID to be effective, efficient,

and sustainable. It is seen that individuals with ID can receive education in general education classrooms, special education classrooms and separate special education schools in European countries. It can be said that as the degree of inadequacy increases, the restrictiveness of the educational environment also increases (Myers et al., 1998).

3.2.1. Basque Country

The Basque State School Act (1993, art.10) states that "wherever possible, all students will be schooled in mainstream units close to their home". To make it possible, Basque school provides material and personal resources to support and create adequate conditions to ensure all students receive appropriate schooling in mainstream settings, including those with ID. Underlying these intentions is the concern to remove barriers to learning and participation of the entire diversity of students. When a child with ID is enrolled in a mainstream classroom, it is not enough with the ordinary specific measures such as the following: to divide the natural group of students into two different groups in order to teach some subjects; to offer new optional subject to work contents that can be more complex for some students; to increase the rate of teachers per group in order to help students that struggle with achieving a level's objectives, etc. These measures are not enough for students with ID to achieve the objectives of the curriculum. According to the 118/1998 Decree, there are two kinds of adaptations to respond to the specific needs of a student with ID enrolled in a mainstream classroom:

- Individualized curricular adaptation to access

When this adaption is launched, specific materials (Braille books), tools (tablets, computers etc.), and personal resources (specialist teaching staff, speech therapists or physiotherapists, occupational therapists, specialists in visual impairment) can be used in order to make possible the students work the regular curriculum. Only non-prescriptive elements like teaching methodology, activities, resources, timetables or spaces can be adapted.

- Significant individualised curricular adaptation (ACI)

The ACI is the most exceptional measure for students enrolled in regular classrooms in mainstream schools. The ACI determines the accessible curriculum for students with ID, modifying methods, resources, times, and general aims, contents, and assessment criteria. A global ACI will be implemented if students have significant cognitive disabilities to support basic life skills. If the students have moderate cognitive disabilities, the ACI will be based on the curriculum of the previous levels. If the students achieve the objectives the law establishes, they can get a certificate of education.

Besides, The Basque State School Act (1993, art.10) states that students should be in special education units within mainstream schools. This option is only chosen when all other measures have not met the student's needs and the school does not have enough resources to cater for SEN students with complex needs in ordinary classrooms. These special education units are known in Basque as "gela egonkorra" Students enrolled in this unit have a severe intellectual disability. The special education unit is a separate classroom within the mainstream school for no more than five students with severe disabilities. It has specific and permanent resources, physical space, and a stable group of students, with a special education tutor and specialists in educational support (ancillary staff). Based on the group programme, an Individual Education Plan is developed for each pupil. This allows individualised attention tailored to any student's particular support needs. At the same time, it facilitates socialisation and inclusion as the spe-

cial classes are part of the mainstream school. These special classes cater for students up to 16 years, even though they can exceptionally stay until 18. All education is compulsory and free for all students.

3.2.2. England

The question of educational or teaching programmes or approaches for those with Mild ID is difficult. Mild ID requires IQ full-scale levels below 70 and adaptive functioning at a low level, too (self-help, independent skills etc). What is appropriate in teaching terms depends on which student is talking about. Teaching programmes or approaches for those with Mild ID include the usual range of curriculum programme areas (e.g., maths, literacy etc., including social skills) but are taught in an adapted way. This might be adapting to lower-level objectives, taught more concretely, for example, more didactically (direct instruction approach).

3.2.3. Ireland

The EPSEN Act (Government of Ireland, 2004) explicitly states that children with SEN should be educated in an inclusive environment alongside their peers who do not have special educational needs. However, other factors, alongside the commencement of EPSEN, have led to more children with MGLD enrolling in mainstream primary schools. Firstly, the introduction of Learning Support/Resource Teachers (now known as Special Education Teachers [SETs]) (Department of Education and Skills [DES], 2017) in 1999 provided additional support teachers to mainstream schools to cater for children with learning difficulties. While initially, MGLD was classified as a low-incidence disability (DES, 2003) and, as such, allocated to the Resource Teacher (RT), the General Allocation Model (GAM) reclassified it as a high-incidence disability (DES, 2005), moving it into the remit of the Learning Support Teacher (LST). This meant schools did not have to specifically apply for extra resources for their enrolled pupils with MGLD. Instead, they would be expected to allocate resources from the hours given to the school under the GAM. In theory, this allowed for more flexibility in allocating additional support to children with MGLD. However, this decreased the time allocated to additional teaching for these children (Stevens & O'Moore, 2009).

Another factor in the increasing number of children with MGLD in mainstream schools was the closure of almost all MGLD classes in 2009 (Travers, 2009). These classes were closed as the DES argued that by 2007 the percentage of children with MGLD in the mainstream was significantly higher than the percentage of children in special schools and classes (64% in mainstream versus 36% in special school/class settings) (Stevens & O'Moore, 2009). Finally, the Education (Admission to Schools) Act (Government of Ireland, 2018) states that schools must accept all students who apply to enrol unless the school is oversubscribed. This prevents schools from discriminating against pupils on several grounds, including SEN.

3.2.4. Turkey

Guidance and research centres (GRCs) in each province are responsible for diagnosing and placing individuals with ID in appropriate special education environments in Turkey. GRCs generally identify children with disabilities by examining the students directed by teachers or applied by families. Official educational environments in Turkey for students with MID are listed below.

- Kindergarten for students with MID (separate)

- Primary Schools for students with MID (separate)
- Middle Schools for students with MID (separate)
- Special Education Classrooms (in General Schools)
- General Classes in General Schools- with/without Resource Rooms
- Special Education Vocational Schools (separate)
- Private Special Education and Rehabilitation Centres (separate- supportive education service)

All these state-affiliated institutions are free of charge. In addition, the transportation of individuals with MID to educational institutions is also covered by the state. According to the statistics published annually by the MoNE, some of the STS in terms of settings where they are placed are shared in Table 1 (MoNE, 2020a).

Table 1. Statistics as the Number of schools, students, classrooms in Turkey

Environments	School/ Class/ Institution	Students Total	Male	Female
Special Education Nursery School*	71	4.873	3.120	1.753
Special Education Schools with Kindergarten*	174	1.642	1.085	557
Primary School (for MID)	33	776	514	262
Special Education Class (Primary School)*	-	27.337	17.928	9.409
Inclusive Education (Preschool)*	-	789	489	300
Inclusive Education (Primary School)*	-	119.307	76.492	42.815
Secondary School (for MID)	40	1.385	868	517
Special Education Class (Secondary School)	-	24.549	15.361	9.188
Special Education of Vocational School (ID, III. Grade)	175	12.402	7.929	4.473
Inclusive Education (High School)*	-	55.534	34.285	21.249
Private Special Education and Rehabilitation Centres*	2666	438 570	270 066	168 504

** Disability groups are not specified.*

Preschool education institutions: children diagnosed with intellectual disabilities or other disabilities in these institutions are placed in general education classes as inclusive students in preschool institutions where children with typical development are in attendance if they are diagnosed with mild disabilities. In these institutions, an individualised education plan is prepared and implemented for the student following the general education curriculum. Class sizes are arranged not to exceed 10 for two students with a disability and 20 for one student with a disability. Suppose the student cannot follow the general education curriculum and is diagnosed with a moderate-severe disability. In that case, they can enroll in special education kindergartens where children with disabilities attend. An early childhood Special Education program prepared for children with disabilities is applied in these institutions. Classes are organised in a manner that will not exceed six students. If a Special Education class is opened for children at a mild level, planning is done so that it does not exceed ten students. In these institutions, self-care and social skills are taught in addition to the knowledge and skills required in academic studies in the future. If the students referred to these institutions have autism, the classes are organised in a way that will not exceed four students (OG, 2018).

Students who are not inadequate can also enroll in the classes to be opened in the special education schools around them in line with their wishes. These applications are defined as reverse fusion. These classes consist of a maximum of 14 students in preschool education, 20 in primary and secondary education and 10 in non-formal education, 5 of whom are individuals with disabilities. According to the Special Education Services Regulation updated in 2018, early childhood units can be opened within the body of all kinds of institutions for babies/toddlers with special needs in the range of 0-36 months. Depending on the wishes of the families, home-based or institution-based studies can be planned as 4 hours a week for everyone (OG, 2018).

Special education practice schools: children diagnosed with secondary and severe disabilities continue to attend these schools. Primary, secondary, and high school levels can be included in schools. Alternatively, only primary, and secondary school levels can be included. All three levels do not have to be opened. The opening of the stages is related to the physical capacities of the institutions. The applied program is prepared for children with moderate-severe disabilities. Academic and self-care skills are mainly studied at the primary and secondary school levels. A vocational training program is applied for the high school level (third level). There are 12-hour workshops per week within the vocational training program. For children with moderate to severe intellectual disabilities, the class size is planned not to exceed 8. While there have been separate schools called autistic children's education centres for children with an autism spectrum disorder in recent years, children with autism who have been diagnosed with severe to moderate levels are educated within special education application schools. The number of classes these children attend is planned not to exceed 4. The students in these schools are students with similar characteristics in a similar disability group (OG, 2018). The advantage of these schools is that the physical environment and educational arrangements can be adapted to the individual characteristics of children. The disadvantage is that children are isolated from the environments and social environment where their peers are typically developing.Special education vocational schools: children diagnosed with mild disabilities at the high school level can receive education in these schools. Only the high school level is included. The applied program is a job and profession program prepared for children with intellectual disabilities. Employees receive training in culture and vocational courses at school once a week and in workplaces for four days in applied skills training. Individuals who cannot be placed in

the workplace continue their education at school. Workplace employees can benefit from the rights granted to apprentice students by the Vocational Training Law dated 5/6/1986, numbered 3308. Educational classes in the institution are arranged in a way that will not exceed ten persons. The graduation certificate obtained from the institutions does not provide the right to go to the university directly (OG, 2018). The advantage of institutions is that students with similar characteristics in a similar disability group should be educated together, and social shares should be suitable for their characteristics. They should be learning work-occupational skills in order to be able to contribute to the production life in society. The disadvantage is that the socialisation environment cannot be formed with their typically developing peers.

Special education classes are opened within the general education schools where children with typical development attend. Classes can be opened for children with moderate/mild or severe intellectual disability and an autism spectrum disorder. In line with the preference of the families, if the student does not want his/her child to be educated in differentiated institutions within the scope of family inclusion practices, he/she can be placed in one of these classes suitable for his/her disability group. Classes are arranged as eight persons for students with ID and four persons for students with autism. Lesson hours are planned to be 40 minutes, similar to the general education system. The applied program is realised by creating an individual education plan using the general education curriculum or special education programs following the levels of the students (OG, 2018). These classes allow students with special needs to be educated under the roof of schools that provide normal education. They also allow special-needs students to be with peers who develop at times, such as recess and physical education.

General education classes: This application, called inclusive education, allows students with special needs to study in the same class with their typically developing peers. In line with the general education curriculum, an individual education plan is prepared and implemented for the student. Students diagnosed with mild disabilities generally benefit from inclusive education. Since the class size is two students with special needs, it is arranged so that it will not exceed 25 and 35 in the classes with one student with special needs. When needed for inclusive students, support education rooms can be opened in their schools (OG, 2018). Support education rooms are support units opened in general education schools to provide special education support by providing special tools and educational materials for individuals who need special education and gifted students who continue their education in the same class as their peers who do not have disabilities in schools and institutions. According to the number of students who will receive support education, more than one support education room can be opened in the school or institution. The planning of the education services to be carried out in the support education room is carried out by the school administration. The students to be trained in the support education room are determined by the guidance and consultancy services executive commission in line with the recommendations of the Individual Education Plan Development Unit. The weekly lesson hours that the student will receive in the support training room are planned in a way that will not exceed 40% of the total weekly lesson hours. One-to-one training is provided by considering the educational performances of the students with disabilities; however, group training can also be provided with students who are at the same level in terms of educational performance when necessary. In the support training room, there are tools and training materials appropriate for the educational performance and needs of the students and the type of inadequacy. According to the educational needs of the students, teachers, classroom teachers and field teachers who work in special education can be assigned, especially class teachers for the visually, hearing and intellectually disabled. In the overall achievement evalu-

ation of the student, the evaluation results made in the support education room are also considered. Education services are provided during the course hours of the school or institution.

Special education and rehabilitation centres are private institutions affiliated with the MoNE. They provide educational services to individuals with disability of all types and age groups in line with their needs. The state meets 12 individual education hours per week through these institutions on behalf of children with disabilities. Special education teachers, preschool teachers, psychologists, language and speech therapists and physiotherapists work in the centres.

Special education services are free of charge for individuals with disabilities in all institutions affiliated with the state in Turkey. Food and service facilities are available. In addition, the state pays wages to families within the scope of home care allowance for children who are above a certain disability. Individuals with disabilities benefit from public transportation services free of charge. They also have an early retirement, tax-reduced vehicle purchase and other rights (OG, 2005).

3.3. Educational Programs

3.3.1. Basque Country

In the Basque Country, individuals with ID are schooled in the ordinary classroom and follow the classroom program in a way adapted to their possibilities (curricular adaptation). For this purpose, they have personal and material resources. When they are schooled in a regular classroom, each student has an individual program tailored to their needs. Finally, when the students have more serious and permanent disabilities and may require extraordinary and exceptional resources, they cannot be schooled at the mainstream school, so they are enrolled in special education centres and, thus, satisfactorily meet the needs of these students. The curricular project of these centres is a general framework, with criteria didactic guidelines, which aims to facilitate teachers' educational attention to students with more profound or serious disorders, sensory and motor deficiencies and requiring extraordinary resources.

3.3.2. England

In England, the Children's Act (2004) reinforced that all people and organisations working with children have a responsibility to help safeguard children and promote their welfare. The guidelines in this act allow anyone working in an educational or non-educational setting and working with children to know how a child should be looked after in the eyes of the law. This Act's ultimate purpose is to make the UK a safer place for children and led to the creation of a Children's Commissioner, as well as each local authority needing to appoint a director of children's services. It also allows the government to create electronic records for every child in England, Scotland and Wales, making it easier to trace children across local authorities and government services.

Children and Young Persons Act 2008 introduces a wide range of reforms to the laws about children. It introduces various changes to several areas in the field, including looked-after children, caring for disabled children, private foster care and residence and special guardianship orders. The main goal of the Act was to - in a child's best interest - to provide boundaries and support for local authorities and/or other entities to regulate official intervention.

Also, in 2008 the Learning and Skills Act was introduced, raising the statutory school lea-

ving age. The Bill contains measures to encourage more young people to participate in learning post-16 and achieve higher skill and qualification levels. The Government aspired that by 2013, all 17-year-olds and by 2015, all 18-year-olds were participating in some form of education or training. The Equality Act 2010 ensures that all protected characteristics - age, disability, gender reassignment, marriage and civil partnership, pregnancy and maternity, race, religion or belief, sex, and sexual orientation - are protected. Under this Act, a person is classed as disabled if they have a physical or mental impairment that has a substantial and long-term adverse effect on their ability to carry out normal day-to-day activities. Schools and local authorities have legal duties and requirements to show how they address issues in the Equality Act. As outlined in guidance from the Department of Education, schools must publish a report on the school's policy for pupils with SEN, including details of one) the school's admission arrangements for pupils with SEN or disabilities) the steps the school has taken to prevent pupils with SEN from being treated less favourably than other pupils) access facilities for pupils with SEN 4) the accessibility plan the governing body has written in compliance with paragraph 3 of Schedule 10 to the Equality Act 2010.

All schools, including academies, have a clear legal duty to do their best to meet the needs of children with SEN. The Department for Education has produced an Academy SEN Factsheet Section 1 of the Academies Act 2010 that requires academy funding agreements to contain equivalent SEN obligations to those placed upon the governing bodies of maintained schools by Chapter 4 of the Education Act 1996.

The Children and Families Act (2014) was followed by the Coalition Government's Green Paper "Support and Aspiration" (2011). In Section 20 of this Act, a child is considered to have a learning difficulty if she or he has: a significantly greater difficulty in learning than the majority of others of the same age; or has a disability which prevents or hinders them from making use of facilities of a kind generally provided for others of the same age in mainstream schools or mainstream post 16 institutions. This Act, too, dealt with required statements of special educational needs for children in schools to be replaced with a combined Education, Health and Care Plan (EHC plan).

Sources of SEN Guidance SEN Code of Practice (April 2014) provides statutory guidance relating to Part 3 of the Children and Families Act 2014. Supporting pupils at school with medical conditions (April 2014) Section 100 of the Children and Families Act 2014 places a duty on schools to support pupils at their school with medical conditions. Schools must have due regard for this guidance. They must ensure that all children with medical conditions, in terms of physical and mental health, are properly supported in school so that they can play a full and active role in school life (including school trips and physical education), remain healthy and achieve their academic potential.

From September 1, 2014, all Local Authorities must publish a detailed summary of the services available to support children and young people with SEN named the 'Local Offer'. This should cover education, health and social care services and include information about services available in neighbouring boroughs. The Code of Practice 2015 (Department for Education and Department of Health) was underpinned by the 2014 Act and applied to all those with SEND from 0 to 25 years. It updates the Code of Practice (2001). It was seen as radical in its content when it was brought in. The 2015 Code of Practice also lists what the Local Offer (see above) should include: up-to-date comprehensive information about the available provision and how to access it; and to target provision specifically to meet local needs and aspirations. Local

Authorities should involve children and young people with SEND along with their parents and service providers in developing and reviewing the Local Offer. This Code of Practice identified four broad areas of need that schools can use to help identify and support children and young people with SEN. The four areas of need included communication and interaction, cognition and learning, social-emotional and mental health, and sensory and/or physical needs.

There has been some debate amongst some academics and charities over whether the 2015 Code of Practice has improved SEN provision for children and young people. For instance, later in 2015, less than a quarter of parents surveyed by the National Autistic Society, who had been through the new Education, Health and Care Plan (EHCP) process were satisfied with it. The same charity found fewer EHCPs were being issued compared with the former Statements of Special Educational Needs. (Child Lawadvice, see https://childlawadvice.org.uk/information-pages/special-educational-needs/). On April 30, 2020, the Code of Practice added a link to guidance on 'Changes to the law on education, health and care need assessments and plans due to coronavirus'. This was subsequently withdrawn in September 2020, with schools being referred to the Code of Practice for guidance.

3.3.3. Ireland

In Ireland, The National Council for Curriculum and Assessment (NCCA) published guidelines for teachers of students with General Learning Disabilities (GLDs) in 2007. These guidelines covered all curricular areas detailed in the Revised Primary Curriculum (DES, 1999) but were designed to complement, not replace the Curriculum. For students with MGLD, a set of post-primary guidelines was also published for some curricular areas. The Curriculum Access Tool for General Learning Disabilities (CAT-GLD) provides more structure for teachers in planning for children with MGLD. This framework breaks each strand of the curriculum into individual skills, allowing teachers to effectively plan for, teach appropriately and assess their students' learning (NCSE).

EPSEN (Government of Ireland, 2004) laid out a statutory framework for preparing and implementing Individual Education Plans (IEPs). However, as previously mentioned, this is an area of EPSEN which still has not commenced in the year 2022, meaning that while IEPs have been legislated for, they are not legally required in schools. Many schools instead favour the use of Student Support Files (SSFs), which were introduced as part of the Continuum of Support (National Educational Psychologists Service (NEPS), 2007). This allows a school to place a child on one of three stages-Classroom Support (CS), School Support (SS) or School Support Plus (SS+), depending on the needs of the pupil in question. Children with MGLD generally fall under SS+, as this includes the involvement of relevant outside agencies (such as the HSE) in developing educational interventions for the child.

3.3.4. Turkey

The development of IEP for all students with SEN is required by law in Turkey. IEP is defined in the Regulation of Special Education Services in paragraph g of article 4 as follows: "A special education program, which includes support training services to be given to individuals with special educational needs, and which is prepared to achieve the targeted goals in line with their developmental characteristics, educational needs and performance, based on the program followed by individuals with special education needs" (OG, 2018). As stated in the regulation, the content of the IEP consists

- Annual goals and short-term goals in the training plan,
- The type and duration of the support training service to be provided and by whom and how the service will be provided,
- Methods and techniques and teaching materials to be used in teaching and evaluation,
- Regulations regarding the educational environment,
- Measures to prevent or reduce behavioural problems and methods and techniques to be applied to gain positive behaviour,
- Personal information of the student.

Various curricula have been developed for students with MID according to school types and levels. The program prepared for children with MID can be used in inclusion classes in general education schools and mild special education classes opened within these schools. The program prepared for children with MID is similar to the primary education program. Recently, the MoNE and the General Directorate of Special Education and Guidance Services removed the separate program for individuals diagnosed with mild disabilities and stated that these individuals could follow the general education program with the necessary adaptations. Current programs for individuals with MID are special education vocational school, social adaptation skills course programs and a support education program (OG, 2018).

4. Use of Technology in the Education of Children with Intellectual Disability

Technology is a broad term implying not only an equipment/machinery solution referring to a tool or device but also a process involving the application of scientific developments for the solution of problems (Saettler, 1968; Spector, 2012). Technology has been used extensively in education for diverse needs and solutions in different teaching and learning contexts. The technology integration models have focused on effective technology integration dynamics. TPACK as a widely used model, for example, has focused on technological, pedagogical, and content knowledge required for teachers to effectively utilise technology in education (Koehler, Mishra, & Cain, 2013). The RAT model has emphasised the role of technology as replacing, amplifying, or transforming pedagogical practices (Hughes, Thomas, & Scharber, 2006). The PICRAT model has highlighted the relationship between students and technology as passive, interactive or creative, and the replacing, amplifying or transforming effects on pedagogy (Kimmons, 2020). These models imply that the role of technology in education has differed based on needs and aims, and the effective utilisation of technology in education depends heavily on how it is designed.

The use of technology in special education has dramatically increased in recent years. The capabilities of technological devices and tools have offered various pedagogical opportunities for children with ID. Getting immediate feedback (Smith, Spooner, & Wood, 2013), increased motivation, engagement of interaction of students (Ayres & Langone, 2005; Whitby, Leninger, & Grillo, 2012), using multiple learning channels (Zhang et al., 2015) are a few to name. The following sections introduce the technologies used, teaching areas using technology, digital literacy and teacher and parental technology use.

4.1. Technologies Used

There is a wide scope of technologies to support teaching and learning needs. They include assistive technologies ranging from special pens to speech recognition tools, graphic organisers to keyboards, and special instructional technology tools and solutions such as mobile applications and intelligent toys. Assistive technology involves services and devices to eliminate the limitations individuals with ID experience in interacting with people and the environ-

ment. Hence, assistive technology is regarded as an umbrella term and recommended to be used in health and social care systems (WHO and UNICEF, 2022). They can be used in educational settings to enable students with SEN accessibility (e.g., portable ramps, wheelchairs etc.), inclusion and participation (e.g., text-to-speech recognition systems, pen holding apparatus etc.). According to Boot et al. (2017), assistive technology for ID should address cognitive and adaptive functioning impairments. The assistive technology devices offered for individuals with intellectual disabilities are classified into three groups: low-level, medium-level, and high-level, according to their usability, practicality and development levels (Sani-Bozkurt, 2017). Low-level technologies are tools we frequently encounter in daily life that can be easily found in almost any classroom environment. Tools such as highlighter pens, pen-holding apparatus, papers, graphic cards/illustrated symbols, visual charts, adapted scissors, and page-turning apparatus can be listed as examples. Tools containing medium technology can be exemplified as reading pens, timers, talking calculators, dictionaries, and talking tools. In the high-level assistive technology group, digital applications are noticeable such as speech recognition software, visual aids, voice aids, physical aids, tablet computers, smartphones, smart boards, smart watches, virtual reality, augmented reality applications, smart personal assistants, digital books, mobile applications and computer software (Çoklar, Ergenekon & Odabaşı, 2018; Sani-Bozkurt, 2017). Instructional technology uses media to support teaching and learning and, therefore, are critical for embedding pedagogical approaches to technology use, such as picture exchange systems, video modelling, mobile learning, etc. (Sani-Bozkurt, 2017). It can be seen that one technological device/tool can be labelled both as assistive and instructional. The main differentiation can be aligned with the main aim of using the device/tool. Ayres, Mechling and Sansosti (2013) further distinguished the difference as the following explanation (p. 262): Instructional technology is explicitly used to teach skills. Once the skills are learned, the technology is no longer necessary and, therefore, is not utilised. For example, a software program designed to teach typing concepts and/or keyboarding would fall into the category of instructional technology, as it was used to teach a specific skill. Assistive technology, on the other hand, most often plays a role in the ongoing support of an individual completing a task. A digital reminder that triggers a vibrating alarm and alerts the user to take his or her medicine would be an example of assistive technology.

With an extensive literature review on technology systems to teach or support individuals with intellectual or other disabilities for performing multistep activities, Desideri et al. (2020) highlighted three categories of the technologies: self-operated, automatic, and intelligent. In self-operated prompting systems, handheld (mobile) devices were widely used. Instructional videos were mostly preferred in this category. While the earlier automatic prompting systems used adapted technologies such as photocells activated by light-reflecting paper controlled by software, more recent systems use simpler solutions such as smartphones fitted with task automation applications (Lancioni et al., 2020, as cited by Desideri et al., 2020). The final category of intelligent prompting systems revealed limited research due to difficulties in embedding "complex functions involving sensing the environment, recognising and monitoring an individual's behaviour, providing timely prompts, and self-adjusting according to the individual's responds", and hence regarded to be at an early stage (p. 881). The study's results emphasised everyday technology as being affordable and relevant. This is echoed in Flanagan et al. (2012)'s study that teachers preferred low-tech devices over high-tech due to affordability and easy use.

4.2. Areas of Teaching Using Technology

The recent advances in ICT, have triggered efforts to use in the education of individuals with ID. The instructional technology tools and applications target not only academic skills but also daily life skills. Snyder and Huber (2019) examined the literature on computer-assisted instruction to teach academic content to students with ID. They found that the studies focused most on language and discrete skills rather than complex ones. There are also academic skills covering mathematics, literacy, science, and social science lessons and music education (Darnanta, 2019; Gonzalez et al., 2010; Macmahon et al., 2019; Pennington et al., 2014; Rivera, 2018; Wong, 2020). In the study in which literacy skills were taught to students with ID, Pennington et al. (2014) used robot-assisted teaching to teach personal narration in text messages to students with three intellectual disabilities between the ages of 19-21. They have studied the teaching of greeting with robots, short text writing and closing skills. They stated that they taught three students with intellectual disabilities to write personal narratives in their text messages through robots. In their study, Rivera et al. (2018) presented the gamification techniques in mobile applications in a fun way and a methodological proposal for transferring these techniques to special education environments.Daily life skills are self-care skills performed in social environments such as home, school and work (Stabel, 2013). Many technological tools and applications are used daily, including mobile phones, ATMs, e-commerce, e-learning courses, e-health applications, etc. Approaches such as video models, computer-assisted instruction and mobile tools have drawn attention to addressing the daily life skills of students with ID. Target skills in existing research have included tooth brushing, shopping, preparing food, leisure activities and other skills outside the home. Studies show that students with ID are usually taught culinary and leisure skills. Studies also teach personal care and in-housework skills (Doğan, 2021).

4.3. Digital Literacy and Teacher and Parental Technology Use

Digital literacy is a key term interrelated with psychological, social, and technological concepts such as well-being, resilience, digital privacy, and digital competence. It also comprises other literacies such as computers, the internet, media and information literacy (Leaning, 2018). Simply put, it is like "stopping to look left and right before proceeding online" (OECD, 2021, p. 4). There has been an increased interest and focus on digital literacy in the Education 2030 Curriculum Content Mapping by OECD. According to Park (2013), three dimensions of digital literacy had an impact on privacy-related online behaviours as (a) familiarity with technical aspects of the Internet, (b) awareness of common institutional practices, and (c) understanding of current privacy policy. Digital literacy has the potential to serve as a safeguard to protect learners against the risks of online experiences and hence support online resilience (Vissenberg, D'Haenens, & Livingstone, 2022).For teaching processes, different levels of technology tools are used by teachers, and teachers use assistive technologies at different levels, from low to high (Green, 2018). Teachers' use of assistive technology in application environments is limited to low-level technological tools (Sola Özgüç & Cavkaytar, 2014). The findings of the study by Schaaf (2018) show that teachers' experience and knowledge about assistive technology are insufficient. Therefore, professional development activities and in-service training have great importance. Parents and teachers who interact with children are expected to have the ability to use technology at a basic level, to be tolerant of the problems they experience related to technology, and to be cautious about ICT safety and privacy policies.

4.4. Digital Content Development and Applications Used in Special Education Services

With the emerging capabilities of ICT and the latest technology tools, such as portability and functionality, many initiatives and projects have existed for students with ID. For students with ID, various digital tools are available for diverse needs. There are national and regional policies, procedures, and applications for the needs of SEN students, specifically for students with ID. Below, these are summarised for Basque Country, English, Irish, and Turkish contexts.

4.4.1. Basque Country

In the Basque Country, the "Strategic Framework for Education and Training 2020" indicates among its priority areas for the 2015-2020 cycle the "Inclusive education, equality, equity, non-discrimination and promotion of civic competencies" and "the development of an open and innovative education and training, with a full incorporation into the digital age" (United Nations, 2015). In this context, the Department of Education establishes the guidelines to promote a real inclusive education that covers the needs of all students, including those with special needs or intellectual disabilities. The general plan around ICT is Eskola 2.0, which implies universal access to digital materials and computers within Basque schools. This paradigm shift began in 2009 and entails teacher training in new information and communication technologies, all under the protection of Decree 174/2012.

Students with special needs have access to the help of professionals such as Pedagogical Therapists, who are given this help in the classroom with the rest of the students. ICT has been gradually implemented with the assistance given by the professionals mentioned above (Leonet et al., 2022). ICT tools accompany the help received by students with special needs, processors with artificial intelligence, tools with a pupil movement reader, adapted keyboards or digital pictogram systems, among others (Langarika-Rocafort et al., 2021). The Innovation Centers, dependent on the Department of Education of the Basque Country, also implement training with professionals and teachers on techniques such as Augmentative and Alternative Communication (AAC).

The Department of Education of the Basque Government allocates part of its general budget for the annual acquisition of digital devices for students with special needs. Recently, a special committee has been made for ICT materials based on robotics and artificial intelligence (Idoiaga et al., 2022).

The Basque Educational System is characterised by establishing its school curriculum different from that implemented by the Ministry of Education of the Spanish Government. However, both state that attending to diversity means knowing, respecting, accepting, valuing and responding to these individual and cultural differences in an inclusive way. The need to focus on early detection and identification of specific needs for educational support, both biological and psychosocial, is of special relevance. This requires close collaboration between the family and the school and adopting common criteria for action.

The Basque curriculum, also known as "Heziberri 2020", establishes its educational lines based on obtaining and implementing a series of interdisciplinary and cross-curricular competencies to allow students to be active and in the best conditions of today's society. In this educational transition, educational inclusion and implementing ICT tools become fundamental

elements that the various legislations include among their main contributions. Both public bodies are largely nourished by the educational synergies decreed by the European Union. The latter, through the "Strategic Framework for Education and Training 2020", indicates among its priority areas for the 2015-2020 cycle the "Inclusive education, equality, equity, non-discrimination and promotion of civic competencies" and "the development of an open and innovative education and training, with a full incorporation into the digital age". It means that technologies become key elements in promoting social inclusion and reducing the so-called "social gap". Universal learning design is an example of a new way of approaching learning that highlights the advantages technology offers to favour learning and student participation.

Both the Department of Education of the Basque Government and the Ministry of Education of the Spanish Government emphasise various aspects, such as the promotion of educational strategies that enable the educational inclusion of all, especially promoting an inclusive education that responds effectively to the specific needs of all students. In this sense, special importance is given to covering the school needs of early childhood education SEN, emphasising the importance of developing competencies related to new technologies both as a means for teaching and in its character as basic technological competence. The development of this competence is linked to the interaction between people, manipulating objects and materials and their intervention of them, producing changes, and transformations, observing the results and anticipating and predicting possible consequences. At this stage, using various technologies requires an educational treatment that, from the appropriate, meaningful use, initiates girls and boys in their adjusted and creative use from the appropriate and meaningful use.

The educational institutions mentioned above actively promote implementing resources that greatly facilitate inclusive education. In this context, educational experiences related to the use of tools offered by ICT are multiplying, such as AAC (Augmentative and Alternative Communication), VR (Virtual Reality) or AI (Artificial Intelligence) that promote and facilitate the educational inclusion of all the student body. In this sense, both the Department of Education of the Basque Government and its Spanish counterpart promote a series of laws to include SEN with special emphasis on the use of ICT tools.

This section contains four specific regional laws implemented by the Basque Government and many others collected through projects and decrees of the Spanish State. Likewise, it refers to the ARASAAC project implemented by the regional Government of Aragon sponsored by the Spanish Ministry of Education, which has a recognised international prestige due to the implementation of ICT and AAC tools, resources, and methodologies with SEN. Although there are previous experiences in the Basque Country, a paradigm shift occurred in 2009 with the "Eskola 2.0" program. The School 2.0 Program supposes, in this sense, a radical leap in introducing new Information and Communication technologies in the educational space. The incorporation of the Basque Country into this Program, decided by the Governing Council on June 5, 2009, took place from 2010 to 2013, with the complete digitisation of classrooms from fifth - sixth of Primary Education and first - second Secondary Education, teacher training in new methodologies and the development of multimedia content. The main objectives of this project would be the following:

- Convert traditional classrooms into digital classrooms
- Train teachers in ICT skills
- Support methodological change in classrooms

- Reduce the digital divide
- Promote dynamic, participatory, networked education, relying on collaborative work with other centres
- Improve the quality of teaching

Educational organisations are generally aware that the implementation of ICT tools with SEN students requires, in turn, the implementation of previous methodological strategies that facilitate the learning processes of this group. In this sense, the Basque Government proposes a series of laws such as the "Pilot Project for Integrated Care for children with complex chronic diseases and special needs", which would be characterised by having a working group for the integrated care process for children with special needs and encourages an integrated care process with this group.

Likewise, the Basque Government also implemented the "Framework Plan for the development of an inclusive school 2019-2022", through which attention was paid to diversity within the framework of the inclusive school, implementing various plans, programs and protocols to respond to diversity and coexistence.

The previous laws and projects would be accompanied by a "Specific Educational Reinforcement Project" through which the students who are in a situation of a serious school delay, mainly in instrumental areas and associated with disadvantaged social situations, and who also might present maladjustment to the school environment, often accompanied by delayed learning, would receive specific educational support in order to achieve full educational inclusion. The aforementioned educational plans, laws and projects would be sponsored by the DECREE 237/2015 of December 22, which establishes the Early Childhood Education curriculum and is implemented in the Autonomous Community of the Basque Country. This decree would seek to train professionals to develop inclusive education to promote coeducation and for adequate attention to groups with special and specific educational support needs.

The laws implemented by the Department of Education within the Autonomous Government of the Basque Country would be accompanied by plans, laws and decrees approved by state bodies represented in this case by the Ministry of Education of the Government of Spain. In this sense, the Organic Law 8/2013, of December 9, for the improvement of educational quality, from now on, LOMCE understands that it corresponds to the educational administrations to ensure the necessary resources so that students who require different educational attention, for their special educational needs, for specific learning difficulties, ADHD, for their high intellectual abilities, for having joined the educational system late, or for personal conditions or school history, can achieve the maximum possible development of their abilities personal and, in any case, the objectives established in general for all students. The law establishes that at this stage, special emphasis will be placed on attending to the diversity of the students, on individualised attention, on the prevention of learning difficulties and the implementation of reinforcement mechanisms as soon as these difficulties are detected, with special attention to the specific needs of educational support. In addition, to facilitate accessibility to the curriculum, curricular and organisational measures and appropriate procedures will be established when it is necessary to make significant adaptations of the curriculum elements to serve students with special educational needs. These adaptations will be made to seek the maximum possible development of skills. In addition, special attention will be paid to accessibility to Information and Communication Technologies, navigation and access to content. Along the same lines

but preceding the previously mentioned law, Organic Law 2/2006 on Education (LOE) states that the educational administrations will promote programs to adapt to the physical conditions, including school transport and technology of the centres and provide them with material resources and access to the curriculum appropriate to the needs of the students who attend school, especially in the case of people with disabilities so that they do not become a factor of discrimination and guarantee inclusive and universally accessible care for all students.

Together with the laws mentioned above and decrees, the Government of Spain would implement the role of ICT in education for SEN students through the following laws and decrees:

- LAW 34/2002, of July 11, on Services of the Information Society and Commerce Electronic (LSSICE).
- LAW 51/2003, of December 2, on Equal Opportunities, Non-Discrimination, and Universal Accessibility with disabilities (LIONDAU).
- Organic Law 2/2006, of May 3, on Education (BOE 4/05/2006).
- ROYAL DECREE 366/2007, of March 16, on accessibility and non-discrimination of people with disabilities in their relations with the General State Administration.
- Resolution of March 29, 2006, which regulates the measures of attention to the diversity of schools that provide Basic Education and instructions are issued for the preparation, approval and development of the Plan for Attention to Diversity in public schools.
- LAW 11/2007, on June 22, on electronic access of citizens.
- LAW 27/2007, of October 23, recognising Spanish sign languages and regulating the means of support for oral communication for deaf, hard of hearing and deaf-blind people.
- ROYAL DECREE 1494/2007, of November 12, which approves the Regulation on the basic conditions for the access of people with disabilities to the information society.
- Order of December 10, 2007, of the Ministry of Education, Science and Research, which regulates the Evaluation in Primary Education.
- LAW 49/2007, of December 26, establishes the regime of infractions and sanctions regarding equal opportunities, non-discrimination and universal accessibility for people with disabilities.
- Organic Law 8/2013, of December 9, to improve educational quality. (BOE 12/10/2013).
- Order of April 21, 2015, regulates the evaluation and promotion of students in the Primary Education National standard (UNE 139802: 2003). Quality in the level of accessibility in Software.
- National standard (UNE 139803: 2004). Quality in the level of accessibility of Web Content.
- European standard (CWA 15554: 2006 standard)
- Content on Web 2.0 (WCAG 2.0)
- International standard ratified and translated by AENOR. UNE-ISO 24751 (1-3): 2012 Access for All (AfA). Universal Accessibility. Individualised adaptability and accessibility in e-learning, education, and training.
- European standard ratified and translated by AENOR UNE-EN 301549 V.1.1.2: 2015. Accessibility in public procurement in Europe of ICT products and services.

To conclude this section, it is pertinent to mention ARASAAC, an institution dependent on the Regional Government of Aragon that implements the use of ICT with SEN students and has great prestige and international recognition. ARASAAC offers graphic resources and materials adapted with a Creative Commons license (BY-NC-SA) to facilitate communication and cognitive accessibility to all people who, due to different factors (autism, intellectual disability, ignorance of the language, the elderly, etc.), present serious difficulties in these areas, which make it difficult to include them in any area of daily life. The main working field of ARASAAC is developing AAC (Augmentative and Alternative Communication) material to be used with students with special needs. This project is funded by the Department of Education, Culture and Sports of the Government of Aragon and coordinated by the General Directorate of Innovation and Professional Training.

4.4.2. United Kingdom/England

The United Kingdom (UK) government identifies educational technology as one of the most important components of education. British SEN and disability code of practice (DfE, 2015) state that local education authorities must make sure that the providers of the arrangements have in place for: "securing the services, provision and equipment required by children and young people with SEN or disabilities" and information about "enabling available facilities to be accessed by disabled children and young people and those with SEN (this should include ancillary aids and assistive technology, including Augmentative and Alternative Communication [AAC])" (p. 68). The recent report Realising the Potential for Technology in Education (DfE, 2019) also recognises the importance of the use of technology, introducing a case study "Highfurlong Special School in Blackpool is using a range of assistive technology tools to enable their students, many of whom have highly complex needs, to communicate and be active participants in their education. In these and many other settings, technology supports progress and leads to improved outcomes" (p. 5). Companies such as Inclusive Technology (http://www.inclusive.co.uk) supply software and hardware for people with special needs in the UK.

While the importance of technology for people with SEN has been recognised, Stevens (2004), who reflected on the initiatives of the use of ICT in SEN in 1970-2000, concluded that effective use of ICT tools in meeting the needs of all pupils was limited and partially provided (p. 33). Williamson et al. (2006) also stated, "Though it has been a few years since the British government recognised the importance and benefits of the use of ICT for people with SEN, research into different aspects of using ICT for people with SEN is not considerable" (p. 342). In 2020-21, Education Technology (EdTech) Survey was undertaken with 897 headteachers and 854 teachers in primary and secondary schools. This survey found that headteachers and teachers generally showed positive attitudes towards using technology in education. However, for pupils with SEN, this survey concludes, "the area where school staff felt that software was least likely to meet their needs was in supporting pupils with SEN. Almost three out of five (57%) teachers and a half (49%) of headteachers stated that it sometimes or rarely met their needs" (p. 19). Also, UK teachers are less confident in using technologies for remote learning (p. 16). This report also suggests that "a review of the digital technology used for supporting pupils with SEN" as one of the areas of future development (p. 22). Therefore, supporting pupils with SEN with digital technologies has been recognised as one of the undeveloped research areas for a long time, but progress seems to be slower than expected.

4.4.3. Ireland

In Ireland, The Department of Education operates an assistive technology grant scheme (DES, 2013). The purpose of this scheme is to provide financial aid to a school in order to purchase specialist equipment for a child. In order to access this scheme, the school must apply to the NCSE through the local SENO (Special Educational Needs Organiser). This includes providing evidence that a pupil will not be able to access the curriculum without specialist equipment, a recommendation from a professional assessment that explicitly states the need for technology for the effective education of the child and a demonstration of how the equipment will be used throughout the day (DES, 2013). For children with MGLD, unless there has been a secondary disability diagnosed-such as a Speech and Language Disorder or a Specific Learning Disability, they will not qualify for an assistive technology grant, and the funding for any additional equipment should come from the schools' general provision.

4.4.4. Turkey

In the current system in Turkey, various software development projects have existed for SEN students. Turkey's Education Vision 2023 Report suggests the development of mobile platforms to disseminate special needs education services for children with SEN. This software is content created to improve students' individual skills and guide families. Smart apps are the most commonly used tools for such studies. These applications and projects are listed as follows:

The application developed by the General Directorate of Special Education and Guidance Services was included in the service download applications in 2020. It is a free application. individuals with ID, their parents and teachers can access the examples of activities they may need in the distance education process, educational videos, teaching applications and textbooks with the SEN mobile application. In the mobile application, there are examples of activities to support the academic, social, emotional and physical development of students with mental disabilities, educational videos, textbooks, scientific publications, educational interaction areas and fun educational games (MoNE, 2021). Special Children's Support System is an application developed by the Ministry of Health. This application provides expert support for children with special needs and their parents on behavioural problems. When support is needed with the Special Children's Support System mobile application, video interviews with volunteer experts can be provided, messages can be made, and appointments can be made (Ministry of Health, 2021). GEDEX Project aims to support SEN students by providing various learning materials. They are training modules in "Cognitive Skills, Reading-Writing, Mathematics and Turkish". Modules with approximately 100,000 interactive screens, 2000 homework pages and various games related to skill outcomes offer many training opportunities for educators, students, and parents. The application, which has a wide scope in this sense, also provides a basis for effective use since it is digital and updatable (MoNE, 2021).

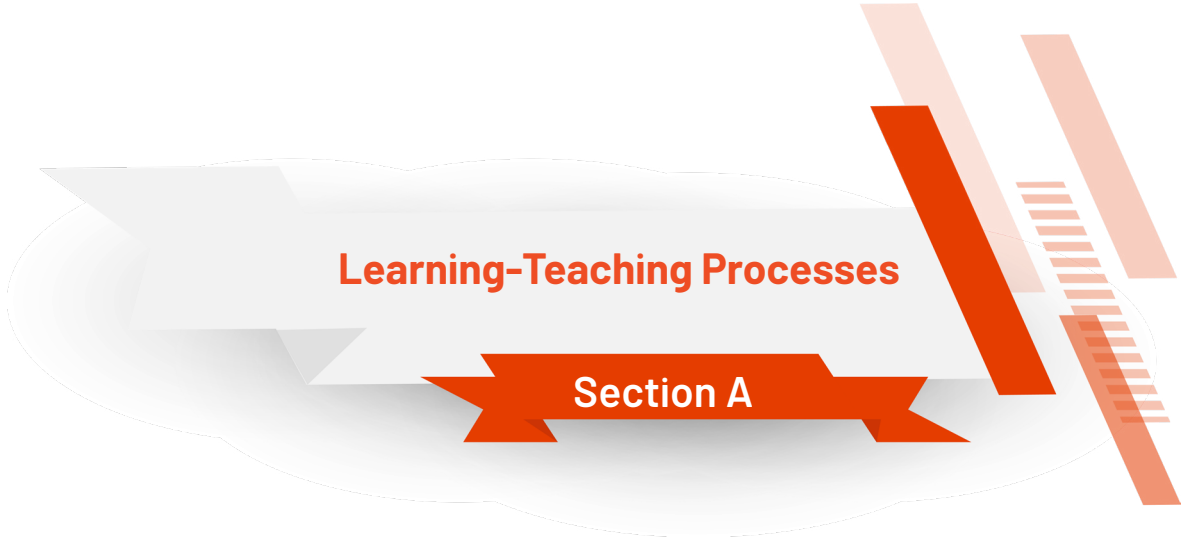
OTSIMO is the product of an entrepreneur with a sibling with special needs by reaching more than 100,000 users in different countries based on a requirement. In Turkey, a company called Turkcell and the MoNE supported it for a while. Current platforms have paid-free versions. The application presents basic information such as letters, numbers, colours, animals, and objects to children with learning difficulties. It focuses on problems through selection, matching, sorting, drawing, and audio games developed by Applied behaviour Analysis (ABA). Otsimo, which can be downloaded to tablets and phones, consists of a platform reserved for children and their

families. The children's department includes various educational games that are shown in a certain order according to the age and educational status of the child, as well as an alternative communication system that supports children with speech difficulties. In the family section, the development reports of the child can be examined (Otsimo Informatics Company, 2021).

Family Information and Support Education Program (e-ABDEP): Families with children with ID can get support from experts in the field online with the e-ABDEP application and meet their information needs with eight units in the program. With this aspect, the application developed in 2014 is interactive software that offers distance education services to families with children with ID. The learning environment includes eight main units, 40 topics, 59 sub-topics, approximately 600 pages of e-books, 76 videos, 59 audio narratives, 58 PowerPoint presentations, and 132 illustrations. The unit objectives expressed as pretest-posttest and learning outcomes that can be used optionally in each unit include the dictionary, let us test ourselves, and bibliography (Kaya, 2021).

Independent Life Training (ILE): This software has been designed within the scope of the project "Effectiveness of Mobile Supported Online Software for Families for Skill Teaching to Individuals with Adult Mental Disabilities". The related project aims to develop and examine the effectiveness of mobile-supported online skill-teaching software for families and mentally disabled individuals in teaching daily life skills to individuals with ID (16-22 years). Family support is significant in the education of individuals with intellectual disabilities. Based on this requirement, ILE software was developed for the use of parents. This software aims to educate parents about individuals with intellectual disabilities and to support parents in teaching skills to these individuals (Kuzu, Cavkaytar, Çankaya & Öncül, 2013).ÖZTEK-Support the Education of Children with Intellectual Disabilities: This is a project managed by Middle East Technical University with the financial support of The Scientific and Technological Research Council of Turkey (TUBİTAK). Innovative educational technology products, including intelligent/interactive toys, multi-touch interactive tables/tablets without keyboard and mouse, and interactive multimedia used with body movements, were used for SEN students (Çağıltay et al., 2015).

Other applications for the education of individuals with an ID that can be used on smartphones and tablets in Turkey can be accessed through appropriate download applications with the names of Special Children, Accessible Life, Turkish Articulation Therapy P, MentalUP, Disabled Friendly, Tohum Eğitim. In addition to contributing to the acquisition of academic and daily life skills, this software also provides services for games and leisure activities.



5. Learning-Teaching Processes

5.1. Methods and Techniques Used in the Education of Individuals with Intellectual Disability

In the studies in which technology is used in the education of individuals with ID, there are applications in which academic skills and literacy teaching methods are used the most. There are variations in these applications. The most commonly used methods are read-aloud, constructive feedback, and multisensory reinforcement. Learning by doing, modelling with video, and constructive feedback is used in teaching mathematics skills. In teaching professional skills, modelling with video and line fading is used. In the teaching of daily life skills and leisure activities, it is seen that errorless teaching methods and modelling methods with video are used (Küçüközyiğit, 2021). The most frequently used teaching methods for social adaptation skills are listed as follows:

5.1.1. Direct instruction

The main purpose of Direct Instruction (DI) is to organise the teaching by dividing the skill taught into small pieces. The gradual withdrawal of skill cues targets the individual's independence (Schug, Tarver, & Western, 2001). One of the general features of the DI is that the teacher is more actively dominant, is at the centre of the teaching process, and is at the centre of the teaching process by withdrawing himself/herself as time progresses. The teaching process continues with the teaching sessions provided directly to the student by dividing the skill to be taught into small steps. As the student learns the skill steps, he/she can perform the steps independently, and the teacher becomes a guide (Kameenui et al., 1986; Stockard et al., 2018). If the student reacts incorrectly, the teacher supports the individual with tips, corrections, and feedback.

DI is applied in six stages (Rosenshine & Stevens, 1986). The first is reviewing and checking the previous day's work (and reteaching, if necessary). Before starting the lesson, the teacher checks the assignments of the individuals and revisits the relevant skills taught in the past. Explains the purpose of the course and the reasons for its creation (Hudson, Miller & Butler, 2006). The other one is the presentation of new content/skills. At this stage, the teacher is

at the centre of the teaching process, explains the skill to be taught, and becomes a model by fulfilling it himself. In the guided student practice (and checking for understanding) stage, teacher-centeredness gradually ends, and a student-centred approach is adopted. For this, it is necessary to conduct teacher-guided exercises in which the clues are gradually withdrawn (Rosenshine & Stevens, 1986). Feedback and correctives (and reteaching, if necessary) are to give feedback on the practices and responses of individuals during the guided practice and modelling stages or to apply corrections (Joyce & Weil, 2000). In independent student practice, a completely student-centred approach is exhibited. The responsibility for learning lies entirely with the individual. Individuals are expected to demonstrate the skills taught independently. At this stage, the skill the individual is asked to perform should be of the same difficulty as the skill performed during the presentation and guided activities stages. Finally, the end of the stages is the weekly and monthly reviews (Rosenshine & Stevens, 1986). In this final stage, a systematic review and repetition of previously learned material are made. Homework is given, deficiencies are determined by giving frequent measurements, and missing subjects are taught again if any.

5.1.2. Errorless teaching

Errorless teaching was defined by Cipani and Madigan (1986) as "programming and presentation of tools related to a stimulus or target behaviour". With these methods, it is aimed that the individual responds correctly to the behaviour being studied. In other words, stimulus control is tried to be achieved (Touchette & Howard, 1984). Errorless teaching is a highly structured approach that is done directly and systematically.

Errorless teaching is an evidence-based approach that includes many procedures. Errorless teaching methods are generally divided into two groups: Teaching methods in which response prompts are presented and teaching methods in which stimulus modifications are made (Cooper, Heron & Heward, 1987). Errorless teaching methods with response Prompts are grouped under eight headings: a) Constant time delay, b) progressive time delay, c) simultaneous prompting, d) antecedent prompt and test, e) antecedent prompt and fading procedure, f) graduated guidance, g) least to most prompting, h) most to least prompting. Although the application steps of each of these methods differ, the elements they consider in planning show partnership. These elements are target stimulus, controlling prompt, trial, response interval, the time between trials, and fading.

The target stimulus is the antecedent stimulus that prepares the basis for the individual's reaction. In most cases, it is the instruction or question directed by the practitioner to the student. While the student is reminded that he/she will fulfill the behaviour, no clue is given about how to fulfill it.

A controlling prompt is a prompt for an appropriate response for the individual and will allow the individual to react correctly during teaching.

The trial includes antecedent stimuli in a teaching session, the behaviour of the individual, and consequence stimuli. How many trials a teaching session will consist of is determined before teaching. For this purpose, the attention span of the individual and the number of steps of the skill to be acquired is taken into consideration.

Response interval is the time elapsed to wait for the individual to respond after the target stimulus and prompt are presented. According to the chosen teaching method, this time is 0 sec. from 5 sec. can be in varying ranges. The individual's characteristics and skills are conside-

red when deciding on the response interval length.

The time between trials is the time elapsed to present a new target stimulus after the individual is expected to respond by presenting the target stimulus and prompt to the individual. Usually, this time is 4-5 seconds (Wolery et al.,1992).

Fading: While teaching a skill, the aids given to the student during the teaching process are gradually faded, that is, reduced according to the progress of the student, so that the student can perform that skill correctly and unaided at the end of the teaching (Snell, 1993). Fading is done in 3 cases in errorless teaching methods: fading in the prompt, fading in the reinforcement, and fading in the stimulus.

5.1.3. Video technology

Video technology is addressed under six different application headings. It is listed as a) video feedback, b) being a model with video, c) being a self-modelling model with video, d) personal point of view, e) interactive video teaching/video clue, and f) computer-aided video teaching. Video feedback enables the student to learn about an uncorrected video recording by observing his/her previous performance on the skill or behaviour (Mechling, 2005). The student can evaluate his/her performance and mistakes related to the skill or behaviour and shape his/her future performance in line with the feedback. The student observes his/ her performance regarding the skill or behaviour and records or evaluates whether he/she performs the behaviour (Mechling, 2005). Modelling with video is watching a video recording of a peer or adult performing the skill or behaviour to be taught and then performing this skill or behaviour himself/herself. The practitioner records the model that performs the skill or behaviour through the camera. Then, the student to be taught is made to watch this recording, and after watching the recording, the student is asked to do this skill independently (Rehfeldt et al., 2003). It is also easily used in teaching many different skills and behaviours, such as modelling with video, communication, daily life, and leisure time. In becoming a model for himself/herself with video, the student can perform the skill or behaviour to be taught with clues or instructions. The student is recorded while performing this skill or behaviour. A new record is obtained with the assemblies made in the records by deleting later errors and combining the steps. From the newly acquired record, the student watches himself/herself as if he/she is performing the skill or behaviour from beginning to end and then performs this skill or behaviour (Wert & Neishworth, 2003). It is stated that the fact that the student sees himself/herself as successfully exhibiting the skill or behaviour will be more reinforcing than seeing other models, and it is more effective than being a model with video (Mechling, 2005). Personal point of view is the use of skills or behaviours difficult for the student to perform by recording from the student's point of view or eye level as if the student is exhibiting himself/herself. These recordings do not include the model. The video camera acts as a viewer, switches between environments or steps, and shows what is expected to be seen. It is a preferred method since it does not require a model and assembly for registration and shows the environment to the student (Mechling, 2005).

5.1.4. Activity-based teaching

Activity-based teaching, an interdisciplinary model, is based on the learning principles of Applied Behaviour Analysis and is used in natural environments through naturally occurring pre- and post-behaviour stimuli (Kurt & Tekin-İftar, 2008). It is a teaching method in which teaching is organised in natural environments, but before and after the behavioural stimuli related

to the target skill to be taught are presented, and the goals are aimed to be realised in daily routines and planned games, taking into account the interests of the individual. While organising activity-based teaching, attention should be paid to selecting the activities by considering the interests of the individual, teaching the individual's individual goals by embedding them in routines or planned activities, teaching functional and generalisable target skills, and using antecedent and consequence stimuli that have a genuine and significant relationship with the environment and behaviour (Özen & Ergenekon, 2011).

5.1.5. Schematic organizers

Schematic organisers are visual tools that depict the relationship between a subject and the pieces of information created. In this visualisation, diagrams or graphs are used according to the structure of the content (Alvarez & Risko, 1989). Thus, the relationships in the content are coded within the framework of certain diagrams/graphs. The best tool for presenting information by grouping (Atherton, 2005). Schematic organisers can be used before, during and after teaching. The purpose of the pre-teaching use is to show the visual layout of the information to be presented. It can be used to create preliminary information or to remind old information. It can be used to group information during teaching. At the end of the instruction, the information is used to evaluate whether the individual has learned or not and to summarise the information.

5.1.6. Self-monitoring

Self-monitoring determines and records how often or for how long a certain behaviour occurs. It is stated that the self-monitoring strategy is effective in acquiring many behaviours such as destructive behaviour, following instructions, and academic participation for individuals with different needs (Sheffield & Waller, 2010). Self-monitoring has two components. These are self-assessment and self-registration (McLaughlin, 1984). Self-assessment is to determine how often or over time a behaviour occurs. Self-recording is when one records one's performance using a recording tool. Record charts containing the task stages, or the qualifications targeted in the product can be used as recording tools. Self-monitoring, among other student-directed learning, provides an effective way for students with disabilities to maximise student engagement in general education. Self-monitoring, among other student-directed learning, provides an effective way for students with disabilities to maximise student engagement in general education (Agran, 2005). behaviours to be followed in self-monitoring can be divided into two maintaining attention on the task and monitoring performance. The purpose of maintaining attention on the task is to increase the individual's attention span and direct the individual to the task. Performance monitoring can be applied to monitor the individual's various types of products and processes.

5.2. Benefits of Using Digital Materials in the Education of Children with Intellectual Disability

It is known that technology has many benefits in the education of individuals with ID to gain different skills and have experiences in learning processes. These benefits can be listed as the followings (Bertini & Kimani, 2003; Burgstahler, 2003; Molero-Aranda et al., 2021; Sánchez et al., 2020; Sola-Özgüç, 2015):

- Provides access to information.
- Saves time in the teaching process.

- Ensures that information is comprehensible by providing visual stimuli.
- Plays an important role in ensuring safety.
- Can develop intellectual skills.
- Can develop creativity.
- Offers a wealth of educational content.
- Offers remote access to information.
- Motivates people to increase their academic success.
- Enables them to learn at their own pace.
- Makes their learning easy and understandable by providing stimulus to multiple senses.
- Offers students the opportunity to use materials that will attract their attention.
- Provides a more practical teaching experience.
- Makes learning more fun.
- Offers control that can guide the learning process.
- Allows individualisation.
- Provides the opportunity to practice repeatedly.
- Increases their independence, productivity, participation and self-confidence.

5.3. Principles to be Followed When Using Digital Materials in the Education of Students with Intellectual Disability

As in any instructional design project, an extensive analysis of needs, learner characteristics, teacher characteristics, learning environment, learning materials, content, and context are critical when designing digital materials for SEN students. The needs analysis is critical to identify gaps in SEN students' teaching and learning processes and digital design materials accordingly. According to Ausubel (1962), meaningful learning is built on the learner's prior knowledge. This can be extended to digital learning environments, and it can be asserted that meaningful learning while using digital materials can be built upon the prior knowledge and experiences of the learner. An additional consideration can be suggested as the background experiences and knowledge of the learner not only in the learning material but also in using digital tools to be taken into consideration. The universal design that offers a design approach usable by all people to the greatest extent is found to be essential (UN, 2006) for designing and using digital materials. Teacher and family involvement in using digital materials with SEN students and interacting with them during all processes is also highly needed (Özler, 2021). The cost, technical support and sustainability are other issues needed to consider.

5.3.1. Role of student

Technology-supported learning environments support the skills of individuals with intellectual disabilities in areas such as vision, hearing, academic, social and communication according to the type of disability. An individual learning experience is provided with rich content support with the help of stimuli that appeal to multiple senses. Thanks to simulation and models offer reproducible options for learning in the desired time and environment, as well as facilitating the

perception and remembering of what has been learned. Individuals with ID have to cope with emotions such as stress, fear, and anxiety in social environments. Individuals who cannot fully express themselves support their communication skills by offering different options. In addition, new ICT tools can teach different skills and behaviours without time and space limitations. Students with ID are at the centre of technology-assisted teaching. In addition to all applications, social media is also used as an educational tool in teaching activities. The activities and technology-assisted teaching practices offered support for the skills of individuals and the areas where they experience inadequacy. They need to have an active role in using digital learning materials appropriate to their needs.

5.3.2. Role of teacher

When teachers' attitudes towards the use of technology are examined, it can be seen that they generally benefit from technology applications in their teaching activities, mostly for having an increasing effect on students' motivation. Teachers who carry out literacy studies state that digital stories provide children with benefits that actively support the process for fun, remarkable and visual memory skills (Kocaman Karaoğlu, 2016). It should be noted that teachers need to be role models in using digital technologies and serve as a control mechanism for the limited screen time during class hours as well.

5.3.3. Role of parent

With the proliferation of options related to digital content and developments, it is observed that the use of technological applications by parents with interesting content for children has increased. Since healthy communication between parents and children encourages positive attitudes and behaviours towards children, this needs to be translated into digital tools and materials. That is, parents need to create effective communication patterns with their SEN students by using digital tools. The communication practices need to cover coordinating screen time, setting limits, and monitoring the safe and effective use of the tools and applications. Even leisure time, such as digital games, must be communicated well among parents and children.

5.4. Organizing Learning Environments

The teacher's role and guidance in using technology in the classroom is critical. The learning environment needs to be flexible, but the teacher's supervision in using the tools is essential. Learners need to use digital tools safely without any physical or psychological harm. Therefore, the physical learning environment should be designed to use the tools safely and under teacher control, and teaching time needs to be carefully determined. When technology equipment is offered to children only as a game activity under the guidance of a teacher, it may cause negative consequences on social skills (Gök et al., 2011; Halmatov et al., 2017). Instead, the digital material needs to support learning.

5.5. Assessment and Evaluation Process

An effective evaluation process is necessary for effective teaching (McMillian, 2000). Evaluation for students with special needs includes many purposes, such as screening, ensuring that they are placed in an appropriate program, preparing an IEP, baseline, follow-up, and program assessment. When the requirements arise, it will be possible to create the environment, met-

hod, material, etc., program elements that will best meet these requirements. The evaluation procedures to be followed to determine the student's strengths and weaknesses are shaped according to the purpose of the evaluation (Prierangelo & Giuliani, 2012). A good evaluation process requires detailed planning, including selecting, preparing, and implementing appropriate tools.

5.5.1. Planning and implementation of assessment and evaluation process

The evaluation process is carried out before, during and after teaching. Pre-teaching evaluation is done to determine the current educational performance of the individual. Teachers should plan for how they will apply the measurement tools according to the purpose of evaluation (Benner & Grim, 2013; Prierangelo & Giuliani, 2012). All evaluation processes involve decision-making. They must first decide which measurement tools to use in the preparation and planning. Then, materials suitable for the design of the measuring tool should be prepared. The environment should be prepared in accordance with the application guidelines of the tool; if necessary, they should practice with peers who are developing normally in order to gain experience in applying the tool, and feedback should be provided by more experienced people.

In most cases, a pre-teaching assessment is done to determine what the student is capable of, namely his current performance. The student's predetermined performance level also determines the teaching's direction. When you set the starting level, it is also possible to see the student's progress. A good baseline measurement is essential to obtain accurate and reliable results.

Evaluation during teaching is done to review and update the teacher's method, stimuli and possible negative situations. While trying to provide individuals with relevant target behaviours in the teaching process, the effectiveness and efficiency of teaching need to carry out teaching and assessment and evaluation practices together. In addition, the development of the individual should be monitored by looking at the products of the individual, if the expected responses are not at the desired level, the method, equipment, environment, motivation of the student etc. Registration charts, graphs, worksheets, and assignments should be reviewed periodically during the term, and the effectiveness and efficiency of teaching should be evaluated. The evaluation at the end of the training determines the extent to which the individual has acquired the behaviour after the training.

The evaluation process must be continuous. This is possible with good planning. At the end of the detailed evaluation process, a placement decision is made for the student whose eligibility for special education services is decided. Then a decision is made to prepare an IEP (Clark, 2000). IEP is a written document and a plan that shows where, when, for how long, by whom and for what purposes the special education services to be provided for individuals whose eligibility for special education services is decided (Alberto & Troutman, 2012; Strickland, & Turnbull, 1990). In this definition, an issue that should be emphasised is that the IEP will be prepared for individuals suitable for special education services. In each of the processes of whether an assessment is required, diagnosis, eligibility for special education services, IEP development, student placement, and instructional planning, experts and teachers have to evaluate to make decisions. For this, they include many formal and informal processes.

5.5.2. Assessment and evaluation methods used in the education of individuals with intellectual disability

An assessment must be valid, reliable and usable to be considered effective (Clancy & Gardner, 2017). Students with SEN learn more easily if different and multiple learning techniques are used in the learning process, and applications that appeal to multiple senses are carried out. Teachers' effective teaching skills are important in correctly determining the existing performances of each of the students and including them in the teaching. Because, for students with SEN, making an accurate educational evaluation and providing support services to students and teachers is closely related to the quality of their practices in teaching environments (Gillies, 2014; Prierangelo & Giuliani, 2012).

Several techniques and instruments are used in the evaluation processes of children with ID before, during and after teaching. Formal instruments such as intelligence tests, developmental screening tests, reading inventories etc., appear in the process of diagnosis or screening (Benner & Grim, 2013; Jung & Guskey, 2007). These tools have technical criteria and a manual containing information about the application (Salvia, Ysseldyke & Bolt, 2010). For assessment and other evaluation materials to qualify as technically sound processes, they must be administered by knowledgeable and trained professionals, according to the instructions given by the producer of the assessments, and used for the purposes for which the assessment measures are both valid and reliable (Prierangelo & Giuliani, 2012; Salvia et al., 2010).

Information obtained through formal instruments may not provide sufficient data to plan the teaching of students with SEN or may not have teacher practitioner certification. In addition, informal tools do not require standard conditions (environment, time, material, etc.), which is a disadvantage of a formal ones. They are quite easy to use and often teacher made. For these reasons, many educators prefer to use informal measurement tools. Especially if informal measurement is made to develop a program and set educational goals, it is necessary to decide what tool(s) will be used (Benner & Grim, 2013). In informal evaluation, the student's performance is compared with the subjects in the curriculum, or the behavioural criteria of a given class (Benner & Grim, 2013; McLoughlin & Lewis, 2004). Informal measurements are carried out through observation, interviews, checklists, inventories, work samples, and error analysis (Gillies, 2014). Observation systematically examines an object, event or relationship for a certain purpose (Peterson & Elam, 2022; Salvia et al., 2010). There are two types of observations, structured observation and unstructured observation. Structured observation is the observer's measurement to determine a particular behaviour or event's frequency, duration, magnitude and importance. Unstructured observation is when the observer monitors the behaviour of the observed person and keeps notes about the characteristics of these behaviours. Observation data are the most important among the data sources related to evaluation. They are essential in determining which behaviours or skills students have, the priority requirements of students, and the frequency, rate, or function of the behaviour (Salvia et al., 2010). Peterson and Elam (2022) stated that a single observation could not give all the information a teacher will need. Observing using various measurement tools and techniques is necessary to truly understand the level of development or specific area (McLoughlin & Lewis, 2004).

As with other measurement techniques, determining which measurement tools will be used to make observations is the first step. Depending on what the teacher wants to measure, the measuring tool to be chosen may change. Checklists, frequency counts, or anecdotal records can be used. Of course, the useful method when applying any observation tool is to observe

the child in the natural environment. However, it is necessary to include structured observation when this is impossible. Some behaviours may not occur during observation in the natural environment. In many cases, unstructured observation may take a long time, and natural opportunities for observing behaviour may not be available. In this case, it is necessary to include structured observation.

The interview is generally a technique that allows experienced experts to obtain in-depth information by interviewing people who can provide information about the student (or her/himself) (Salvia et al., 2010). One of the most important advantages of the interview is that it can provide information about the student in skills that cannot be observed in natural or structured environments. Interviews are usually face-to-face information exchanges with the individual's family, him/herself, teachers and those around him/her. In order to increase the reliability of the data obtained from the interview technique, data diversity should be provided by obtaining information from more than one person. The interview technique can be used as semi-structured, structured or unstructured. It may include checklists, rating scales, semi-structured questions created by the practitioner according to the purpose of the interview, and standardised tests (development screening tests, behavioural scales, etc.) developed according to the data to be obtained in the interview technique.

Checklists are prepared based on the program, development area, or skill. Checklists can be applied through observation and interviews with the student's relatives, teacher or people who are most interested in them. While applying the checklists, the helpful method is to observe the child in the natural environment. Some behaviours may not occur during observation in the natural environment. Sometimes a checklist contains items that can be asked of the adult during the interview. In this case, it can be applied with the interview technique. Others may require instruction from the practitioner. Therefore, when a checklist is to be applied, it is necessary to look at the items it contains and decide which ones can be observed naturally, which require an adult model, which require a special environment/material, and which one should be asked to their relatives (Snyder, McLean & Bailey, 2014).When applying the checklist to reveal roughly what the child can do quickly, it may be necessary to prefer structured observation over natural observation. For this, in an environment specially created for the skills to be observed, the child is told about the skill instruction or when necessary, the practitioner shows the skill to be performed, and the child is asked to do the skill. Depending on whether you can do it or not, a mark is made on the registration form. Since the skills in the checklists are listed in order of development from easy to difficult, it would not be meaningful to observe the more difficult skills that follow in a child who cannot do the easier skills at the beginning of the list.

Error analysis is "a set of teaching procedures used to analyse and categorise learner errors" (Grimes, 1981). The performance level is revealed during the error analysis by analysing the student's errors. It is possible to include error analysis in many areas, such as problem-solving, speaking, reading, etc. (Salvia et al., 2010). Observing students while working on a fact, performing a skill or a task, or evaluating their product, serves to find the source of the student's mistake regarding that operation, skill or task and to include an appropriate correction process. Students often exhibit errors due to failure, lack of skill, or insufficient learning. When it is determined which errors are caused, the teachers do the necessary teaching (Fleishchner & Manheimer, 1997).

Criterion-referenced tests (CRTs) determine the adequacy of the objectives listed in the student's measured area. CRTs can be used before, during, and after teaching (Snyder, McLean &

Bailey, 2014; Strickland & Turnbull, 1990). It is known that teachers mostly prefer and use standardised tests because of the limitations that require the use of other assessment methods (Salvia et al., 2010). Norm-based measurement tools become obsolete when used too often, but CRTs can be used as often as needed to determine a child's performance level (Benner & Grim, 2013). While CRT is being developed to determine the student's performance level on a skill, concept, or subject, first of all, it is necessary to divide the related skill, concept or subject into smaller subsections, that is, to analyse it (Carr & Collins, 1992; Snyder et al., 2014). Then, the minimum performance expected from the student, that is, the criterion, is determined during the analysis steps. Finally, the necessary conditions (skill instruction, prompts to be used in teaching, materials, environment, etc.) are determined, and the CRT is given its final shape (McLoughlin & Lewis, 2004).

A portfolio is the collection of student studies and informal performance evaluation data of the teacher to evaluate development and learning (Benner & Grim, 2013; Snyder et al., 2014). A portfolio is a collection of materials that shows a person's abilities, accomplishments, and progress over time. These materials include checklists, study samples, homework records, interviews, and other success-related situations. A collection of products that provide a basis for judging student accomplishment; in school settings, portfolios typically contain extended projects and may also contain drafts, teacher comments and evaluations, and self-evaluations (Salvia et al., 2010). Portfolios are used for evaluation and decision making, self-evaluation and reflection, and progress reports by the teacher (Fernsten & Fernsten, 2005; Maurer, 1996).

5.6. Variables in the Learning-Teaching Process

After teachers identify their students' needs through assessment, it is essential that they make important teaching decisions to meet those needs. They must constantly monitor the data-based instructional planning and decision-making process in this process. ABA, which is an approach that offers very practical and evidence-based solutions for data-based decision-making, is an approach that aims to change socially important behaviours by using the behavioural principles suggested by operant conditioning theory (Tawney & Gast, 1984; Yu et al., 2020). One of the objectives of ABA is to increase the desired behaviours, and the other is to decrease the inappropriate behaviours (Alberto & Troutman, 2012). Based on the behaviour approach, ABA emphasises that the stimuli that pave the way for the formation of the behaviour or cause the increase or termination of the behaviour can be controlled and thus, the behaviour can be changed. In this respect, it places the most emphasis on socially important behaviours. Socially important behaviours are the behaviour that is important to the individual, their family and society. These behaviours include social/relationship skills, self-care, leisure, interpersonal communication, and self-advocacy. Educators must consider important variables in changing behaviour and gaining new behaviour. Prompt is the help offered by the practitioner to the possibility of the individual reacting correctly before the student reacts (Barton & Wolery, 2010; Özen, Genç-Tosun & Tekin-İftar, 2022). Prompts are divided into two response prompts: verbal instructions, facial expressions, gestures, pointing, modelling and physical assistance, and stimulus prompts that enable correct response by changing the characteristics of stimulus situations such as colour, text or picture (Snell, 1993).

Reinforcement is a condition that follows a behaviour and increases the probability of those behaviours occurring. There are two types of reinforcement. Positive reinforcement increases the likelihood of future behaviour by adding a stimulus in the situation that follows a behaviour.

The stimulus involved in positive reinforcement is called reinforcing stimulus or reinforcement. Smiling and verbal approval by saying well done, toys, etc., are examples of reinforcers (Cooper, Heron & Heward, 2007). Negative reinforcement is the increase in the likelihood of future behaviour with the withdrawal of a repulsive stimulus from the environment in the case that follows a behaviour.

Reinforcer types are divided into two groups primary reinforcers and secondary reinforcers. Primary reinforcers are those acquired to meet physical requirements without being dependent on any learning experience, such as food and drink (Alberto & Troutman, 2012). On the other hand, secondary reinforcers have gained reinforcing properties at the end of learning. Secondary reinforcers are grouped into objective, activity, social and symbol reinforcements. Objective reinforcers are concrete tools that can be used, such as toys and items. Activity reinforcers are the fulfillment of an individual's verbal or bodily occupation. They are reinforcers such as singing, painting, and playing games. Social reinforcers include smiles, hugs, attention, and praise. Symbol reinforcers are convertible tools such as stars, tokens and adhesive paper that have no meaning but can be exchanged with another reinforcer (Cooper, Heron & Heward, 2007).

5.7. Integration of the Use of Technology into the Individual Education Program

Technology tools can be used in different classroom activities. For example, timers can be used as low technological tools for waiting for skills to SEN in early childhood. The software can be used through tablets for mapping, grouping, classification and teaching of numbers from mathematics skills. Game software can also be used for early literacy skills through computers and tablets. Moving game programs with virtual reality applications can be used using game console devices to improve imitation and movement skills.

Modelling with video is watching a video recording of a peer or adult performing the skill or behaviour to be taught and then performing this skill or behaviour (Rehfeldt et al., 2003). This method is generally used in teaching daily life skills to SEN. Sansosti and Powell (2008) taught social communication skills using the modelling method with video, and it was found that children's communication skills improved.The use of reinforcements is widespread. Rewarding positive behaviours, reinforcers used to reduce negative behaviours are classified as primary and secondary reinforcers. While primary reinforcements consist mostly of basic ingredients such as food and beverage, games and activities are included in the secondary reinforcement class (Flanagan, Allen & Levine, 2014). Before the activity reinforcements are presented to the children, it is necessary to remind them about the duration of use. Otherwise, instructors may encounter problematic behaviours regarding the ending of the activity (Ünal, 2021).

If the classes do not have sufficient technological equipment in terms of hardware, teaching sessions can be planned by working individually with another student. Suppose more than one student cannot benefit from technological tools simultaneously. In that case, the teacher can plan that the students will benefit from this field by creating a corner in the classroom where only technology tools are used.

5.8. Integrating Special Needs Students into Digi-Holistic Education

Holistic education focuses on the relationship between the whole and the part and offers an eclectic and inclusive approach, arguing that approaches to teaching and learning should be based on a broader vision. It also deals with the planning, implementing and evaluating of both the content of knowledge and skills, which are the elements of learning and the acquisition process. The focus of holistic education is integrity. It argues that experiences in human life should be handled holistically. For this reason, the development of the individual, including cognitive and affective levels, should be addressed in the broadest way (Singh, 1996). Like holistic education, there is the idea that human development forms a whole through interaction with the environment. Therefore, the individual and his environment constantly change by influencing each other in the process. As a result, the Holistic education process should be a flexible and dynamic process that considers these individual differences and changes in the student (Hare, 2006). Holistic education is an approach that aims to fully activate all aspects of the student's personality for more effective and comprehensive learning. Holistic education recognises human beings as a whole and a part of society. It values the idea of reaching the whole by processing all parts in harmony with each other. It especially supports the development of individuals with special needs in all aspects, interacting with society as a part of society and developing effective curricula for self-realisation, creating a need. In the project, a module aiming to gain social adaptation skills with a Holistic approach was developed, and it was aimed to present the achievements in this module with digital content. Objectives and behaviours that will support the individuals holistically with the themes under the social adaptation skills and sub-themes of these themes and, at the same time, enable them to perceive themselves as a "whole" and function independently in society. It aims to develop a "Digi-holistic module" that combines the holistic understanding of the module's source and digital education.

Digi-holistic education includes the eclectic use of teaching methods and technology applications in the teaching process and the development of new digital applications with a Holistic perspective. In addition, with this approach, teachers can achieve different applications by integrating technology applications into students' education plans and classroom environments by going beyond the standard classroom features taught to individuals with MID. In the applications developed for individuals with MID, it is seen that programs in which more concrete skills, such as colours, shapes, numbers, etc., in academic skills are discussed are developed, and a single targeted skill is taught to children. With the Digi-holistic approach, teachers and parents have the opportunity to practice abstract skills (personal care skills, life skills, emotional awareness, interpersonal relationships, establishing relationships with others, decision-making, problem-solving, self-defence, leisure time evaluation, digital literacy) that are especially difficult for students with SEN by using all smart technological devices that can be loaded instead of using the programs developed for a single goal with only one tool. In addition, it is essential to obtain data related to measurement and evaluation, such as keeping performance records and creating progress graphs of the students using the applications, instead of only developing the applications to be taught and terminating the process for the students with MID with the Digi-holistic education. In addition, sharing these data with the parents of the children using the application will guide the families and support the holistic nature of the approach.

The UNESCO Education 2030 Report offered a framework to ensure inclusive and equitable quality education and promote life-long learning opportunities for all. In this framework, ICT use was stressed to "strengthen education systems, knowledge dissemination, information ac-

cess, quality and effective learning, and more effective service provision" (UNESCO Education, 2030, p. 8). As a universal and collective commitment, SDG4 -Education 2030 has focused on "recalibrating our policies, actions, and investments to centre those most in need of opportunities" (UN Transforming Education Summit, 2022, p. 3). There are three main keys suggested for digital teaching and learning in order to achieve a reliable and holistic educational experience (1) content, (2) capacity, and (3) connectivity. It is suggested that high-quality content should be provided to learners, teachers and caregivers, considering the risks to student data privacy. The capacity to use these technologies needs to be ensured, considering all stakeholders' skills to use them. Hence, capacity development needs to be considered. Connectivity has been linked to good quality internet connections. In this project, we aim to design a module with a Digi-holistic approach to comply with the framework suggested by these reports and approaches. As such, we aim to offer a curricular approach that is holistic in building relationships (Miller, 2019) for all stakeholders in terms of content (i.e., building relationships among various domains of knowledge); instructional approaches (i.e., building relationships between theory and practice, application and modelling including Applied behaviour Analysis and Constructivist approaches); learning environments (i.e., building relationship between mind and body, being beyond the classroom, encompassing home and outside); involvement from teachers, parents, caregivers, and other key stakeholders (i.e., the relationship between individual and community, from any device); digital ecosystem (i.e., the relationship between digital and real with a sustainable and reliable material design and context).

From this point of view, it becomes important to consider the education of students with SEN holistically and to universalise both the programs to be developed and the methods and materials to be used with individualised elements such as flexibility, suitability for purpose and accessibility with a Digi-holistic perspective. The application of this perspective of holistic education by integrating it with technology constitutes the focus of this project. Is it possible, with the new perspective, to develop a module with a holistic perspective towards social adaptation skills that contribute to integrating students' MID in the project? Is it possible to support students' social adaptation skills with digital content focused on gaining different learning products holistically (cognitively, affectively, and psycho-motor)? Project INSIDE aims to answer these questions using social adaptation skills that fit into digital content.

SECTION B

USER INSTRUCTIONS OF THE DIGI-HOLISTIC MODULE

Digi-holistic Teaching Learning Module

Section B

1. Digi-holistic Teaching Learning Module

1.1. Aim and Scope

The basic aim of this sample module is to offer a universal curriculum to be used in developing digital materials on social adaptation skills with a holistic approach for SEN students. The major elements of the Digi-holistic module include "Learning Outcomes/Objectives of Social Adaptation Skills", "Content Frames", and "Digital Content Scenarios". The scope of this module is shown in Figure 1.

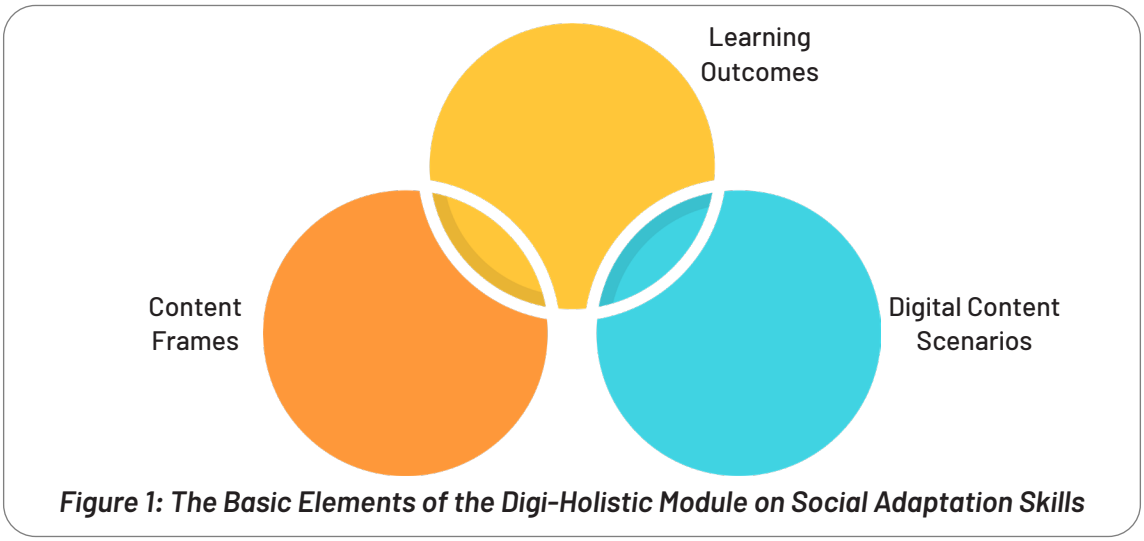


Figure 1: The Basic Elements of the Digi-Holistic Module on Social Adaptation Skills

1.2. Target Group

The module has been developed for individuals with ID. However, it can be convenient for any student who needs to be supported in social adaptation skills. The intended age group is 6-12. Besides, the following stakeholders have suggested potential targets of for the Module:

- Special education teachers or teachers of general education who aim to help their students to gain social adaptation skills.
- Parents who aim to follow/enhance their child's performance on social adaptation skills.

- Content developers who aim to create digital materials on social adaptation skills
- Researchers interested in the design, development, implementation, and evaluation of digital materials based on the Digi-holistic approach and the effectiveness of this approach.

1.3. Implementation Procedure

The learning outcomes/objectives are designed for individual use and appropriate for group work. When the learning environment and context are adequate (i.e., appropriate setting, material, tool etc.), group work can be utilised for children with common needs. Smartboards/whiteboards can be appropriate to demonstrate content to students in classroom settings. Mobile tools such as tablet computers can be used for digital content by parents or caregivers.

1.4. Development Process of the Digi-Holistic Module on Social Adaptation Skills

Each partner in the project has scanned and explored their country's curriculum. They initially grouped the social adaptation skills in the curriculum into skill-sub-skill-group-subgroup and theme categories. Several meetings have been held among teachers and experts from curriculum and instruction, special education, and instructional technology fields on these findings. Finally, a common list for learning outcomes on social adaptation skills has been developed. Special education and curriculum development expert have reviewed this list, and the final version was developed based on their feedback. In this sense, it can be argued that the Digi-holistic module on social adaptation skills has been developed on a European scale. Table 2 includes the list of outcomes and defined sub-behaviours.

Table 2. List of outcomes and sub-behaviours of 'Social Adaptation Skills'

SOCIAL ADAPTATION SKILLS LEARNING OUTCOMES FOR THE MODULE
This Social Adaptation Skills Learning Outcomes table entails the basic features of the Module by listing the **'Objectives'** and their corresponding **'Behaviours'**. The Behaviours section includes three sub-behaviours defined: **Cognitive (C)**, **Affective (A)** and **Psychomotor (P)**.
STAGE 1: PERSONAL CARE
Objective 1: Ensures personal hygiene.
Behaviours:
C.1.1. Explains the basic hygiene rules.
1.1.1. Expresses that s/he should clean her/his body every day.
1.1.2. Expresses that s/he should wash her/his hands with soap after going to the toilet.
1.1.3. Expresses that s/he should brush her/his teeth twice a day.
1.1.4. Expresses that s/he should cover her/his mouth and nose with a tissue while sneezing or coughing.
1.1.5. Expresses that s/he should wash her/his hands after handling pets and other animals.
1.1.6. Expresses that s/he should comb her/his hair before going out.
1.1.7. Expresses that s/he should cut her/his nails when they are too long.
1.1.8. Identifies situations for when to wash hands (transfers the skill for similar situations).
C.1.2. Distinguishes the basic rules to protect the body.
1.2.1. Distinguishes the hygiene products used for the different parts of the body.
1.2.2. Distinguishes hygiene actions that may be necessary during the day (taking a shower, washing hands after meals, etc.).
1.2.3. S/he can sequence the hygiene actions depending on the time of the day.
A.1.3. Recognizes the importance of protecting her/his body.
1.3.1. Understands the consequences of not complying with basic hygiene rules.
1.3.2. Understands that lack of hygiene can lead to health problems.
1.3.3. Understands that adherence to hygiene rules leads to good health.
1.3.4. Understands the importance of wearing sunscreen cream on her/his body for sun protection.
A.1.4. Copes with a sense of fear toward the doctor/dentist.
1.4.1. Understands that visits to the doctor/dentist are good for her/him because s/he looks after her/his health.
1.4.2. Copes with clinical conditions that may cause pain, understanding that dental treatments lead to improved health.
P.1.5. Washes her/his hands, when necessary, in accordance with hygiene rules.
1.5.1. Goes to the bathroom when s/he wants to wash hands.
1.5.2. Turns on the water tap to wet her/his hands.
1.5.3. Picks up soap to lather hands.
1.5.4. Rubs hands with soap.
1.5.5. Wets hands to remove soap.
1.5.6. Dries hands with a paper towel or electric dryer.

P.1.6. Takes a bath in accordance with hygiene rules.
1.6.1. Goes to the bathroom.
1.6.2. Takes off her/his clothes.
1.6.3. Gets into the shower.
1.6.4. Turns on the tap and wets her/his body.
1.6.5. Lathers up her/his body and scrubs all parts.
1.6.6. Turns the tap on and off when s/he needs to.
1.6.7. Gets out of the shower and dries herself/himself with a towel.
1.6.8. Gets dressed again.
Objective 2: Dresses for different seasons/environments.
Behaviours:
C.2.1. Distinguishes the clothes worn according to different environments.
2.1.1. Says that clothes such as uniforms, aprons etc. are worn in schools.
2.1.2. Says that clothes such as swimsuits, bikinis etc. are worn at sea.
2.1.3. Says that clothes such as tracksuits etc. are worn while doing sports.
2.1.4. Says that clothes such as pyjamas and night shirts are worn at night.
C.2.2. Distinguishes the clothes suitable for the season.
2.2.1. Says that clothes such as rain jackets, rain boots, coats and trousers etc. are worn in autumn.
2.2.2. Says that clothes such as shorts, tank tops, swimsuits and sandals etc. are worn in summer.
2.2.3. Says that clothes such as trousers, jackets, pullovers, trainers etc. are worn in spring.
2.2.4. Says that clothes such as coats, hats, gloves, scarves, coats, boots etc. are worn in winter.
C.2.3. Understands the basic characteristics of the four seasons through the change in nature.
2.3.1. Says that ice cream in summer, chestnuts in autumn, hot chocolate or broth in winter, and fruit like strawberries in spring can be eaten.
2.3.2. Says that leaves fall in autumn, flowers bloom in spring, it is hot in summer, and it snows in winter.
A.2.4. Explains the importance of proper nutrition and dressing for a particular season.
2.4.1. Knows that fruits and vegetables differ according to the season of the year.
2.4.2. Identifies hot foods with cold seasons and cold foods with hot seasons.
2.4.3. Recognises appropriate clothing for each season.
P.2.5. Draws pictures with seasonal features.
2.5.1. Draws a sun to illustrate the summer season.
2.5.2. Draws clouds or leafless trees to illustrate the autumn season.
2.5.3. Draws flowers to illustrate the spring season.
2.5.4. Draws a snowman to illustrate the winter season.
Objective 3: Eats healthy.
Behaviours:
C.3.1. Distinguishes healthy foods.
3.1.1. Says that a product from the milk and dairy group should be eaten every meal.
3.1.2. Says that a product with meat, eggs, fish, chicken, or dried legumes every meal.
3.1.3. Says that a product from the fruit and vegetable group should be eaten every meal.
3.1.4. Says that a product from the cereal and bakery group should be eaten every meal.

3.1.5. Says that a healthy diet made up of foods from every food group should be adopted.
3.1.6. Says that any food should be eaten while they are fresh.
3.1.7. Says that fruits and vegetables should be eaten after being washed with plenty of water.
3.1.8. Says that food should be swallowed after being chewed thoroughly.
3.1.9. Says that excessive eating should be avoided.
3.1.10. Says that extremely spicy, salty, spicy, fatty, and sugary foods should not be eaten too much.
3.1.11. Says that fried foods should be eaten less.
3.1.12. Says that food sold in the open should not be eaten.
A.3.2. Explains the importance of healthy nutrition.
3.2.1. Says that the substances we eat and drink to survive are called 'nutrients'.
3.2.2. Says that eating all kinds of nutrients as much as possible is called a balanced diet.
3.2.3. Says that regular intake of nutrients is called daily nutrition intake.
3.2.4. Says that proteins and vitamins are necessary for growth and development.
3.2.5. Says that vitamins and proteins are necessary to be resistant to diseases.
3.2.6. Says that carbohydrates and fats are necessary to meet the energy needs of our body.
3.2.7. Says that three main meals are eaten in one day.
P.3.3. Prepares a lunch box with healthy food.
3.3.1. Takes the lunch box.
3.3.2. Opens the lid of the lunch box.
3.3.3. Takes the eating utensils s/he uses while eating.
3.3.4. Wraps the utensils in a paper tissue.
3.3.5. Puts the utensils in the bag.
3.3.6. Takes the food.
3.3.7. Puts food in a clean bag/container.
3.3.8. Puts the food into the bag.
3.3.9. Puts the items that may be broken on the top of the bag.
3.3.10. Closes the lunch box.
Objective 4: Follows norms while eating.
Behaviours:
C.4.1. Explains the table manners.
4.1.1. Identifies general table manners.
4.1.2. Recognises the table's manners according to her/his culture.
A.4.2. Warns those who do not follow the rules of the table.
4.2.1. Identifies bad table manners.
4.2.2. Communicates the rules to those who do not comply with them.
4.2.3. Appropriately expresses the correct manners.
P.4.3. Sits up straight at the table.
4.3.1. Keeps back straight when sitting to eat.
4.3.2. Leans back against the back of the chair.
4.3.3. Keeps feet flat on the floor.
4.3.4. Sits without rocking the chair.

P.4.4. Eats with her/his mouth closed.
4.4.1. Keeps mouth closed while chewing.
4.4.2. Chews without showing the food inside the mouth.
P.4.5. Chews enough of the food in her/his mouth.
4.5.1. Swallows food when s/he has chewed enough.
P.4.6. Uses napkins/tissues.
4.6.1. Wipes his mouth when s/he has soiled it while eating.
4.6.2. Wipes hands with a napkin if soiled.
P.4.7. Speaks after finishing her/his bite in her/his mouth during the meal.
4.7.1. Waits until s/he swallows the food to start talking.
P.4.8. Finishes her/his plate.
4.8.1. Finishes all the food on her/his plate.
P.4.9. Waits for her/his meal at school
4.9.1. Waits patiently for her/his lunch to be brought to her/him at school.
STAGE 2: LIFE SKILLS
Objective 5: Uses home appliances.
Behaviours:
C.5.1. Lists the steps of doing laundry in the washing machine.
5.1.1. Expresses how to open the door of the machine.
5.1.2. Expresses how to put dirty laundry in the machine.
5.1.3. Expresses how to close the door.
5.1.4. Expresses how to open the detergent drawer.
5.1.5. Puts detergent and softener in the detergent drawer.
5.1.6. Expresses how to close the drawer of the detergent drawer.
5.1.7. Expresses how to set the program button according to the type of laundry.
5.1.8. Expresses how to select the right temperature according to the type of laundry.
5.1.9. Expresses how to turn the machine on/off.
5.1.10. Expresses how to wait for the laundry to be washed.
5.1.11. Expresses how to turn the on-off button 'off' after washing laundry.
A.5.2. Demonstrates a desire to wash and iron her/his laundry.
5.2.1. Needs to wash her/his dirty laundry.
5.2.2. Needs to iron wrinkled laundry.
5.2.3. Takes care to wear clean clothes.
5.2.4. Takes care to wear ironed clothes.
P.5.3. Uses a washing machine.
5.3.1. Opens the door of the machine.
5.3.2. Puts the laundry in the machine.
5.3.3. Closes the door.
5.3.4. Opens the detergent drawer.
5.3.5. Puts detergent and softener in the detergent drawer.

5.3.6. Closes the detergent drawer.
5.3.7. Sets the program button according to the type of laundry.
5.3.8. Expresses how to select the right temperature according to the type of laundry.
5.3.9. Turns the on/off switch to 'on'.
5.3.10. Waits for laundry to be completed.
5.3.11. Turns on-off switch to 'off' after washing laundry.
Objective 6: Organises house cleaning and tidiness.
Behaviours:
C.6.1. Distinguishes the tools used in house cleaning.
6.1.1. Selects the appropriate materials for her/his cleaning from the market.
6.1.2. Prepares the materials to be used before starting the cleaning.
A.6.2. Wants to clean her/his room without any directive.
6.2.1. Feels uncomfortable with the mess.
6.2.2. Feels pleased that her/his room is tidy.
P.6.3. Uses a vacuum cleaner.
6.3.1. Takes the vacuum cleaner.
6.3.2. Attaches the brush to the hose.
6.3.3. Gets the cord out of the vacuum cleaner.
6.3.4. Plugs it in.
6.3.5. Turns the on/off switch button to the 'on' position.
6.3.6. Grabs the top of the hose.
6.3.7. Touches the brush to the floor to be vacuumed.
6.3.8. Cleans the floor by moving its hose back and forth.
6.3.9. Turns the on/off switch to the 'off' position.
6.3.10. Unplugs the cord.
6.3.11. Retracts the cord.
P.6.4. Uses a mop.
6.4.1. Takes the bucket of water.
6.4.2. Adds some detergent to the water.
6.4.3. Takes the mop.
6.4.4. Wets the mop in the bucket.
6.4.5. Squeezes the mop.
6.4.6. Wipes the surface with the mop.
6.4.7. Washes the mop and wipes the entire surface.
Objective 7: Performs culinary skills.
Behaviours:
C.7.1. Distinguishes kitchen appliances.
7.1.1. Distinguishes the cooking materials.
7.1.2. Distinguishes small household appliances.
7.1.3. Distinguishes the materials used in the table.
C.7.2. Lists the steps of cooking in the oven.

7.2.1. Moves the programme knob to the position suitable for the food to be cooked.
7.2.2. Positions the heat button to the position suitable for the food to be cooked.
7.2.3. Turns the on/off switch to the 'on' position.
7.2.4. Opens the oven door.
7.2.5. Puts the food in the oven.
7.2.6. Closes the oven door.
7.2.7. Waits for the food to cook.
7.2.8. When the food is cooked, turn the buttons to the 'off' position.
C.7.3. Lists the steps of doing dishes using the dishwasher.
7.3.1. Cleans the food residues in the dishes with water.
7.3.2. Opens the door of the machine.
7.3.3. Places the dishes in the appropriate places of the basket of the machine.
7.3.4. Puts detergent in the detergent section.
7.3.5. Closes the lid of the machine.
7.3.6. Sets the program switch.
7.3.7. Turns the machine's on/off switch to 'on'.
7.3.8. When the washing process is finished, turns the on-off button to 'off'.
7.3.9. Opens the machine's door after waiting for a certain time.
A.7.4. Has the desire to prepare her/his food.
7.4.1. Recognises her/his culinary desires.
7.4.2. Expresses what s/he wants to prepare.
7.4.3. Communicates her/his willingness to prepare her/his dinner.
A.7.5. Wants to help people in the kitchen at home.
7.5.1. Says that s/he wants to help prepare the kitchen.
7.5.2. Accepts orders from the one who is receiving her/his help.
7.5.3. Knows kitchen utensils and their use.
7.5.4. Knows the necessary hygiene rules.
P.7.6. Sets the dining table.
7.6.1. Lays the tablecloth.
7.6.2. Places as many serving plates as the number of people to eat on the table.
7.6.3. Puts the dinner plates on the serving plates.
7.6.4. Puts the soup bowls on the dinner plates.
7.6.5. Places the forks on the left side of the serving plates with the hollow part on top.
7.6.6. Places the knives on the right side of the serving plates, with the sharp side facing the plate.
7.6.7. Places the spoons on the right side of the knives with the pit part on top.
7.6.8. Places the napkins on the left side of the forks.
7.6.9. Places the glasses on the front of the plates.
7.6.10. Places salt, pepper, etc. on the table.
7.6.11. Places the breadbasket on the table.
P.7.7. Clears the dining table.

7.7.1. Puts the materials such as cups, plates etc. on the tray.
7.7.2. Leaves the tray on the counter.
7.7.3. Scrapes the leftovers from the dishes on an empty plate.
7.7.4. Puts the plates on top of each other according to their size.
7.7.5. Puts the plates on the counter.
7.7.6. Cleans the table.
STAGE 3: SHOPPING
Objective 8: Uses stores and shops suitable for shopping.
Behaviours:
C.8.1. Determines the right point of sale without assistance when being told to buy any product.
8.1.1. Selects the picture showing the market from the pictures provided.
8.1.2. Selects the picture showing the butcher from the pictures provided.
8.1.3. Selects the picture showing the grocery store from the pictures provided.
8.1.4. Selects the picture showing the patisserie from the pictures provided.
8.1.5. Selects the picture showing the bakery from the pictures provided.
8.1.6. Selects the picture showing the boutique from the pictures provided
8.1.6. Selects the picture showing the shoe store from the pictures provided.
8.1.8. Selects the picture showing the furniture store from the pictures provided.
8.1.9. Selects the picture showing the hardware store from the pictures provided.
8.1.10. Selects the picture showing the jewellery shop from the pictures provided.
8.1.11. Selects the picture showing the stationery store from the pictures provided.
8.1.12. Selects the picture showing the pharmacy from the pictures provided.
8.2. If lost in the shopping centre, s/he distinguishes who s/he needs to contact for help.
8.2.1. Distinguishes workers from other customers.
8.2.2. Can identify herself/himself verbally or by showing an identification card.
8.2.3. Asks for help when s/he is lost in the shopping centre.
8.2.4. Communicates where s/he wants to go in the shopping centre.
8.2.5. Understands directions given after asking for help.
8.2.6. Follows directions given to her/him.
A.8.3. Checks himself/herself on her/his wishes/needs.
8.3.1. Says that a shopping list should be prepared in order of priority of needs before going shopping.
8.3.2. Identifies in which shops the products s/he wants are sold.
8.3.3. Goes to the shop where the products s/he needs are available.
8.3.4. Plans her/his itinerary to obtain the products on her/his list.
8.3.5. Asks for help if needed.
A.8.4. Questions how much s/he needs before buying products that look appealing.
8.4.1. Makes a suitable shopping list according to her/his budget.
8.4.2. Looks for a product that s/he has on the list.
8.4.3. Recognises the products s/he has and if a product is a need.
8.4.4. Checks if the product appears on her/his shopping list.

8.4.5. Decides whether an attractive product is a need or a want.
8.3.6. Recognises whether the desired product is accessible or not.
P.8.5. Gives the salesperson the right amount of money for the product s/he buys.
8.5.1. Recognises the final price.
8.5.2. Identifies who has to pay for the purchase.
8.5.3. Looks in her/his wallet for the money s/he is carrying.
8.5.4. Takes out the right amount of money according to the final price.
P.8.6. Can calculate the budget required for shopping.
8.6.1. Says that the most economical of the goods of the same quality should be preferred.
8.6.2. Identifies price tags.
8.6.3. Knows the budget available to make the purchase.
8.6.4. Recognises products that are suitable for her/his budget.
8.6.5. Calculates the sum of prices according to her/his budget.
P.8.7. Can calculate the change s/he receives during shopping.
8.7.1. Says that when more money is paid than the receipt/invoice value at the end of the shopping, the change should be refunded.
8.7.2. Recognises the difference in the payment amount and checks if the change is correct.
8.7.3. Tells the seller if there is an error in the change received.
Objective 9: Complies with the rules to be followed in shopping places.
Behaviours:
C.9.1. Distinguishes the rules to be followed in shopping places.
9.1.1. Says that requests should be expressed properly in shopping places.
9.2.2. Says that s/he should not speak loudly in shopping places in a way that disturbs others.
9.2.3. Says that s/he should wait for her/his turn in the transactions to be made in shopping places.
P.9.2. Delivers the dressing rooms neatly and appropriately.
9.2.1. Checks the dressing room to ensure that nothing has been forgotten.
9.2.2. Collects all the items of clothing that have been tried on.
A.9.3. Thanks to those who serve her/him during the shopping
9.3.1. Thanks when the salesperson completes the purchase.
9.3.2. Thanks when the salesperson answers any question about the purchase.
Objective 10: Shops consciously.
Behaviours:
P.10.1. Can express her/his wishes accurately and properly during shopping.
10.1.1. Communicates about the product s/he wants and the quantity s/he needs.
10.1.2. Knows the appropriate and correct expressions to communicate her/his wishes.
10.1.3. Communicates the characteristics of the products s/he wants.
10.1.4. Expresses her/his disagreement if the product does not meet her/his wishes.
P.10.2. Returns the product purchased with defects cleanly and completely.
10.2.1. Returns the product with receipt.
10.2.2. Checks the product to make sure it is in good condition.

10.2.3. Returns the product with no delay.
A.10.3. Controls her/his feelings when s/he is disappointed in finding the product s/he wants during the shopping.
10.3.1. Asks if there is another similar product or the product in another shop.
10.3.2. Asks if s/he can return the product or exchange it for something else.
10.3.3. Looks in the shop for a similar product that may meet her/his needs.
STAGE 4: EMOTIONAL AWARENESS
Objective 11: Manages her/his emotions.
Behaviours:
C.11.3. Defines the people with whom s/he can share her/his emotions.
11.3.1. Identifies people who are family or friends from those who are not.
11.3.2. Expresses what characteristics these people have so that s/he can trust them.
Objective 12: Understands the feelings of others.
Behaviours:
P.12.3. Starts a conversation that makes the other person feel better considering their emotional state.
12.3.1. Observes the other person's facial expression and gestures.
12.3.2. Identifies what emotional state the other person is in.
STAGE 5: COMMUNICATION SKILLS
Objective 13: Expresses her/his wishes appropriately.
Behaviours:
C.13.1. When s/he wants to make a request, s/he realises that 'please', 'thank you' and 'you are welcome' should be used in her/his sentences.
13.1.1. Says 'Please.' when s/he asks for something or needs something.
13.1.2. Says 'Thank you.' when someone gives her/his something.
13.1.3. Says 'You're welcome.' when someone thanks her/his for something.
C.13.2. Knows that when s/he makes a request, the sentences s/he uses should be polite.
13.2.1. Recognises polite expressions such as please, thank you, and you are welcome according to the situation.
A.13.3. Takes care to use her/his request sentences sincerely and politely.
13.3.1. Uses expressions like please, thank you or you are welcome without getting upset or behaving inappropriately.
P.13.4. Constructs her/his sentences without needing others to warn her/him while requesting something.
13.4.1. Thinks about the request s/he is going to make and uses the correct expressions.
P.13.5. Adjusts the tone of voice correctly while using request sentences.
13.5.1. Moderates the tone of voice (not too high, not too low) in each situation.
Objective 14: Admits her/his mistakes or failure.
Behaviours:
C.14.1. Explains what the wrongdoings are in cases where s/he behaves inappropriately.
14.1.1. Takes responsibility for her/his actions and accepts the consequences.
14.1.2. Accepts her/his failures and mistakes.

A.14.2. When s/he misbehaves, s/he apologises without warning from others.
14.2.1. Apologises when necessary.
P.14.3. In situations of anger and enthusiasm, s/he can control her/his body and voice.
14.3.1. Understands the joke and reacts appropriately.
14.3.2. Accepts the 'no' answer given to her/him.
14.3.3. Avoids fighting.
14.3.4. Has appropriate physical contact (who, when how and how to be touched) with the people around her/him.
Objective 15: Provides positive and negative feedback.
Behaviours:
C.15.1. In a wrong behaviour, s/he can tell the other person what her/his mistake is.
15.1.1. Recognises what behaviour is wrong.
15.1.2. Uses polite expressions and adjusts her/his tone to express the idea (objective 13).
C.15.2. Can tell the other person how s/he has behaved badly towards her/him.
15.2.1. Recognises inappropriate behaviour towards her/him.
15.2.2. Remains calm.
15.2.3. Says what is bothering her/his in an appropriate way.
A.15.3. Shows respect for the other person's feelings when s/he needs to give negative feedback.
15.3.1. Recognises when s/he must give negative feedback to the other person.
15.3.2. Remains calm.
15.3.3. Chooses the right words.
15.3.4. Speaks calmly and respectfully.
STAGE 6: INTERPERSONAL RELATIONSHIPS
Objective 16: Demonstrates appropriate interpersonal skills when relating to adults and peers.
Behaviours:
C.16.1. Understands the feelings of others.
16.1.1. Names/Identifies the feelings.
16.1.2. Explores how feelings are expressed.
16.1.3. Explores ways to cope with feelings in different situations.
C.16.2. Realises that s/he should adopt behaviours according to rules.
16.2.1. Distinguishes rules among common places/situations e.g., home/school.
16.2.2. Understands that rules vary in different places.
16.2.3. Explores rules and behaviours that are appropriate for a situation.
C.16.3. Recognises situations where others need help or ask for help.
16.3.1. Identifies situations where a friend/family member may need assistance.
16.3.2. Explores strategies to be able to help others.
16.3.3. Recognises the language and phrases associated with asking for help.
C.16.4. Chronologically lists an event s/he has experienced.
16.4.1. Describes an event in order of time (chronologically).
16.4.2. Becomes familiar with and uses the language associated with time, such as before, after, first, next, then, last.

A.16.5. Apologises willingly when necessary.
16.5.1. Recognises that s/he has hurt/upset another person.
16.5.2. Uses appropriate language e.g. "I am sorry" to apologise.
P.16.6. Follows appropriate physical contact rules with people around them.
16.6.1. Recognises different levels of physical contact appropriate for different situations/people based on familiarity/setting.
16.6.2. Uses appropriate gestures based on familiarity, e.g., shaking hands with strangers, hugging family and friends.
16.6.3. Understands that s/he must seek permission to contact other people physically.
P.16.7. Uses appropriate language, gestures and behaviours while communicating with individuals around them.
16.7.1. Understands the jokes and reacts appropriately.
16.7.2. Recognises the physical gestures and verbal gestures.
16.7.3. Recognises humorous situations and uses the appropriate response.
P.16.8. Helps others or asks for help.
16.8.1. Identifies situations where help is needed.
16.8.2. Recognises situations where s/he needs help.
16.8.3. Practises using appropriate vocabulary consistent with asking for help.
Objective 17: Accepts and respects individual differences.
Behaviours:
C.17.1. Distinguishes between oneself and others regarding decision making and likes/dislikes.
17.1.1. Begins to show awareness that people have different opinions.
17.1.2. Develops acceptance of decisions which differ from her/his own.
17.1.3. Names/Identifies things s/he likes or dislikes.
17.1.4. Names/Identifies things other people like or dislike.
C.17.2. Indicates the difference between hair, face and body between himself/herself and her/his peer group.
17.2.1. Identifies physical traits accurately.
17.2.2. Distinguishes differences between physical traits e.g., hair colour, eye colour, height etc., when comparing himself/herself with others.
A.17.3. Shows interest in differences between herself/himself and others.
17.3.1. Acknowledges differences between her/him and friends.
17.3.2. Initiates an interaction based on her/his friends' interests.
A.17.4. Shows their favourites among the different types of food.
17.4.1. Names/Identifies different food types.
17.4.2. Chooses her/his favourite food type when offered a variety of options.
A.17.5. Shows her/his and someone else's favourite toy.
17.5.1. Chooses her/his favourite toy from the given selections.
17.5.2. Chooses someone else's favourite toy from the given selections.
P.17.6. Paints a house picture suitable for their own tastes.
17.6.1. Paints a house picture to her/his own tastes based on her/his own chosen colour palette.
17.6.2. Chooses an alternative colour palette based on own tastes.

Objective 18: Applies the concepts of sharing and cooperation in her/his social life.
Behaviours:
C.18.1. States that s/he should share toys and activity materials in her/his peer group.
18.1.1. Identifies the language associated with sharing with others.
18.1.2. Acquires the language associated with sharing with others.
18.1.3. Has opportunities to practise the language skills s/he has acquired.
A.18.2. Asks for help when necessary, during an event.
18.2.1. Recognises situations where s/he needs help.
18.2.2. Recognises people e.g. teachers, friends, and parents, that s/he can ask for help.
18.2.3. Acquires correct language/strategies e.g., hand up to seek help, associated with seeking help.
18.2.4. Has opportunities to practise the language skills s/he has acquired.
A.18.3. When asked for help, s/he takes action.
18.3.1. Knows that s/he should give support when somebody asks for help.
18.3.2. When a person asks for help, s/he acts and helps before long.
P.18.4. Continues to focus on work while collaborating during an event.
18.4.1. Becomes aware of her/his role/responsibility within the group.
18.4.2. Becomes aware of others' roles/responsibilities within the group.
18.4.3. Creates opportunities to practise focusing for increasing periods of time.
18.4.4. Begins to take increasing levels of responsibility and autonomy within a group setting.
Objective 19: Realises the importance of respect and sensitivity towards the different values and attitudes of others.
Behaviours:
C.19.1. Expresses that her/his friend has a different point of view.
19.1.1. Acquires vocabulary related to expressing other viewpoints.
19.1.2. Creates opportunities to practise this language acquisition in safe artificial situations.
C.19.2. Realises that different people can react differently to a certain situation.
19.2.2. Develops increasing awareness of contrary viewpoints.
19.2.3. Uses alternative communication strategies such as gesture, tone of voice, vocabulary etc., to show understanding.
A.19.3. Takes care not to hurt the feelings of another person.
19.3.1. Practises care, consideration, courtesy, and good manners when interacting with others.
19.3.2. Practises turn-taking skills in games or conversations.
19.3.3. Practises active listening and speaking skills.
P.19.5. Motivates herself/himself appropriately to maintain boring/monotonous tasks.
19.5.1. Acknowledges that some tasks are fun and exciting, and some tasks are boring and monotonous.
19.5.2. Begins to differentiate between tasks.
P.19.6. In boring/monotonous tasks, s/he motivates her/his friends to continue the work.
19.6.1. Recognises other people's feelings and begins to express empathy in shared experiences i.e., in boring tasks.
19.6.2. Uses previously acquired language skills (19.3, 19.5 etc.) to motivate their friends to do tasks.
Objective 20: Applies the ways of participating and developing a sense of belonging in group work.

Behaviours:
C.20.1. Comments on the issue of belonging to a group in her/his own words.
20.1.1. Uses appropriate vocabulary to discuss personal friends and why they belong together.
20.1.2. Identifies, explores and discusses qualities and skills associated with friendship.
C.20.2. Recognises the logo, flag, or symbol of their group.
20.2.1. Shows the logo, flag, or symbol of the group s/he belongs to among the 2 different options given.
20.2.2. Shows the logo, flag, and symbol of the group s/he belongs to among the 3 different options given.
A.20.3. Demonstrates a desire to help their friends in her/his group.
20.3.1. Distinguishes situations to help friends.
20.3.2. When a friend needs help, s/he asks if s/he needs her/his help.
20.3.3. When her/his friend asks for help, s/he shows helping behaviour.
A.20.4. Willingly participates in activities with her/his own group.
20.4.1. Distinguishes activities related to her/his group.
20.4.2. Has behaviours showing that s/he is eager to participate in activities related to their own group.
P.20.5. Focuses on activities with her/his group without interruption.
20.5.1. Becomes aware of her/his duties and responsibilities in the group.
20.5.2. Becomes aware of the duties and responsibilities of other individuals in the group.
P.20.6. Completes her/his part in the activities in their group.
20.6.1. Becomes aware of her/his duties and responsibilities in the group.
20.6.2. Acknowledges the various roles within the group activity.
20.6.3. Takes responsibility for completing her/his own role within the activity.
20.6.4. Practices previously acquired skills (e.g., language, friendship, helping others etc.).
STAGE 7: DECISION-MAKING STRATEGIES
21. Objective: Uses simple decision-making strategies.
Behaviours:
C.21.1. Compares the basic features of the choices.
21.1.1. Answers the relevant basic questions about the right choice.
21.1.2. Answers the relevant complex questions about the right choice.
21.1.3. Answers the relevant basic questions about the wrong choice.
21.1.4. Answers the relevant complex questions about the wrong choice.
21.1.5. Identifies the wrong and right choices when it is asked.
C.21.2. Distinguishes between right and wrong choices.
21.2.1. Begins to develop some awareness of factors that may influence decisions or choices taken.
21.2.2. Recognises and reflects on choices.
21.2.3. Discusses the factors that may influence decisions or choices.
A.21.3. Conforms to the group in applying the correct choice, even if s/he does not want to.
21.3.1. Discusses why and how others can make decisions.
21.3.2. Recognises and explores how the views, opinions, expectations, and responses of others can influence personal decisions or actions.
P.21.4. Applies appropriate solution strategies using body and words.

21.4.1. Shares solution-oriented views using appropriate gestures and facial expressions.
21.4.2. Shares solution-oriented views using appropriate words without offending.
Objective 22. Evaluates the factors affecting personal decisions and choices according to the situations encountered.
Behaviours:
C.22.1. When making a decision, s/he explains her/his reasons.
22.1.1. Explains the situations in which s/he made the decision regarding how the decision was taken.
C.22.2. Discusses different solutions.
22.2.1. Becomes aware of and thinks about choices and decisions.
22.2.2. Explores and discusses the factors that influence decisions, choices and the different levels of thought involved in decision-making.
22.2.3. Considers the possible solutions and consequences.
22.2.4.
A.22.3. Makes her/his own decisions independently.
22.3.1. Realises that being involved in the decision-making process demands more personal responsibility.
22.3.2. Begins to realise that more opportunities will show up as others' trust is gained and maintained.
22.3.3. Explores and recognises the risks and the consequences of making a particular decision.
22.3.4. Begins to devise a simple decision-making strategy such as pausing, thinking, or identifying the important facts and/or the moral questions about the problem.
P.22.4. Implements the solution strategy that s/he has decided on without leaving it unfinished.
22.4.1. Fulfils the decision immediately.
22.4.2. Remembers and implements his/her decision later on.
P.22.5. Fulfils a decision s/he has announced.
22.5.1 Implements the decision taken before.
P.22.6. Keeps her/his promises.
22.6.1. Explains why s/he must keep her/his promises.
22.6.2. Fulfils her/his promise in a short time.
STAGE 8: PROTECTING SELF
Objective 23: When faced with various undesirable situations, s/he appropriately expresses that s/he does not accept that situation.
Behaviours:
C.23.1. Says that s/he should say 'No' when necessary.
23.1.1. Answers the questions about the inappropriate situations by saying 'No'.
23.1.2. Answers questions upon participating in an inappropriate conversation by using the phrases such as 'No'.
C.23.2. Distinguishes the situations that should be said 'No'.
23.2.1. Answers the 'Yes/No' questions about his/her wishes/preferences.
23.2.2. Answers the 'Yes/No' questions about the recent past.
23.2.3. Answers the 'Yes/No' questions about the near future.
A.23.3. S/he is determined when s/he needs to say 'No'.
23.3.1. Says 'No' to the invitation of the people s/he does not know.

23.3.2. When s/he feels disturbed or harassed in games that involve touching, s/he stops playing and states that s/he does not want to play.
23.3.3. If people try to touch her/his private parts of the body, s/he explicitly says 'No'.
P.23.4. Prevents others from touching her/his private parts.
23.4.1. When someone with bad intentions approaches her/him, s/he warns them to stop and moves away from them.
23.4.2. S/he states explicitly that s/he does not want to be touched.
23.4.3. S/he reports people who touch her without her/his consent to the people s/he trusts.
P.23.5. Upon feeling physical or sexual harassment, s/he walks away without hesitation or asks for help by shouting.
23.5.1. S/he moves away from the environment where s/he is harassed.
23.5.2. When s/he feels that s/he is harassed, s/he calls for help by shouting without hesitation.
Objective 24: Uses ways of dealing with bullying.
Behaviours:
C.24.1. Distinguishes features of bullying.
24.1.1. Identifies peer bullying.
24.1.2. Identifies psychological bullying.
24.1.3. Identifies physical bullying.
C.24.2. Explains ways to deal with bullying.
24.2.1. Protects herself/himself from peer bullying.
24.2.2. Seeks assistance from an expert when s/he cannot protect herself/himself from peer bullying.
A.24.3. Asks for help when s/he encounters bullying.
24.3.1. Seeks help from her/his teacher when s/he is bullied in school.
24.3.2. Seeks help from her/his family when s/he is bullied by her/his close circle of friends.
A.24.4. When faced with bullying, s/he courageously reports those who did it to the authorities.
24.4.1. Reports the bully to her/his teacher when s/he is bullied in school.
24.4.2. Reports the bully to the family when s/he is a bully-victim by the close circle of friends.
P.24.5. When being angry, s/he controls her/his anger.
24.5.1. Leaves the environment to calm down when s/he gets angry.
24.5.2. Communicates her/his thoughts about her/his problems with other people.
24.5.3. Makes breathing exercises when s/he is angry.
24.5.4. Focuses on hobby areas to distract her/his attention when s/he gets angry.
STAGE 9: LEISURE TIME ACTIVITIES
Objective 25: Selects areas of interest or hobby based on personal characteristics.
Behaviours:
C.25.1. Recognises various interests.
25.1.1. Spends her/his free time painting works.
25.1.2. Spends her/his free time doing origami.
25.1.3. Spends her/his free time taking photos.
25.1.4. Spends her/his free time playing games.

25.1.5. Spends her/his free time by watching films.
25.1.6. Spends her/his free time riding a bike.
25.1.7. Spends her/his free time playing computer games.
25.1.8. Spends her/his free time by rollerskating.
25.1.9. Spends her/his free time by reading books/listening to audiobooks.
25.1.10. Spends her/his free time listening to music.
25.1.11. Spends her/his free time playing an instrument.
25.1.12. Spends her/his free time doing sport.
A.25.2. Develops interest in a hobby area.
25.2.1. Becomes aware of her/his favourite activities.
25.2.2. Spends leisure time with activities s/he likes.
A.25.3. Talks about her/his hobbies in the family and friend groups.
25.3.1. Communicates her/his hobbies with family members.
25.3.2. Talks about her/his hobbies with friends.
P.25.4. Completes hobby activities s/he is interested in.
25.4.1. Completes the activities that s/he started as a hobby.
Objective 26: Obeys the rules to be followed in places such as cinemas, theatres, restaurants, etc.
Behaviours:
C.26.1. Distinguishes the rules to be followed in places such as cinema, theatre, etc.
26.1.1. Says that tickets should be purchased at the box office.
26.1.2. S/he says that the ticket should be given to the person in charge.
26.1.3. Says that the numbered part of the ticket should be kept.
26.1.4. Says that it is necessary to sit in the seat specified with a number/letter on the ticket.
26.1.5. Says that it is necessary to be quiet during the show.
26.1.6. Says that needs should be met only when there is an intermission.
26.1.7. Says that after the show is over, it is necessary to leave the hall without disturbing others.
26.1.8. Says that nuts etc. should not be eaten in the hall.
C.26.2. Distinguishes the rules to be followed in the restaurant.
26.1.1. Says that s/he should sit at the place shown.
26.2.2. Says that the desired food should be selected from the menu.
26.2.3. Says that the food s/he chooses should be requested from the waiter/waitress.
26.2.4. Says that when the meal is over, the bill should be requested.
26.2.5. Says that the bill should be paid.
A.26.3. Enjoys going to the cinema, restaurants, etc.
26.3.1. Enjoys spending his/her leisure time going to the cinema or restaurant.
A.26.4. Enjoys participating in events.
26.4.1. Enjoys playing areas in shopping malls.
26.4.2. Enjoys parks, museums, and natural beauties when s/he visits a city.
P.26.5. Behaves well according to the rules of the places.
26.5.1. Enjoys his/her time in theatres, cinemas, or concerts without disturbing others.

Objective 27: Fulfils her/his needs on trips made for sightseeing.
Behaviours:
C.27.1. Explains the functions of transportation vehicles.
27.1.1. Explains that the bus is a public transport vehicle.
27.1.2. Explains that trains, undergrounds, and trams are public transports on rails.
27.1.3. Explains that planes are means of transportation in the air.
27.1.4. Explains that boats are means of transportation on the water.
C.27.2. Explains the benefits of public transportation vehicles in terms of economy and protection of nature.
27.2.1. Explains the environmental and economic benefits of using public transport.
27.2.2. Explains the benefits of using public transport for reducing traffic jams.
C.27.3. Says what to do during city trips.
27.3.1. Says that it is necessary to go to the stop/station/port of the vehicle.
27.3.2. Says that documents such as cards, tickets etc. should be taken.
27.3.3. Says that documents such as cards, tickets etc. should be prepared before getting into the vehicle.
27.3.4. Says that the queue should be followed when getting into the vehicle.
27.3.5. Says that s/he should be ready when s/he approaches the place where s/he will land.
27.3.6. Says that s/he should get out of the vehicle when s/he comes to the place where s/he will get off.
C.27.4. Explains what to do during long trips.
27.4.1. Says that the appropriate means of transportation should be selected before the travel.
27.4.2. Says that a ticket should be purchased.
27.4.3. Says that s/he should be ready in places such as stations, terminals etc. before the departure time of the vehicle.
27.4.4. Says that it is necessary to go to the platform where the vehicle will depart.
27.4.5. Says that coupon/voucher should be obtained by delivering her/his belongings to the responsible person if necessary.
27.4.6. Says that the vehicle should be boarded on time.
27.4.7. Says that s/he should take her/his belongings back by giving coupons/vouchers before leaving the vehicle.
C.27.5. Tells the safety rules in public transportation.
27.5.1. Tells the safety rules according to the vehicle in public transportation. (Holding on while standing, fastening the seat belt, wearing a life jacket etc.)
A.27.6. Appreciates the importance of social rules, courtesy, and traffic rules in public transport.
27.6.1. Appreciates the importance of social rules (waiting in line, giving the seat to pregnant-elderly- special needs people etc.).
27.6.2. Appreciates the importance of courtesy (thanking, giving her/his place in line or the seat etc.).
27.6.3. Appreciates the importance of traffic rules.
A.27.7. Shows an eagerness to use public transport.
27.7.1. Shows an eagerness in getting to know public transport vehicles.
27.7.2. Shows an eagerness in using public transportation vehicles.
P.27.8. Prepares a travel bag.
27.8.1. Says that there should be enough clothing items in the bag for the trip.
27.8.2. Says that the clothes suitable for the place and seasonal conditions of the trip should be placed in the bag.

27.8.3. Says that personal hygiene items should be placed in the bag.
P.27.9. Complies with basic traffic rules.
27.9.1. Observes the rules of the road while on foot.
27.9.2. Observes the rules of the road as a passenger.
27.9.3. Uses bicycles, skateboards, skates, etc. safely in areas closed to vehicle traffic.
P.27.10. Follows basic etiquette in traffic.
27.10.1. Obeys the rules such as not speaking loudly, not listening to loud music, and not consuming food or drinks in a way that disturbs others in public transport vehicles.
P.27.11. Takes advantage of break time facilities.
27.11.1. Meets her/his personal needs such as shopping, eating, going to the toilet, and resting during the journey if the public transport vehicle is suitable for taking a break.
27.11.2. Acts in a planned way to spend the time given during the break to meet her/his needs.
STAGE 10: DIGITAL LITERACY
Objective 28: Uses information technology tools safely to access and transmit information.
Behaviours:
C.28.1. Recognises the meaning of communication and different communication technologies.
28.1.1. Recognises that communication consists of an exchange of feelings, thoughts, and information among people.
28.1.2. Recognises s/he can use email to communicate.
28.1.3. Recognises that s/he can use a mobile phone and mobile phone apps (WhatsApp etc.) to communicate.
28.1.4. Recognises that s/he can use social networks to communicate.
C.28.2. Explains the rules for self-preservation on social media.
28.2.1. Explains why s/he mustn't share her/his personal information with the people s/he doesn't know.
28.2.2. Explains that s/he should use the digital media under parental control and within a limited period.
C.28.3. Understands the basic structures of emergency and security services such as firefighting, police and lifeguard.
28.3.1. Understands that the police maintain security and order.
28.3.2. Understands the duties/functions of the firefighter, such as firefighting and rescue.
28.3.3. Understands that an ambulance takes patients to the nearest hospital.
A.28.4. Shows interest in learning a foreign language and different communication technologies.
28.4.1. Shows interest in learning a foreign language.
28.4.2. Shows interest in learning how to use televisions.
28.4.3. Shows interest in learning how to use radios.
28.4.4. Shows interest in learning how to use mobile phones.
28.3.5. Shows interest in learning how to use computers and tablets.
P.28.5. In case of emergency, s/he decides which of the police, lifeguards, or fire brigades to call.
28.5.1. S/he decides to call the police in a situation that threatens her/his safety.
28.5.2. S/he decides to call the fire brigade in case of fire or need of rescue.
28.5.3. When there is a sudden health problem, s/he decides to call the ambulance to reach the hospital.
P.28.6. Begins to explore and use the information technology tools around her/him.

28.6.1. Explores the information technology tools around her/him.
28.6.2. Begins to use the information tools that s/he has explored.
P.28.7. Uses text messaging applications.
28.7.1. Sends messages from a mobile phone and by using text messaging applications.
P.28.8. Uses mobile phones to report emergencies.
28.8.1. Calls ..... using a mobile phone to report emergencies. (Changes according to the countries)
28.8.2. In emergencies, s/he contacts her/his family using a mobile phone.
P.28.9. Finds an address using directions given verbally or via the map.
28.9.1. Finds an address described verbally by using navigation.
28.9.2. Finds an address described on a map by using navigation.
P.28.10. Uses digital resources (social media, email pages, navigation, dictionary, etc.) safely.
28.10.1. Uses social media accounts safely.
28.10.2. Uses email accounts safely.
28.10.3. Uses digital applications safely.
P.28.11. Prepares a message containing suitable content for another person and sends it via WhatsApp, e-mail, or social networks.
28.11.1. Writes a suitable message that conveys what s/he wants to tell the person s/he wants.
28.11.2. Chooses the page/account of the person s/he wants to send from social networks, opens the message section, writes her/his message, and presses the send button.
28.11.3. Chooses a text messaging application s/he wants. Finds the person s/he wants. Writes her/his message and presses the send button.

The Basic Features of the Digi-Holistic Module

Section B

2. The Basic Features of the Digi-Holistic Module

2.1. Content

Social adaptation skills cover self-care, daily life, functional academics, communication, and social skills. There are three topics based on these contents in this part of the module: (1) the learning outcomes developed for students aged 6-12, (2) content frames developed for educators/experts, and (3) sample digital content scenario form.

2.2. Structure

In the first part of the module. There are ten major categories, each with stages comprising related units, objectives, and learning outcomes. There are a total of 30 learning outcomes with three basic learning domains of cognitive, affective, and psychomotor domains. To adopt a holistic approach, we aimed to enrich learning outcomes and offer multiple lenses for learning outcomes. In Figure 2, the module's learning outcomes and the related sub-elements are represented.

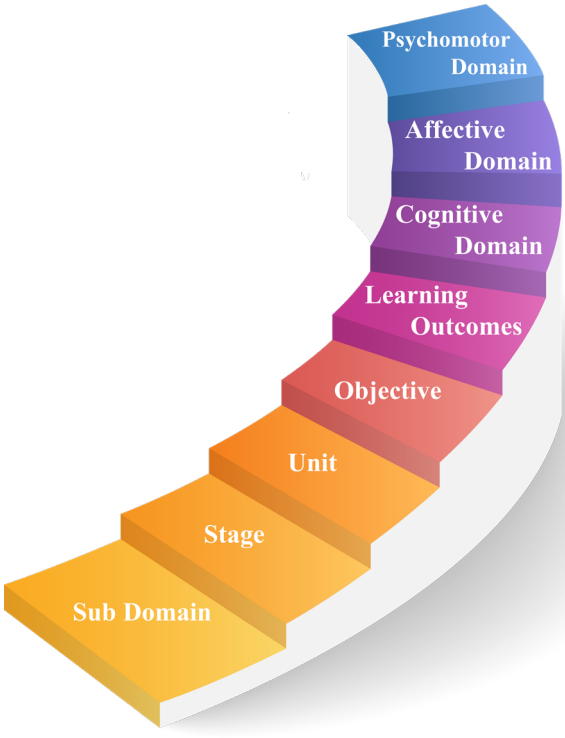
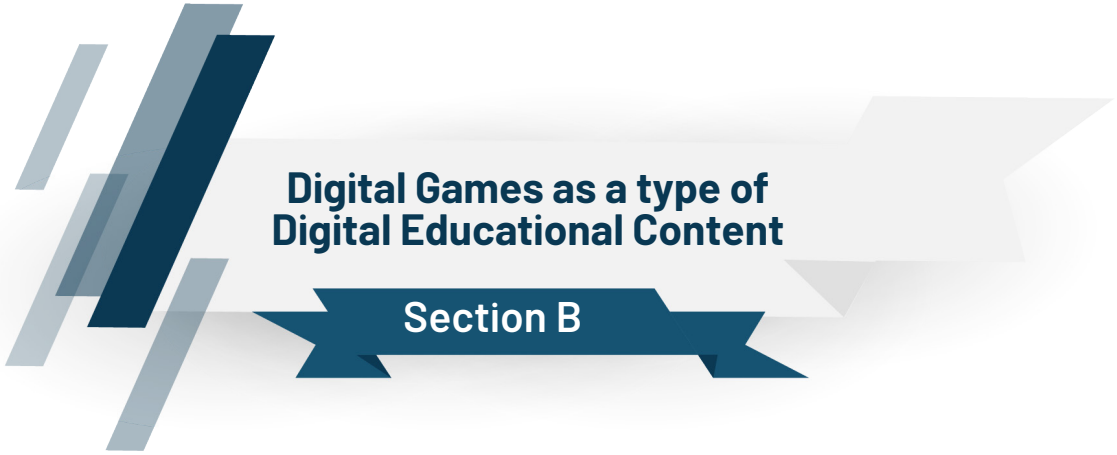


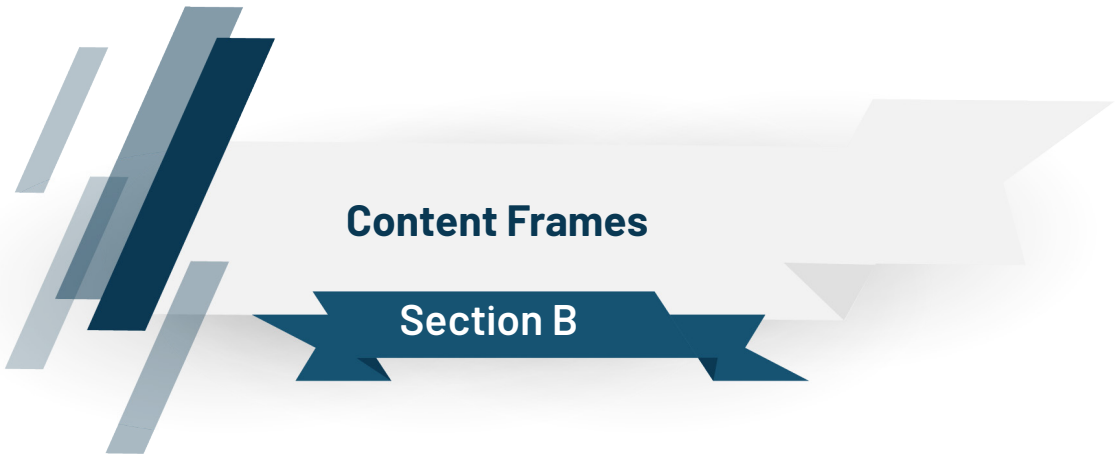
Figure 2: The framework of Social Adaptation Outcomes in Module



3. Digital Games as a type of Digital Educational Content

The improvements in the technological field have resulted in great changes in people's lives. Especially in recent years, technology has influenced the whole world and all sectors. The development of technology has also shown its effects on the education sector, too. With the information that progresses daily, it is important to shape educational settings according to the learner's needs and ensure successful integration. Therefore, the infrastructure of information and communication technologies has been created with audio, written and visual tools that enable the use of information by creating or accessing it in education (Coşkun, 2015). The increasing need for innovative pedagogy in digital learning environments, the personalisation of learning environments, the information explosion caused by the increase in internet use, and innovative technologies such as artificial intelligence are the situations that trigger the start of a new process (Ally, 2019). This technology-based transformation process has started in educational institutions to enable learners to acquire skills for the future, grow up in line with the needs of their age, and develop and evaluate educational institutions.

Educational contents play an important role in the classroom and are very helpful for teaching students of all ages. With the technology-based transformation in educational content, E-learning has become an educational activity including computer and communication technologies where the learner and the teacher are not in the same place and time, and the learners have a say in their learning (Jabeen & Thomas, 2015). Digital games, one of the materials embedded into e-learning, constitute the main educational material of e-learning, especially for young learners. In the following sections, the embodiments of digital content in a game format, with the name e-content, will be defined in detail.



4. Content Frames

4.1. What is a content frame?

Content frames are the guiding documents depicting learning outcomes, defined behaviours and sub-behaviours. The frame's constraints help the scenario writers limit their imagination and better picture the game design in mind within an established boundary. The following items are the main functions of a content frame.

- It specifies the objectives and corresponding behaviours of the target audience.
- It helps the scenario writers to provide a well-structured educational game domain.
- It can be a monitoring tool for the scenario writers in the scenario writing stage.
- It includes a boundary on what to contain and exclude for the content creator by setting a pedagogical boundary.
- It sets a boundary for the scenario writers by specifying the aspects of certain elements in the content depending on the target audience.
- It guides the scenario writers on the game genre as it includes aspects of the target audience.

4.2. Who can create a content frame?

E-content frame creators can be any person/team with expertise in the field. As it necessitates field-related knowledge and experience, the creators are recommended to have a degree in the content area. Significantly, the content frame is prepared by someone who can assess the learner's understanding and identify learning objectives. In Table 3, a sample frame created in the Project has been shared below.

Table 3. Sample Digital Content Frame

E-Content Frame for Applications in Special Education

Content Code (ID Number): INSIDE.2.1.01*

Stage: Personal Care*

Objective:
Farklı mevsimlere/ortamlara göre giyinir.*

Behaviour:	**Sub Behaviours:**
2.1. Dresses for different seasons/ environments. *	2.1.1. Says that clothes such as uniforms, aprons etc. are worn in schools.* 2.1.2. Says that clothes such as swimsuits, bikinis etc. are worn at sea.* 2.1.3. Says that clothes such as tracksuits etc. are worn while doing sports.* 2.1.4. Says that clothes such as pyjamas and night shirts are worn at night.*

Type of Content:

- ☒ Interactive App*
- ☐ Animation
- ☐ Simulation
- ☐ Video
- ☐ Sound
- ☐ Infographic
- ☐ 3D Image
- ☐ LMS content
- ☐ Others.....

Stage of the Learning Area:

- ☒ Recall*
- ☐ Understanding
- ☐ Application
- ☐ Analysis
- ☐ Evaluation
- ☐ Synthesis

A. Considerations while preparing the E-content

☐ Three main components stand out in e-contents. **'I'm Learning', 'Let's Play Together' and 'Now, It's My Turn'**. These parts are planned according to the learning needs of special education students, taking into account the steps of understanding, doing with help and doing independently.

☐ After clicking the 'Play/Start' button on the game home page, part selections are displayed on the parts main screen. The interactive application can be applied sequentially by following the stages of the parts, or one of the parts can be preferred and the interactive application is continued from the selected part.

☐ The individual needs of special education students are taken into account for the selections to be made on the parts screen. **The parent and/or teacher decides which activity to choose.**

☐ Each section should be designed not to exceed 5 minutes.

☐ The "Play/Start" icon is used in the intro scene of the e-content. The headings, "Parts", "Play Again", "I'm Learning", "Let's Play Together", Now It's My Turn" are displayed in text letters.

☐ There is an information button on the home page of the e-content. When the information button is clicked, a window opens and general information about the purpose of the game parts is explained. The window is designed and used in the same way for all e-contents to be prepared for the objectives in terms of layout and content.

☐ Button icons and click effects, positive feedback visual and sound effects are designed and used in the same way for all e-contents to be prepared for the objectives. The icon description is displayed when the cursor is hovered over the button icons.

☐ The instruction is given in audio and written form at the beginning of the parts. Written instructions should remain in a suitable area of the e-content scene until the end of the part while the flow continues.

☐ While playing the e-contents, the student gains a star for each correct answer. Collected stars are rewarded with a big star visual and effects at the end of the episode.

B. Content Transfer: Part I: 'I'm learning'

☐ In this part, an educational animation, a video, or visual transitions supported by sound effects and dubbing related to the objective can be used. Narration is supported by effects/sounds/visuals.

☐ For students with hearing impairment, text support should be used in e-contents if possible. Text support and dubbing writing are given simultaneously. At this point, the objective and sub-behaviours, digital feature of the e-content are taken into account.

☐ At the end of the part, "I'm Learning", a big star image and flashing effects are used to indicate that the part is completed. After giving the positive feedback, a window with the "Play again" and "Parts" buttons opens. One of the buttons is clicked and the e-content application is continued with the selected part.

C. Practice: Part II: 'Let's play together'

☐ In this part, the child practises activities prepared for the objectives. Although there is no upper limit for the number of practice questions, the lower limit is determined as 10 questions.

☐ The multiple-choice answers prepared for each question are designed in a simpler and fewer numbers in the "Let's Play Together". In the multiple-choice e-content applications, the number of options should be planned as 3, and no limits should be considered in sorting/listing activities.

☐ The waiting time allowed for the child to respond is 4 seconds.

Possible learner reactions

☐ **Correct answer:** If the child gives the correct answer, the green light will turn on around the option, a star will slide and settle in its designated place on the screen.

☐ **Unresponsiveness:** If no option is clicked at the end of the waiting period, a moving arrow appears as a hint and points to the correct answer. After another 4 seconds, the hint is repeated. If there is still no answer at the end of the third 4-second wait (two hints repetitions), the correct option is automatically shown with a green light. After the child sees the correct answer, the next question is automatically opened.

☐ **Wrong answer:** If the wrong option is clicked, the clicked option is **grayed out** and becomes inactive. It takes **4 seconds** to find the correct answer from the remaining two options. If the child answers correctly, the process described in the heading "correct answer" is performed. If s/he answers incorrectly, the second option is also grayed out. It is waited for the only remaining option to be clicked. When the correct option is selected this time correctly, the green light turns on. If there is no click despite the waiting time, the process described in the heading "unresponsiveness" is performed.

☐ **Hint:** The hint method has been determined as an **arrow visual and a sound effect** that integrates the visual for all the e-contents prepared for the module. In the "Let's Play Together" part, the child is expected to head to **the correct answer with help and guidance.** Even if the correct answer is automatically completed after the given clues, positive reinforcements (stars) are given.

☐ A window opens at the end of the part, a big star image and flashing effects are used to indicate that the part is completed. After giving the positive feedback, a window with the "Play again" and "Parts" buttons opens.

D. Practice: Part III: 'Now, It's my turn'

In this part, the child is expected to complete the activity independently. Although there is no upper limit for the number of questions, the lower limit is set as **10**. There is no limit to the number of questions in sorting/listing activities. **No 'hints'** will be given in this section.

The waiting time for the child to respond is **15 seconds**. After 15 seconds, the unresponsiveness process is applied.

Possible learner reactions

1. For Multiple-Choice E-Contents

☐ **Correct answer:** If the child clicks on the correct answer, the green light will turn on around the correct option, a star slides and settles in its place on the screen.

☐ **Unresponsiveness:** If no option is clicked at the end of the waiting period, a window opens. The **"Continue" and "Parts"** buttons appear. One of them is expected to be selected. If "Continue" is clicked, the application will continue from where it left off. If the "Parts" button is clicked, the main screen of the parts opens.

☐ **Wrong answer:** When the wrong option is clicked, a click sounds indicating that it has been clicked, as in all buttons, **no negative feedback is given**. The options are shuffled among themselves. It is aimed that the child finds the correct answer by rethinking. If the answer is correct, the next question appears. If s/he answers incorrectly again, the options are shuffled once again. If s/he gives the correct answer on the second try, the next question appears. If the same question is answered incorrectly for the third time, a window opens. In this window, the headings "I'm Learning" and "Parts" appear. It is thought that it would be beneficial for the student to repeat the first two parts.

☐ **In the "Now It's My Turn" part, the student is given the right to make two mistakes. If the student who makes 3 mistakes in different questions or in the same question is directed to the first two parts with a window opened.**

☐ A window opens at the end of the part, a big star image and flashing effects are used to indicate that the part is completed. After giving the positive feedback, a window with the "Play again" and "Parts" buttons opens.

2. Sorting/Listing E-Contents

In such contents, the student is expected to correctly order all sub-behaviors.

☐ **Correct Answer:** Sub-behaviour steps are placed in the correct order, **a green light** turns on around the correct answer, a star slides into its designated place on the screen.

☐ **Unresponsiveness:** If there is no click until the end of the **waiting period (15 seconds)**, a window appears. The "Continue" and "Parts" buttons appear in the window and one of the buttons is expected to be selected by the student. If "Continue" button is clicked, the application will continue from where it left off. If the "Parts" button is clicked, the student is directed to the main screen of the parts to choose a new part to play.

☐ **Wrong Answer:** When the student makes the first mistake, the part restarts, and **no negative feedback is given.** The student has the opportunity to perform the sorting process again. If he makes a mistake on his second try, the part restarts again. The student has a second opportunity to try again. In this window, the headings "I'm Learning" and "Parts" appear. It is thought that it would be beneficial for the student to repeat the first two parts.

☐ A window opens at the end of the part, a big star image and flashing effects are used to indicate that the part is completed. After giving the positive feedback, a window with the "Play again" and "Parts" buttons opens.

E. Exit

☐ This screen is designed to show that the game is over. The visual design is compatible with the start screen of the game. The expression "Goodbye" appears and is supported by effects/sounds/visuals/text.

☐ This screen opens when the student completes the game or click on the exit button while playing the game.

**** These areas can be changed according to the learning outcome/defined sub-behaviours and the nature of the digital content.***

5. Digital Content (E-content) Scenarios

5.1. What is a digital content (e-content) scenario?

The digital content scenario is the second stage of the digital content creation process. It is a document used by the personnel responsible for preparing and controlling the content as an application text. Many decision-making, control, and evaluation are intertwined in this scenario form.

In the scenario, guiding information is thoroughly depicted about the target audience, outcome, theme of the content, the items to be used and their definitions, the scene visuals and descriptions, the scene flowchart, possible learner reactions as a result of the ways to be followed, and the feedback to be given.

5.2. Who are the scenario writers?

The scenario writer can be any person/team interested and able in this field.

In the Inside project, the scenario writers consist of field experts who write scenarios on the learning outcomes defined in the curriculum in their fields. In general, scenario writers can be field experts. Their development and finalisation result from the joint work with the personnel involved in the content production and control-supervision stages.

5.3. How to use the scenarios?

5.3.1. Graphic Designers

Graphic designers prepare all determined visual outputs in light of the theme described in the scenario as high-quality content. The items can be illustrations, vectors, photos, icons, mock-ups or the design of entry-exit pages, application backgrounds, images of questions and animations. They may compile the graphic resources from the subscribed stock photo platforms. The designer draws the picture digitally if the images cannot be found on these platforms.

5.3.2. Sound/Music Teachers/Experts

Sound/Music teachers/experts prepare appropriate background music and necessary sound effects in light of the theme described in the scenario. They record or create each specified sound element and maintain the required recording arrangements. After completing all the aspects, they circulate the files to the scenario writers.

5.3.3. Pedagogical Experts (Counsellors)

Pedagogical experts (Counsellors) examine the scenario and the outputs prepared at every stage, check their pedagogical suitability, and guide the necessary corrections/changes. They also contain the suitability of the outputs designed by the visual designer and sound/music expert in accordance with the scenario. By checking the draft digital content prepared by the IT specialist and the final version after completion, they guide the team on the necessary corrections/changes.

5.3.4. ICT Teachers/Experts

ICT teachers/experts follow the scenario flowchart and complete the necessary coding by placing the prepared and checked items in their game creation software. After evaluating the problems in the coding/operational process with the team members, the ICT expert makes the necessary changes/arrangements in line with the solution/correction suggestions and packs the digital content's final output according to the guidelines.

Table 4 below shows a scenario created under the scope of INSIDE Project. The scenario shared can be employed or revised by the defined groups above.

Table 4. Sample E-content scenario for Special Education field

Sample E-Content Scenario for Special Education Field	
Name of E-content	LAUNDRY DAY
Objective (Code and Behaviours)	**5.3. Uses a washing machine.** **5.3.1.** Opens the door of the machine. **5.3.2.** Puts the laundry in the machine. **5.3.3.** Closes the door. **5.3.4.** Opens the detergent drawer. **5.3.5.** Puts detergent and softener in the detergent drawer. **5.3.6.** Closes the detergent drawer. **5.3.7.** Sets the program button according to the type of laundry. **5.3.8.** Expresses how to select the right temperature according to the type of laundry. **5.3.9.** Turns the on/off switch to 'on'. **5.3.10.** Waits for laundry to be completed. **5.3.11.** Turns the on-off switch to 'off' after washing laundry.
E-content ID code	INSIDE.5.3.Int.app.01
Content-Type	Interactive Application Html and LMS
Expected time and size	15 min.
Actions or programs required for running the content or devices needed to obtain	One of these programs: MICROSOFT EDGE SAFARI CHROME MOZILLA FIREFOX INTERNET EXPLORER
Persons Responsible for Content at the Stage of Content Creation	**Scenario Writer** **Graphic Design Expert** **ICT Expert** **Sound & Music Expert** **Language Expert** **Pedagogical Expert** **Special Education Expert**

Items Used in the Content	Features and Description of the Elements Used in the Content
SOUND RECORDS	
Sound 1	Background music
Sound 2	Let's Do Laundry!
Sound 3	Choose a section to play.
Sound 4	Learning
Sound 5	Play Together
Sound 6	My Turn
Sound 7	“There is laundry in the dirty basket that needs to be washed. Let's learn how to wash clothes."
Sound 8	First of all, we should group the laundry according to its colour. Let's sort out the whites and the colours.
Sound 9	"Let's do the white laundry."
Sound 10	“We should select the cotton program in the machine to wash white clothes.”
Sound 11	We should wash it at 60 C.
Sound 12	Now we can start the machine.
Sound 13	That's it!
Sound 14	White clothes have been washed; we can take them out of the machine.
Sound 15	Let's wash coloured clothes.
Sound 16	We should choose the synthetic program for coloured laundry.
Sound 17	We should wash it at 40 C.
Sound 18	Coloured clothes have been washed; we can take them out of the machine.

Sound 19	“Let's drag and drop the clothes into the appropriate baskets.”
Sound 20	“Let's choose a basket and wash the laundry in it.”
Sound 21	"Come on, let's wash the white clothes."
Sound 22	“Come on, let's wash the colourful clothes.”
Sound 23	The washing is over. We can now take the laundry out of the machine.
Sound 24	“Goodbye!”
Sound 25	Click sound effect
Sound 26	Machine ending sound effect
Sound 27	Correct answer sound effect
Sound 28	Drag sound effect
Sound 29	Open/Close machine door sound effect
Sound 30	Star drift/gather sound effect
Sound 31	End of the section starry feedback sound effect
VISUALS	
Background picture 1	It is a realistic vector room picture with a hardwood floor.
Background picture 2	It is a grey-green-coloured gradient effect shapeless background.
BUTTONS	
Play	Clicking it will switch to the section selection scene.
Full screen/minimise.	It allows the screen to minimise/maximise the game when clicked.
Music on/off	Turns the background music on/off.

End	Clicking it will take you to the exit page.
Learning	When clicked, the transition is made to the section with an educational animation, video, and a moving visual change supported by sound.
Play together	When you click, you will be moved to the section where the activity is carried out with hint supports.
My Turn	When clicked, the student moves to the section where the unaided activity is performed.
Play Again	When clicked, whichever section is “Learning/Play Together/My Turn”, that section starts from the beginning.
Continue	After 15 seconds of unresponsiveness, it will appear in a pop-up window, and when clicked, the game will continue from where it left off.
Sections	A pop-up window appears at the end of 15 seconds of unresponsiveness or when the section is completed; when clicked, it switches to the section scene.
Info	When clicked, a pop-up window opens with descriptive information about the section contents.

Images Used in the Content

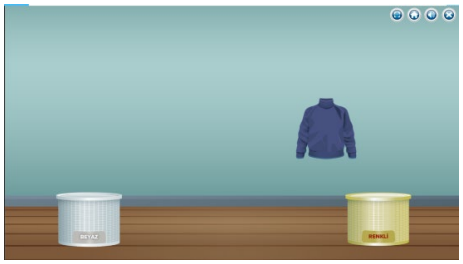
The images shared below were downloaded and edited from 123rf.com between 17.01.2022 and 17.01.2023.

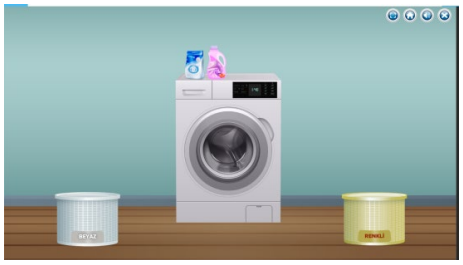
* 49603526 play button, * 119057830 and 119530731 washing machine,
* 27383186 washing machine program symbols, * 89922048 bubbles,
* 19883910, 60616177, 85389012, 9469568, 87228804, 88457315, 91504616, and 154729517 realistic clothes
* 14213365 buttons, * 109811437 dirty clothes

The images shared below were downloaded and edited from www.freepick.com between 24.11.2021 and 24.11.2022.

* 4954239 background, 28121063 washing machine digital part, * 6414067, 28807087, 3796067, 16322931, 3887130, 9469568, 12163750, 9379397, and 7252498 clothes, * 1472091 magnifiers, * 27851790 editable text,

SCENARIO OF THE CONTENT (All steps will be explained in detail according to the content type developed in this section.)	
Screenshots	**Event Description and the Flow**
	**Scene One: Introduction** **Buttons:** In the upper right corner, there is "info", "maximise/minimise", "music on /off", and "end" buttons. **Background Image: 1** **Audio: 1.2** The scene features a visual with a washing machine and a laundry basket. There are a few dirty clothes inside the washing machine, and the spinning gif and the sound effect (it will be muted) give the impression that the machine is working. When the scene starts, the machine is running, the title is sounded, and the "play" button appears at the bottom of the title; when you click it, you switch to the section selection scene. The information panel opens for the section description when the information button is clicked.
	**Scene Two: Sections** **Buttons:** In the upper right corner, there is "info", "maximise/minimise", "music on/off", "home", and "end" buttons. **Background Image: 2** **Sounds:** There is an instruction (Choose a section to play.) in the upper left corner of the stage. There are three buttons at the bottom. When the mouse hovers over, the names of the categories are sounded. By clicking on the information button, you can have information about the contents of the sections.





Scene Three: Section I: I am learning

Buttons: In the upper right corner, there are "maximise/minimise", "music on /off", "home", and "end" buttons.

Background picture 1
Sound:

General information for this stage:

There may be an educational animation, video, and a moving visual transition supported by sound on the outcome desired to be achieved in the activity. Narration is supported by effects/sounds/visuals.

For hearing-impaired students, writing support can also be used in applications where possible. In e-content applications, writing and vocalisation are given together. At this point, the acquisition, sub-behaviours, and the activity's digital features are considered.

Steps:

"There is laundry in the basket that needs to be washed. Let's learn how to wash clothes." A full laundry basket image appears on the screen.

First, we should separate the laundry according to its colour. Let's separate the white and the coloured ones.

The laundry basket disappears from the screen, and two baskets (white and coloured) are lined up at the bottom of the stage.
The clothes (2 for each basket) come from the top, respectively, and are placed in the correct basket.
The washing machine comes behind the baskets.

"Let's do the white laundry." The basket with the white laundry remains, and the other basket disappears from the screen.
The washing machine's door is opened, and the contents of the white basket are placed inside the device's door is closed.
The upper part of the machine is shown in a close-up.
Detergent and fabric softener are added, and the detergent dispenser is closed.

"We should select the cotton program in the machine to wash white clothes." At this time, the cotton program is indicated by an image (it turns green).

We should wash it at 60 C. At this time, it is indicated by the visual that 60 C is selected (it turns green.).

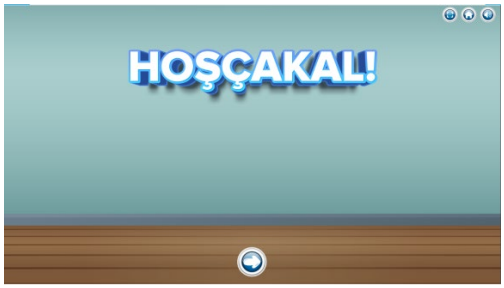
Now we can start the machine.

Press the start button of the machine (it will turn green). The washing machine is shown in operation. The ending sound plays.

	That's it! Press the machine's off button. **White clothes have been washed; we can take them out of the machine.** The washed laundry is placed in the basket and removed from the screen, and the coloured laundry basket comes to the front of the machine.
	The process repeats in white laundry; only the program and temperature selection differ. **Let's wash coloured clothes.** The washing machine's door is opened, the basket contents are placed inside the machine, and the device's door is closed. The upper part of the machine is shown in a close-up. Detergent and fabric softener are added. **We should choose the synthetic program for coloured laundry.** At this time, the synthetic program is indicated by the visual; a hand may come and click with an animation or be green around it. **We should wash it at 40 °C.** At this time, it is indicated by the visual that 40 C is selected (it turns green). **Now we can start the machine.** **Press the start button of the machine (it will turn green).** The washing machine is shown in operation. The ending sound plays. **That's it! Press the machine's off button.** **Coloured clothes have been washed; we can take them out of the machine.** The washed laundry is put into the basket and removed from the screen. At the end of the I am learning section; a big star image and effects indicate the end of the episode. A pop-up window opens at the end of the section with the "Play again" and "Sections" buttons. One of the buttons is clicked, and the e-content application is continued according to the selected section.

	Scene Four: Section II: Let's play together **Buttons:** In the upper right corner, there are "maximise/minimise", "music off/on", "home", and "exit" buttons. **Background Image 1** **Sound:** **General information for this stage:** **1.** The task is given with the instruction. **2.** A hint is given by showing a moving arrow if the student does not act correctly in 4 seconds. **3.** The hint is repeated if the correct behaviour is not shown within 4 seconds after the hint. **4.** It will be performed automatically if the correct behaviour is not completed 4 seconds after the hint is repeated (green light will turn on, and the star will be collected.) **5.** When the correct behaviour is selected, a green light will turn on around it, and a star will slide to its designated place on the screen. **6.** The incorrect selection becomes greyed out and passive in case of wrong selection. **7.** A "click" sound effect is given for each click. **8.** Clickable sections will have purple light around them. **9.** At the end of the section, a pop-up window opens, and the collected stars show the end of the section with a big star visual and effects. The "Play Again" and "Sections" buttons are displayed. **Steps:** It starts like the previous section, and the baskets in which the laundry will be separated appear on the screen; this time, the clothes come in order, with five clothes for each, and the student is expected to put the clothes in the correct basket. **"Let's drag and drop the clothes into the appropriate baskets."** The instruction is voiced. If no drag action is taken, the clothes will be indicated by the arrow, and then the correct basket will be indicated by the arrow. If dragging is not done within 4 seconds, a warning is given with an arrow again. Correct behaviour is performed automatically if no selection is made again within 4 seconds. The clothes go not into the basket but back to their place in the wrong choice. When the clothes sorting section finishes, the student is asked to choose the laundry basket he wants to wash. **"Let's choose a basket and wash the laundry in it."**

	The washing machine is shown with the basket chosen. **“Come on, let's wash white clothes.”/ “Come on, let's wash coloured clothes.”** It is voiced. What is expected from the student? **1.** Open the cover of the machine by clicking on the cover of the machine. **Options:** clothes, machine cover, detergent section, and program section (purple light around the selectable areas) **Correct answer:** machine cover **2.** Dragging the laundry into the machine. **Options:** clothes, open machine door, detergent section, and program section (purple light around selectable areas) **Correct answer:** The clothes are dragged into the machine; when clicked, it is green around it and stands a little above the basket. **3.** Closing the machine cover by clicking on the machine cover. **Options:** open the machine door, detergent section, and program section (purple light around selectable areas) **Correct answer:** open the machine cover **4.** Clicking on the detergent dispenser to open it. **Options:** detergent cover and detergent softener image **Correct answer:** detergent cap **5.** Detergent and softener are to be automatically placed in the machine by clicking. **Options:** detergent cover and detergent softener image **Correct answer:** detergent & fabric softener **6.** Closing the detergent dispenser by clicking it again. **Options;** detergent cover and detergent softener image **Correct answer:** detergent dispenser **7.** Choosing a cotton program for whites and a synthetic program for coloured ones (the scene is passed where the close-up design of the program selection section of the machine is prepared.) **Options;** cotton, synthetic **Correct answer:** cotton **8.** 60 C for whites and 40 C for coloured ones **Options;** 60, 40 **9.** Pressing the start button (After clicking the start button of the machine, the whole state of the machine appears, runs, and the washing sound effect is given.) **Options:** machine cover, detergent section, program section, start button **Correct answer:** start button **10.** After the machine is finished, pressing the end button (end sound is heard) options are the same as item 10. **11.** Clicking on the machine cover to open the machine cover **12.** Dragging the laundry into the basket **13.** Click on the machine cover to close the machine cover. **"That's it. Now we can dry the laundry.”** It is dubbed, starred feedback is given, then the play again, and the sections button comes. When the replay button is clicked, the section starts from the beginning and asks them to separate the clothes again and choose a basket to wash the laundry they want.

	Scene Five: Section III: Now, It's my turn! **Buttons:** In the upper right corner, there are "maximise/minimise", "music off/on", "home", and "exit" buttons. **Background Image 1** **Sound:** **At this stage:** **1.** The task to be done is specified in the directive **2.** The student does the steps in the Let's do it together section, and no hints are given, collects stars in the right choice, and a green light turns around the correct choice. **3.** Unresponsiveness: If no action is taken at the end of the waiting period (15 seconds), a pop-up window opens. The "Continue" and "Sections" icons appear. You are expected to choose one of them. If you click Continue, the application will continue from where it left off. If there is no response for 15 seconds, the pop-up window will open again. If you continue and there is no response for the 3rd time for 15 seconds, the section selection screen is automatically entered. If the Episodes button clicks, it will switch to the scene where the episodes are displayed. **4.** Click sound effect is given on every click. **5.** Clickable sections have purple highlights around them. **6.** When the student makes the first mistake, the game is returned to the beginning, and no negative feedback is given. The student has the opportunity to perform the sorting process again. If he makes a mistake on his second try, the game starts again. It starts the sorting process again. A pop-up window opens if it makes a mistake for the third time. In this window, the titles "I'm learning" and "Let's play together", and it is thought that it will be helpful for the student to repeat the first two parts. ** At the end of the section, a pop-up window opens, and the collected stars indicate the end of the section with a large star image and effects. The "Play Again" and "Episodes" buttons are displayed.*
	**Scene 6: End/Exit** **Buttons:** In the upper right corner, there are "maximise/minimise", "music off/on", "home", and "exit" buttons. **Background Image 1** **Sound:** It is the scene that comes when the student presses the exit button or completes the 3rd part. **"Goodbye!" in the middle of the stage. A "Play Again" button is at the text's bottom.**

6. Digital Content Creation: Steps for Innovative Classroom Materials

Games that appeal to multiple senses offer the opportunity to learn by doing and include many features of the problem-solving process, such as generating alternative solutions, structuring the problem and cooperation (Bayırtepe & Tüzün, 2007). Digital educational games enable individuals to learn, practice or gain skills by adding the knowledge or behaviours to be taught into the game.

One way to prepare educational environments that can attract students' attention and increase their success by providing active learning is to use digital games in teaching/learning processes. Teachers may want to suggest or design the games they will use for educational purposes in their lessons. Educational digital games can be developed depending on one's imagination and creativity. Though designing digital games seem to be the job of game designers, software developers and graphic designers, not educators, it is the educational information of teachers that will determine the educational content of digital games that will be used in educational settings. In this section, the steps and procedures maintained by the Digital Content Creation Commission, led by a group of field teachers with advanced knowledge and prior experience in game designing, will be shared in Table 5. Stages of creating a Digital Content

Table 5. Stages of creating a Digital Content

Stage 1: Game Design: Scenario Creation	As the e-content will be developed for educational settings, the problem formulation process draws upon it from an educational domain. It is recommended to create 'an E-Content Frame' (see section 7) in this procedure to use it as a guide for educational features. In the scenarios to be prepared, a game idea will be generated. For this purpose, the scenario writer may prefer to work by herself/himself or hold meetings to facilitate different perspectives for a creative idea. As a preparation task, the field experts (teachers) may brainstorm possible ideas and gather information by completing their analysis of the available literature. In this stage, it is possible for the scenario team to generate ideas from other media, real life or generate them entirely from imagination. It is significant to record all the thoughts generated during the game idea generation procedure. With all the ideas generated, the team focuses on the game genre (a puzzle game, an adventure game or a multiple-player game etc.). After the concept is ready and the suitable genre for it is selected, the scenario writer determines the digital content's subject, main idea and theme by examining and evaluating the learning outcome, sub-acquisitions, and the educational/instructional content to be used while giving the product (after doing the necessary preliminary research). In this stage, the scenario writer draws the flowchart of the content. This section is like a summary of the scenario. It determines how to go over the outcome in the introduction, application and exit pages and how to follow the possible learner reactions. The program development expert, pedagogical counsellor, other scenario writers, and ICT expert should review the flow chart. Afterwards, scenario writers should make necessary corrections/changes if there are any.

Stage 2: Feedback Construction: Pedagogical Controls	The draft scenario form is shared with other scenario writers, the counsellor, visual designers, and ICT teachers/experts when it is still in the idea stage. They evaluate its suitability for the target audience and learning outcome. They also negotiate the ICT stage considering coding languages and programmes in their expertise and deciding whether the idea can be gamified or how it will progress.
Stage 3: Game Construction: Graphic Design	In the third stage, the scenario writer determines and describes the written and visual elements to be used in the sections specified in the flowchart. The scenario writer updates the scenes according to the final visuals and sounds. Essential details are added to facilitate the ICT work.
Stage 4: Game Construction: Sound/Music Design	This stage is maintained simultaneously with Stage 3; the sound/music elements selected or defined by the scenario writer are shared with sound/music experts. Sometimes, the sound/music expert may ask for an example/similar sound to better understand what type of element is requested. Secondly, the scenario writer lists all the text items that will be dubbed and shared with the sound/music expert. After the dubbing process, the experts share the audio files with the scenario writers.
Stage 5: Feedback Construction: Pedagogical Re-controls	The pedagogical counsellor and visual designer review the scenario for the second time. After the preparation process, scenario writers circulate their draft scenarios to the team to be reviewed. Necessary corrections/changes are expected to recommend. If no correction/change needs to be made, the graphic designer starts to work on the graphical items defined by the scenario writer. Again, if no correction/change needs to be made, the sound/music expert can prepare the necessary sound/music elements.
Step 6: ICT Construction: Coding/ Programming	The ICT teachers/experts place the program elements in light of the scenario and start coding/programming. First, a one-question draft of the digital content is created and submitted to the control of the scenario writers and the pedagogical counsellor. This process is completed to save time and see where the elements do not integrate. The remaining content is added after the one-question draft is approved. In case of a mistake or problem with the published content or coding deemed appropriate to be corrected/changed, the expert in charge of the published content makes the relevant corrections/changes. After the e-content is completed, it is re-checked by the scenario writer, ICT teacher/expert and pedagogical counsellor. The final version of the approved work is published online for piloting.

Step 7: Piloting the E-Content	When the final version of the e-content is published, its online link is circulated to other team members to test the output. With the testing, e-content is reviewed to provide insights and feedback on the e-content's flaws. Sometimes, the team also recruits people from the target audience to playtest. All the piloting results are documented and reported by the scenario writer to the team to decide on necessary revisions. This process is completed with the evaluation of how the quality of the e-content. In case of an item output/coding for which correction/change is requested, the correction/change process is processed and then re-checked.
Step 8: Revising the E-Content	After the testing is completed, the final version of the e-content and its scenario is updated and revised according to the feedback shared.
Step 9: Finalising the E-Content	The e-content is published on the designing software and packed through the software again to be usable on any HTML5 platforms on the web. The ICT teacher/expert completes the packing procedure after all the significant elements are added to the work file and then published on the web platform.

ANNEXES:

ANNEX 1. COMPARİSON OF THE CURRENT STATUS OF PROJECT PARTNERS' SPECİAL EDUCATİON SYSTEM

Table 6. Comparison of the Current status of Project partners' Special Education System

	1. What diagnostic criteria are used for "children with intellectual disability" (ICD-10-11, DSM 4-5, ICF etc.)?	**2. How are the "children with intellectual disability" classified?**	**3. Which terms are used for "children with intellectual disability"?**	**4. Which assessment tools (formal/informal) are used for medical and educational diagnosing "children with intellectual disability"?**
Country				
Basque	They are updating their diagnostic coding manual In 2022 they will start using DSM-5 and ICF-11	level mild (moderado) moderate (grave) severe (profundo) profound	Students with intellectual disabilities	• Evaluation of curricular competencies. • Evaluation of adaptive skills (ABAS) • Intelligence scale: Wechsler • Other aspects (Psychometric tests): test to measure *the executive function *the reading processes and phonological awareness (prolec ...) * mathematical processes (tedimach) *the cognitive ability (WISC)

Turkey	• Since 2019 • Special Needs Report for Children (ÇÖZGER) based on ICD and ICF. • It includes medical evaluations, intelligence assessments, developmental evaluations, interviews, and observations.	To ÇÖZGER: "Has a special need (SN)", "Mild SN", "Moderate SN", "Severe SN", 'Profound' SN", "There are significant SNs", "There is a special requirement need". – for autism spectrum To GRC Report: mild, moderate, high, profound educational needs.	ÇÖZGER uses the term "special need".	• After ÇÖZGER the child is directed to Guidance and Research Centers (GRC) for educational diagnosis. • Assessment has for- mal assessment tools (e.g. WISC-R, WISC 4, Stanford Binet, Leither), and informal assessment tools (interviews, observations, and rough assessment tools).

Ireland	• Weschler Intelligence Scale for Children 5th Edition (WISC-V) • Diagnostic and Statistical Manual of Mental Disorders 4th/5th Edition (DSM-4/5) • International Classification of Diseases and Related Health Problems 10 (ICD-10) • Wide Range Achievement Test 4th/5th edition (WRAT 4/5) • Adaptive Behaviour Assessment System 2nd Edition (ABAS-II)	Category of Need Incidence Rate Physical Disability Low Hearing Impairment Low Visual Impairment Low Emotional Disturbance Low Severe Emotional Disturbance Low Borderline Mild General Learning Disability High Mild General Learning Disability High Moderate General Learning Disability Low Severe/Profound General Learning Disability Low Autism/Autistic Spectrum Disorders Low Specific Learning Disability High Assessed Syndrome Low Specific Speech and Language Disorder Low Multiple Disabilities Low	• Borderline Mild General Learning Disability • Mild General Learning Disability • Moderate General Learning Disability • Severe/ Profound General Learning Disability	• Public: Parent or guardian applies to the HSE for an Assessment of Need (as set out in the Disability Act 2005). Application is assessed by an Assessment Officer for eligibility. If the child is deemed eligible they have then referred to the relevant personnel e.g. Psychologist, Speech and Language Therapist (SLT), Occupational Therapist (OT) for assessment purposes (using assessments such as those detailed above). An Assessment report is then prepared. If the child is deemed to have a disability a Service Report is prepared. This report details the services required by the HSE to meet the child's needs, which are then put in place by a Liaison Officer. Or • Private: Parent or guardian makes an appointment with an Educational Psychologist who will carry out assessments (such as those detailed above) for the purpose of diagnosing a child. This is a shorter waiting period than app lying through an Assessment of Need, but can be expensive for the family of the child in question.

The UK	UK Special educational needs and disability code of practice SEN:COP (Since 2015)	• Mild LD (also known Global Developmental Delay) • Moderate LD • Severe LD • Profound and multiple LD • Specific LD that include dyslexia, dyscalculia and dyspraxia.	Learning Disability/ Difficulty	Set of forms for recording the educational, medical, psychological and other data required for deciding the nature of a child's special educational needs. • When the problem has been recognized by teachers, counselors, families, child development specialists etc., the child led to the local authority. • -Local Offer should address to support available to all children and young people with SEND from universal services such as schools and GPs; targeted services for children and young people with SEND who require additional short-term support over and above that provided routinely as part of universal services; specialist services for children and young people with SEND who require specialised, longer term support.

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