



Education for Down Syndrome Individuals Reframed

Evaluation guidelines validated and recognised by the
European Framework of Qualifications

Enabling Professionals and Families to Transfer **Sustainable Knowledge** and **Skills** to **Down Syndrome Individuals**

ERASMUS+ KA201
STRATEGIC PARTNERSHIPS FOR SCHOOL EDUCATION
Project number: 2018-1-ES01-KA201-050639



Co-funded by the
Erasmus+ Programme
of the European Union



Introduction

The Project "SUSKIDS Enabling professionals and families to transfer **SU**stainable knowledge and **SK**ills to **D**own **S**ndrome individuals" arises from the idea of connecting the education and training of DS individuals in the field of sustainability. The Project addresses social inclusion and open education as well as innovative practices in the digital age.

The project is led by the Building Engineering Research Group (GIE) of the University of Burgos, is co-funded by the ERASMUS+ Strategic Partnerships KA201 programme of the European Union, with a total budget of 395,830 € and a duration of 36 months. The project involves the collaboration of Trinity College Dublin (Ireland), the National Council for Curriculum and Assessment (Ireland), the University of Limburg (Belgium), the Spanish companies Bjäländ Technologies, S.L. and Senior Europa S.L. as well as the Down Syndrome Association of Burgos (Spain).

The main objective of the project is to transfer knowledge and skills related to the environment, sustainability and recycling in the field of construction to people with Down Syndrome, in order to promote personal and social development through respect for the environment, as well as to improve the curriculum and skills of these people, favouring in the future their insertion in the labour market and, thus, their incorporation into society with their full rights as citizens. To this end, a digital environment will be used, adapted to the characteristics of the target students, with the aim of providing them with training on specific subjects and, at the same time, on the use of ICT as a source of knowledge and personal enrichment.

We have established the following specific objectives:

- To **promote the sustainability and self-care skills** for DS individuals
- To **improve the skills of trainers and educators**, providing them with tools and resources in recycling and construction
- To enhance **digital integration and teaching skills** related with environmental sustainability.
- To **develop more feasible and easier to implement methodologies for DS people**, regarding Personalised learning, inquiry-based learning, game-based learning and Project Based Learning
- To promote these approaches among policy makers, with the aim **to involve more people with disabilities in the society**.

It is intended that the SUSKIDS project will reach people with Down Syndrome of school age between 12-21 years old and that the Virtual Learning Platform (VLE) specifically used in the development of this project will be transferable in the future to students in the Attention to Diversity group. In addition, the use of the Virtual Platform will be combined with face-to-face training through practical workshops on recycling and construction materials.

Partners

Universidad de Burgos



Asociación Síndrome de Down Burgos



K-VELOCE I+D+i – Senoir Europa Sociedad Limitada



Bjäländ Technologies



University of Applied Sciences Leuven-Limburg (UCLL)



National Council for Curriculum and Assessment



Trinity College Dublin



Acknowledgements

The guidelines are based on input and expertise from following institutions and persons:

- Dr. Elke Emmers (UC Leuven-Limburg, BE)
- Dr. Hannah Boonen (UC Leuven-Limburg, BE)
- Izabel Janssens (UC Leuven-Limburg, BE)
- Els Teijssen (UC Leuven-Limburg, BE)
- Sofie van Eynde (UC Leuven-Limburg, BE)
- M^a Isabel Calvo Álvarez (University of Salamanca, ES)
- Emilio Ruiz (Down Syndrome Foundation Cantabria, ES)
- Consuelo Rodríguez (Estela Special Education Center, ES)
- Cristina Arranz Barcenilla (Estela Special Education Center, ES)

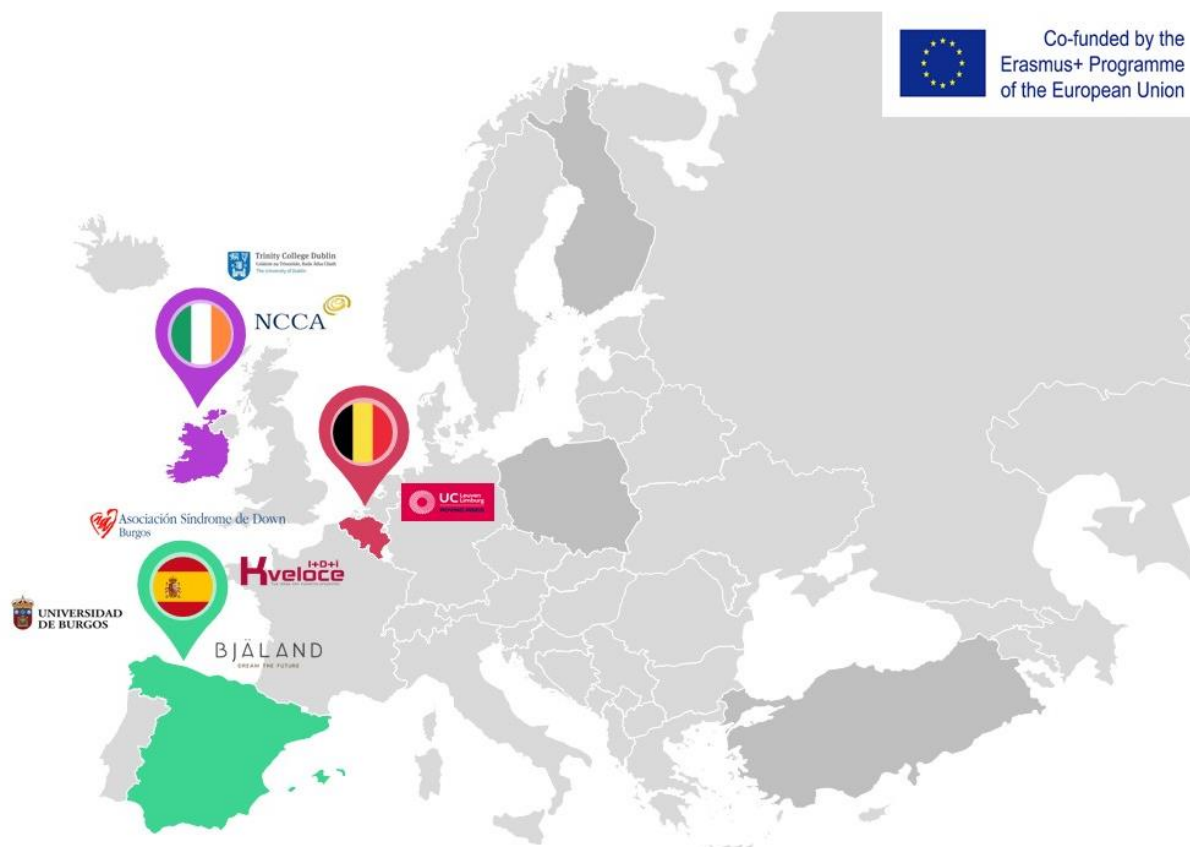


Table of contents

Introduction	3
Partners	4
Acknowledgements	5
Executive summary	8
Chapter 1: Context	9
1. The Erasmus+ programme	9
2. The Suskids project and objectives	9
Chapter 2: Education for Down Syndrome Individuals	11
1. Learning and teaching of students with Down Syndrome	11
2. Educational systems	12
The case of Belgium	12
The case of Spain	14
The case of Ireland	16
Chapter 3: Understanding European and national frameworks	18
1. The European framework of qualifications	18
2. National frameworks of qualifications	22
The case of Belgium	22
The case of Ireland	26
The case of Spain	27
3. Aligning the European, Belgian, Spanish and Irish frameworks of qualifications	29
Chapter 4: Content of the learning materials	31
1. SUSKIDS Virtual Learning Environment	31
Aim	31
Content	31
Learning outcomes	32
Assessment	32
2. SUSKIDS Short Course	32
Aim	32
Content	32
Learning outcomes	33
Learning outcomes strand	34
Assessment	35

Chapter 5: Evaluation methods	37
1. Systematic search for evaluation methods	37
Assessing Junior cycle short courses	37
Assessing students with Down Syndrome.....	39
Assessing sustainability.....	40
Assessing in an inclusive way.....	43
2. Delphi analysis	44
First round: collecting expert input.....	44
Second round: reaching expert consensus.....	50
3. Evaluation method for the SUSKIDS learning materials	53
Chapter 6: Practice what you teach – guidelines on use and implementation	55
1. Implementing Inclusive education	55
2. Implementing a Junior cycle short course	56
3. Implementing the Suskids learning materials	58
References	59

Executive summary

This whitepaper is the deliverable of the intellectual output O4 “Evaluation guidelines validated and recognised by the European Framework of Qualifications”.

The objective of this evaluation guideline is to assemble evaluation methods for the learning material elements of innovation, developed in the project, aligned with Level 1 of the European Framework of Qualifications (EFQ). This will ensure that the students learn so that the course can be fully recognised in any country of the European Union, thus contributing to increase the students' self-esteem and their sense of achievement.

It is aimed at teachers, principals, educators, associations and policy makers to improve the coherence of educational systems and to provide a consistent training for individuals with Down Syndrome throughout the European Union, thus enhancing their employability, mobility and inclusion.

Chapter 1 describes the context in which this whitepaper originated, by introducing the Erasmus+ programme and the SUSKIDS project as a means to correspond to current European challenges.

Chapter 2 discusses education for individuals with Down Syndrome by addressing the questions ‘What are their special educational capacities and needs?’ and ‘Which type of education is available for them?’.

Chapter 3 helps understanding European and national frameworks of qualifications, by illustrating European as well as national frameworks and cases.

Chapter 4 introduces the short course developed in the SUSKIDS project as this is a practical application of the learning principles described in chapter 2 and created within the frameworks of qualification described in the previous chapter.

Chapter 5 arrives at evaluation guidelines and forms the centre of attention of this whitepaper. First the used methodology in the development of this evaluation guideline is explained. Next, an overview is given on the sources of information used to gain a thorough understanding of evaluation methods, to arrive at tailored evaluation guidelines for the learning materials developed in the project. To complement the theory of this guideline with practical expertise, a Delphi study was conducted in all participating countries of which the method and results are described. The chapter concludes with an evaluation methods for the SUSKIDS learning materials.

Chapter 6 puts information of the previous chapters into practice by providing implementation guidelines on the use of the learning materials and inclusive education.

Chapter 1: Context

The SUSKIDS project aims to reduce inequalities and foster inclusion, through the promotion of an active and participative methodology, focused on appealing students to learn about recycling, and improving the engagement of Down Syndrome individuals on sustainability and self-care.

1. The Erasmus+ programme

Erasmus+ is the EU's programme to support education, training, youth and sport in Europe. It supports priorities and activities set out in the European Education Area, Digital Education Action Plan and the European Skills Agenda. Erasmus+ helps people of all ages and backgrounds develop and share knowledge and experience at institutions and organisations in different countries. It enhances skills and intercultural awareness and helps people become engaged citizens. Between 2014 and 2020, Erasmus+ has given 3.7 % of young people in the EU a chance to study, train, volunteer or gain professional experience abroad¹.

Currently, the programme focusses on social inclusion, the green and digital transitions, and promoting young people's participation in democratic life. An important feature of the Erasmus+ programme is the recognition and validation of skills and qualifications by supporting EU transparency and recognition tools for skills and qualifications. These tools ensure that skills and qualifications can be more easily recognized and better understood, within and across borders in all sub-systems of education and training as well as in the labour market, no matter whether these were acquired through formal education and training or through other learning experiences (e.g. work experience; volunteering, online learning). The tools also aim to ensure that education, training and youth policies further contribute to achieve the Europe 2020 objectives of smart, sustainable and inclusive growth and its education and employment headline targets through better labour market integration and mobility.

2. The SUSKIDS project and objectives

The project "SUSKIDS Enabling professionals and families to transfer SUsustainable knowledge and SKills to Down Syndrome individuals" aims to connect the education and training of students with Down Syndrome in the field of sustainability and the need of raising awareness about new materials produced.

Among the European countries there are different educational systems to which students with Down Syndrome are subjected. Currently, there is a lack of coherent curriculums and inclusion measures in all EU countries aimed at people with Down Syndrome. On the other hand, training programmes are often insufficient and limited by the availability of dedicated teachers. Therefore, students with Down Syndrome lack educational and professional opportunities and are often pushed to basic professional training programmes, focused to their early inclusion in the labour market.

Although it is well known that people with Down Syndrome are visual learners and can quickly develop abilities and learn through play and sensory activities, few programmes based on eLearning for scientific competences have been developed for them. While these approaches are being considered by policy makers, there is yet a lack of research in this field and its adaptation to primary and secondary education for people with disabilities. However, this is crucial to enhance future careers and changing the societal misconceptions and prejudices against the skills and competences of people with Down Syndrome and other special needs, providing them with skills and knowledge on scientific and technical fields.

Especially when it comes to sustainability, it is important to address environmental sustainability from early on, by promoting an active and participative methodology, focused on engaging students to learn about recycling, and through collaborative projects. Also, Educational Technology brings new opportunities for designing attractive approaches and tools to improve the engagement of students with Down Syndrome, enhancing their outcomes academic subjects, but also their self-care capacities.

Therefore, the SUSKIDS project has the following objectives:

- **Designing acknowledged learning and evaluation tools and guidelines to promote the sustainability and self-care skills for individuals with Down Syndrome.** This will increase their possibilities in the labour market and their autonomy, and reinforce their inclusion and self-esteem.
- **Improving the skills of trainers and educators, providing them with tools and resources in recycling and construction.** This way, they will be able to transfer this knowledge and skills to students with Down Syndrome.
- **Contacting policy makers in the field of education and institutions working with people with Down Syndrome,** to promote these approaches and involve more people with disabilities in the society, enhancing their digital integration.
- **Developing more feasible and easier to implement methodologies** such as Personalised learning, inquiry-based learning, game-based learning and Project-Based Learning for people with Down Syndrome.

To do so, SUSKIDS will provide resources (a Toolkit, a VLE, a course and a white paper) with a substantial impact on the formal education system and the society as a whole: for people with Down Syndrome, specially these aged 12-18, families and associations, the improvement in competences, engagement and, raising inclusion at long-term, as well as an increase of social awareness on inclusive education; resources and improved long-life education for teachers; for policy-makers, new approaches in education self-management for people with disabilities and cost-effective methodologies for reducing dependence of people with disabilities; and for SME and industry, market opportunities related to self-management of people with disabilities integrated into the curriculum of secondary education.

Chapter 2: Education for Down Syndrome Individuals

In the last thirty years, there has been an increasing focus on inclusion in education and the education of students with Down Syndrome also plays an important role. In this way, students with Down Syndrome can participate in regular education systems where possible or make use of special education if necessary. Research has already shown that inclusive education for students with down syndrome provides better opportunities.

1. Learning and teaching of students with Down Syndrome

Down Syndrome is a genetic condition characterized by the presence of an extra chromosome. Though people with Down Syndrome might act and look similar, each person has different abilities. Students with Down Syndrome may share learning disabilities ranging from mild to profound, but above all they are individuals with a broad diversity of learning needs as well as abilities and all have the capacity to learn. A whole lot of other factors can contribute to the learning abilities and needs of students, such as health, context of the learner (e.g. SES, country, family) or social/emotional development^{2,3}. Although no general learning profile can be given, some learning abilities and challenges occur more frequently in students with Down Syndrome. Familiarizing with their way of learning can inform teaching strategies that best fit the needs of a student with Down Syndrome.

Students with Down Syndrome tend to have **better visual than auditory perception**⁴. They learn with greater ease supported by signs, gestures, images, pictures, graphics, pictograms or any kind of visual key. A greater difficulty is found in auditory-verbal modes than in the visual-spatial⁴. This way, students with Down Syndrome learn best by observation and imitation. However, keep in mind that visual or hearing impairments are common in individuals with Down Syndrome².

Concerning information processing they tend to have **difficulties in processing information**, both at the reception step, as at the processing and answer. They find hard to correlate information and to process it to take sequential and logic decisions, so they find difficulties handling different data, especially if they are presented simultaneously⁵. They show cognitive limitations involving difficulties for abstraction, conceptualizing and accessing complex knowledge.

These information processing challenges translate to their language and communication skills, in which their **language comprehension capacity is higher than their verbal expression ability**⁶. So while a student with Down Syndrome may not be able to express it, they do comprehend what you are trying to communicate. Students with Down syndrome generally demonstrate **good social skills**, which can be constructively utilised to increase learning and teaching opportunities

Concerning memory, they show more **limitations in explicit memory**, which is intentional and conscious and requires more effort than implicit memory. This slows down their learning, so

repetition is key. Looking on the bright side, they show a very positive component of **determination and tenacity**. Repetition is key!

To summarize, we suggest some **teaching strategies** to support learning for youngsters with Down Syndrome^{2,7}:

- ✓ Support observational learning by using visual demonstrations, pictures and illustrations;
- ✓ Tap into concrete intelligence and avoid abstract learning;
- ✓ Take it step by step, literally. Avoid presenting multiple stimuli at a time, adapt your pace to your students and break down learning activities into sequential steps;
- ✓ Keep your students motivated by enhancing and monitoring their interest;
- ✓ When communicating, allow adequate time for your student to process language and respond. Speak directly to the student, using clear language and short sentences, and use appropriate and unambiguous facial expressions;
- ✓ Use as much examples and exercises as possible, because to them, more repetition is usually needed to achieve the same degree of knowledge as fellow students;
- ✓ Support generalization of learnt information and skills by repetition at different places, with different people. Apply and transfer as much as possible to their everyday environment, because that is where a great deal of consolidation and generalization takes place;
- ✓ Another important tip in familiarizing is predictability, so make sure to be systematic in learning and evaluating activities;
- ✓ Tactile demonstrations and activities also appeal to many students with Down syndrome.
- ✓ Directly teach timetables, routines and school rules to students.
- ✓ Structure learning and teaching opportunities to enable the student to engage in tasks with other students, who can act as appropriate role models.

2. Educational systems

It is clear that every individual with Down Syndrome has the capacity to learn and this should be supported by providing them educational opportunities. But what are these opportunities? What systems and different options exist to provide education for students with Down Syndrome? We'll take a look at the educational systems in the countries of Belgium, Spain and Ireland.

The case of Belgium

Stages and types of education in Flanders

All children in Belgium can attend school from the age of 2,5 years. Education is compulsory between the ages of 6 until 18. This means that, although every child has the right to receive education, parents may choose for their kids to attend school or may choose home schooling for their children.

Education in Flanders (the Flemish-speaking region of Belgium) starts with **elementary education**, consisting of pre-school and primary education. Pre-school education is accessible for children from 2.5 to 6 years old. Although not obligatory, most children participate in pre-primary education. Pre-school education supports the versatile formation of children and is aimed to stimulate their cognitive, motor and affective development. Primary education is targeted at children from 6 to 12 years old and comprises six subsequent school years. A child usually starts primary education when he or she is six years old. Primary education exists as regular education as well as Special Needs Education. Upon successful completion of primary education, children are granted a certificate.

Secondary education is the following stage which is organized for young persons from ca. 12 to 18 years old. This consists of three stages, called grades (two years each), as well as various models of education. This also includes a system of alternating learning and working and Special Needs Education.

Higher education is the last stage of education. This includes both traditional Research Universities and the Universities of Applied Sciences (Colleges). Through higher education, a Bachelors, Masters or Doctoral degree can be obtained. This is among others, keeping in mind that Life-long learning is an important aspect of the Belgian (Flemish) educational system, so various other types of degrees exist.

Special Needs Education exists from pre-primary through secondary education and is organized for children and young adults with specific physical or mental disabilities, serious illnesses, severe learning disabilities or serious behavioural and/or emotional difficulties who need temporary or permanent specific support. Special Needs Education is categorized into 9 different types of special needs. Within these types, several forms of training exist ranging from social adaptation, over vocational education to general, vocational, artistic and technical education. Next to education, these school also offer care and therapy.

Students with Down Syndrome are faced with **two options: regular, inclusive education or Special Needs Education**. The first option means that they attend a regular school with classmates of more or less the same age. They participate in regular lessons if possible, but they attain different goals based on their individual capabilities. The main objective is to participate as much as possible, but within feasible ranges. The second option means that they attend a Special Needs school.

Very few students with Down Syndrome in Flanders attend inclusive education. When they do attend a regular secondary school, this is usually limited to a vocational type of training. Most students with Down Syndrome in Flanders attend Special Needs Schools and they follow vocational education or social adaptation training.

The benefits of inclusive education are well-know. Therefore, Belgium strives to achieve better support for inclusive education to **close the gap between inclusive theory and practice**. Belgium

conducted the **M-Decree** in 2015 to ensure more inclusion in education and that students with specific educational needs would receive provisions and adaptations in order to be able to participate fully and on equal terms in regular schools and classrooms and make classrooms more representative of Belgian (Flemish) society as such. Since then, students with disabilities were no longer limited to attend Special Needs Education. Parents of students with disabilities can choose for regular education and are supported by Student Guidance Centers to start a process of inclusive education. Unfortunately, the M-Decree still encountered a lot of problems in praxis: teachers and schools lack resources, time and workforces to provide the extra support to students with disabilities.

The educational system in Belgium is currently evolving and so are measures to ensure inclusive education. Currently a new Decree is proposed and should be conducted around 2022, the '**Guidance Decree**' which still ensures regular education as an option for every student, but this Decree adds to the previous one in providing more and better support to make inclusion work. The exact measures remain unsure, but the ultimate goal remains **participation for every student as much as possible, within the possibilities of the individual, its personal and school context.**

The case of Spain

The education system offers the following studies: pre-primary education (from 0 to 6 years old), primary education (from 6 to 12 years old), compulsory secondary education (from 12 to 16 years old), Bachillerato (from 16 to 18 years old), vocational training (from 15 years old), adult education, and university education.

In Spain accordance with the 2013 Act on the Improvement of the Quality of Education, students with a specific need for specific educational support, have the following issues:

- ✓ Special education needs related to physical, psychological or sensory disability, or serious conduct disorder
- ✓ High intellectual capacities
- ✓ needs resulting from a late entry into the education system
- ✓ Specific learning difficulties
- ✓ Attention Deficit Hyperactivity Disorder (ADHD)
- ✓ Students with a history of personal or school conditions.

In **ordinary schools**, according to the diversity policy provided by the Spanish education system, the development of measures for meeting the educational needs takes into account the total number of students attending the school. In turn, the educational authorities regulate the appropriate measures to attend to students who have specific academic support needs at various levels. These measures can be ordinary and extraordinary measures depending on the level of support for students. **Measures of an ordinary nature** are considered as follows: those that affect the organisation of the institution with regards to the groups and methodologies in order to comply with diversity without modifying the prescriptive elements of the curriculum. Therefore, they do not significantly modify the objectives, contents, assessment criteria, assessable learning standards or basic skills. These measures do not require previous psycho-pedagogical assessment,

so they can affect the whole student body and modify non-prescriptive elements of the curriculum (universal design of learning favouring accessibility and allowing active and full students' participation in learning (access to spaces, curriculum and resources, host activities, promotion of actions aimed at students', socialization and diversity appreciation, organisation of support and supporting activities, absenteeism and early school dropout prevention)). They are included in the Royal Decrees that establish the basic curricula for Early Years, Primary and Secondary Education stages. These measures also include the prevention and detection of learning difficulties, among which the following stand out:

- ✓ Implementation of reinforcement and support mechanisms
- ✓ Individualised attention
- ✓ Adaptation to the different learning speeds
- ✓ Support in the classroom, group splitting and flexible grouping
- ✓ Selection and implementation of different resources and methodological strategies
- ✓ Adaptation of curricular material
- ✓ Optional studies expected for compulsory secondary education.

Extraordinary measures are aimed at responding to specific needs for educational support and they complement ordinary measures, they are only applied in compulsory education (students from 6-16 years old. They are aimed at those students with more severe learning difficulties than others due to different reasons. The implementation of these measures requires a prior diagnosis of the students' educational needs, through the psycho-pedagogic evaluation carried out by the guidance services. In addition, continuous monitoring is necessary for adapting the decisions taken and allowing these students access to the curriculum and ordinary education as widely as possible.

The Education of students with **special educational needs** is governed by the principles of standardisation and inclusion, introducing flexible measures at different stages, when considered necessary. The Education of pupils in special education units or centres will only take place when their needs cannot be met within the framework of measures for compliance with diversity policies in mainstream institutions

In the specific schools for special education three education levels are developed:

- ✓ **Early Years Education:** this stage is for children from 3 to 6 years old (as it is not a compulsory stage, it is not provided in all special education centres). The reference document for this stage is the current Early Years Education curriculum of each educational administration.
- ✓ **Compulsory Basic Education** (from 6 to 16 years old). The primary school curriculum of each educational administration is the reference for this stage and adaptations can be made based on each of its areas. When a student needs it, it is possible to include contents from early years education or ESO according to their level.
- ✓ **Transition into Adulthood Programmes** (students aged 16 having studied Compulsory Basic Education in a separate special education school students who comply with the age requirement and whose special education needs make it desirable for them to continue

their training process through these programmes; students can continue being Educated at school until reaching the maximum age of 21). The curriculum is open and flexible and it is structured in three different areas: personal autonomy in daily life, social and community inclusion and employability abilities and skills. In this case, the choice of this modality must be preceded by the psycho-pedagogical evaluation made by the relevant Educational and Psycho-pedagogical Guidance Services. In addition, students and parents' opinion must be taken into account and the corresponding mandatory report from the Education Inspectorate is required.

Group organisation is flexible, taking account of students' education needs, not students' age. The teacher/student ratio varies in the different Autonomous Communities, although it is about five. Generally, students attending separate special education schools require some significant curricular adaptations in almost every area or subject of the curriculum

The case of Ireland

The Education Act of 1998 ensures formal provision for the education “of every person in the State, including any person with a disability or who has other special educational needs”. The Act governs “primary, post-primary, adult and continuing education and vocational education and training”. The Irish education system is comprised of a mainstream primary and second-level education system and a parallel special school system.

Primary education: Compulsory education begins at age six, although the majority of students attend infant classes by the age of four and five. The primary curriculum is currently being reviewed and re-designed in Ireland.

Secondary education: At post-primary, students normally take a nationally standardised examination at the end of junior cycle. Students who participate in Level 1 Learning Programmes and Level 2 Learning Programmes for junior cycle do not sit state examinations, instead gathering evidence of learning into a portfolio over the duration of the junior cycle. Every student who completes their junior cycle-at level 1, 2, and/or 3- receives a Junior Cycle Profile of Achievement which records their examination results and other achievements at junior cycle. Junior Cycle is followed by an optional ‘Transition Year’, and a two-year senior cycle programme, at the end of which students take the nationally standardised examination. The two-year senior cycle programme offers a choice of Leaving Certificate Applied, Leaving Certificate and Leaving Certificate Vocational Programme. Senior cycle is currently under review in Ireland.

Special Education: Special education in Ireland is based on a model of a continuum of supports. While the policy is to ensure the maximum possible inclusion for students with special education needs in mainstream settings, depending on the individual’s assessed level of need in education, students may attend special classes within mainstream schools and special schools. Though special schools provide primary and post-primary education until the age of eighteen, special schools fall under the remit of the primary sector. There are currently 134 special schools in Ireland with approximately 8407 students enrolled in 2020/2021. Special classes fall under the

remit of the school they are in. In the school year 2020/2021, there were 1836 special classes across primary and post-primary schools in Ireland, and each class can have a maximum of 6 students enrolled. The choice of placement for students with Down Syndrome in Ireland will be dependent of their level of need and the resources available in schools. Most students with Down Syndrome will have a Special Needs Assistant to support them in mainstream schools.

Most individuals with Down syndrome have mild (IQ: 50–69) or moderate (IQ: 35–50) intellectual disability with some cases having severe (IQ: 20–35) difficulties. Some special schools limit their intake to mild disability. As a result, most students with Down Syndrome in Ireland attend mainstream primary schools, integrated with the rest of the pupils in the cohort, with a Special Needs Assistant to support them.

Higher education: There are a number of institutions providing higher education for people with DS in Ireland. The institutions range from semi-private, to Charity institutions and Universities. Some courses are private and other are partly or fully subsidized.

A number of groups provide NLN (National Learning Network) rehabilitative training at QQI Levels 1, 2 and 3 that are accessible to individuals with Down Syndrome. Alternatively, other institutions such as the Saint John of God Community Services of the Dublin South East Region provide Adult day services, which are aimed at practical life training rather than a more academic instruction. They develop independent skills such as using public transport, managing money, and cooking, independent study, making decisions about your future and planning your next steps.

The NLN groups offer Access Course modules at QQI Level 2 and QQI Level 3. These modules typically include Computer Skills, Career Preparation, Personal and Interpersonal Skills, Finance, Communications, Nutrition and Health and Fitness. These courses are typically two years in duration and the modules change each year. In these modules, some subjects are offered to enhance individual interests such as art, tennis and football, with a focus to build confidence and develop teamwork skill. They focus on improving reading, writing and maths and facilitate work experience when possible.

Chapter 3: Understanding European and national frameworks

“In our modern world, people need opportunities to build their skills and put them to use as they move between jobs, types of work, and further training. The European Qualifications Framework is a cornerstone of our cooperation on making people’s skills and qualifications more easily understood and recognised when they move either at home or abroad for work or study. Thanks to the EQF, employers can more easily compare foreign qualifications to national ones and better understand the skills profiles of candidates. The EQF helps people put their talent to use, smoothing the path to further learning and supporting a better skills match in the labour”

– Marianne Thyssen, European Commissioner for Employment, Social Affairs, Skills and Labour Mobility (European Commission, 2018, p. 4)

1. The European framework of qualifications

The European Framework of Qualifications (EQF) is a reference framework that facilitates the comparison of qualifications between different European countries it provides a framework for describing qualifications based on their expected learning outcomes. This adds to the transparency of qualifications and makes them easier to understand and compare. The EQF **aims to improve the transparency, comparability and citizen mobility portability of people’s qualifications**. It serves as a **translation device between different qualification systems and their educational levels**. It is intended to benefit learners, workers, job-seekers, employers, trade unions, education and training providers, qualification recognition bodies, government authorities and international organizations⁸.

The EQF sums up different qualifications. A **qualification** is defined as a “formal outcome of an assessment and validation process when a competent body determines that an individual has achieved learning outcomes to given standards” (European Commission, 2018, p. 7). They describe learning goals as they state what a person should be able to know, understand and be able to do after a learning process. This way, qualifications set standards for a successful completion of a learning process and are a means to validate learning trajectories. However, the EQF doesn’t focus on the classification of individual competencies, but it can be an instrument to inspire and facilitate the assessment and validation of skills acquired through work and life experiences⁸.

These qualifications are categorized into sets of criteria. This creates the EQF framework with eight levels of learning achievements. Accompanying level descriptors show how expectations of knowledge, skills, autonomy and responsibility increase as learners progress from level 1 to level 8. These levels, along with the descriptors, function as a translation grid and make it possible to

compare qualifications from different countries and institutions. Table 1 gives an overview of the levels and descriptors of the EQF.

Table 1*The European Framework of Qualifications*

EQF-Level	Knowledge <i>Theoretical and/or factual</i>	Skills <i>Cognitive (the use of logical, intuitive and creative thinking) and practical (manual dexterity and the use of methods, materials, tools and instruments)</i>	Responsibility and autonomy <i>The ability of the learner to apply knowledge and skills autonomously and with responsibility</i>
Level 1	Basic general knowledge.	Basic skills required to carry out simple tasks.	Work or study under direct supervision in a structured context.
Level 2	Basic factual knowledge of a field of work or study.	Basic cognitive and practical skills required to use relevant information in order to carry out tasks and solve routine problems using simple rules and tools.	Work or study under supervision with some autonomy.
Level 3	Knowledge of facts, principles, processes and general concepts in a field of work or study.	A range of cognitive and practical skills required to accomplish tasks and solve problems by selecting and applying basic methods, tools, materials and information.	Take responsibility for completion of tasks in work or study. Adapt own behaviour to circumstances in solving problems.
Level 4	Factual and theoretical knowledge in broad contexts within a field of work or study.	A range of cognitive and practical skills required to generate solutions to specific problems in a field of work or study.	Exercise self-management within the guidelines of work or study contexts that are usually predictable, but are subject to change. Supervise the routine work of others, taking some responsibility for the evaluation and improvement of work or study activities.
Level 5	Comprehensive, specialised, factual and theoretical knowledge within a field of work or study, and an awareness of the boundaries of that knowledge.	A comprehensive range of cognitive and practical skills required to develop creative solutions to abstract problems.	Exercise management and supervision in contexts of work or study activities where there is unpredictable change. Review and develop performance of self and others.
Level 6	Advanced knowledge of a field of work or study, involving a critical understanding of theories and principles.	Advanced skills, demonstrating mastery and innovation, required to solve complex and unpredictable problems in a specialised field of work or study.	Manage complex technical or professional activities or projects, taking responsibility for decision-making in unpredictable work or study contexts. Take responsibility for managing professional development of individuals and groups.
Level 7	Highly specialised knowledge, some of which is at the forefront of knowledge, in a field of work or study, as the basis for original thinking and/ or research. Critical awareness of knowledge issues in a field and at the interface between different fields.	Specialised problem-solving skills required in research and/or innovation in order to develop new knowledge and procedures, and to integrate knowledge from different fields.	Manage and transform work or study contexts that are complex, unpredictable and require new strategic approaches. Take responsibility for contributing to professional knowledge and practice, and/or for reviewing the strategic performance of teams.
Level 8	Knowledge at the most advanced frontier of a field of work or study, and at the interface between fields.	The most advanced and specialised skills and techniques, including synthesis and evaluation, required to solve critical problems in research and/ or innovation, and to extend and redefine existing knowledge or professional practice.	Demonstrate substantial authority, innovation, autonomy, scholarly and professional integrity and sustained commitment to the development of new ideas or processes at the forefront of work or study contexts, including research.

Students with Down Syndrome are most often found in levels 1 to 3. This is why we will take a closer look at these levels.

Level 1: learners are those young people with general learning (cognitive) disabilities in the low moderate and severe/profound range of ability who are at a primary level of education. These learners will be at an early stage of cognitive development and the ways in which they learn may not follow the conventional linear developmental path as their typically developing peers. Barriers faced by these learners include:

- Additional motor and/or sensory difficulties.
- Basic self-care needs.
- Significant communication needs.
- Significant emotional and/or behavioural needs that affect learning and social interaction.

Level 2: learners are those young people with general learning (cognitive) disabilities in the low mild to high moderate range of ability who are at a primary to foundational secondary level of education. The developmental rate of these learners is slower, and the level reached generally lower than that attained by their typically developing peers. Barriers faced by these learners include:

- Limited concentration.
- Passivity.
- Delayed oral language development.
- Difficulty in adapting to their environment.
- Limited ability to generalise.
- Difficulties in problem-solving.

Level 3: learners are those young people who are typically developing according to their educational stage at the lower secondary level of education.

The learning material developed in the SUSKIDS project are designed using learning outcomes, to be accessible for learners who are learning at levels 1 to 3 as outlined in the EQF to best match the learning needs and possibilities of youngsters with Down Syndrome

2. National frameworks of qualifications

The EQF is a system of levels for relating different qualifications to one another. Countries use these levels to align with their own National Framework of Qualifications (NFQ). At the moment, 39 countries participate in the EQF. A majority of 36 countries already formally linked ('referenced') their national framework to the EQF, among which are Belgium and Ireland who also updated their referencing reports. In the following the NQF of Belgium (Flanders), Ireland and Spain will be reviewed and aligned to each other as well as the EQF.

The case of Belgium

In 2009, only recently after the approval of the EQF, the Flemish Parliament approved the Decree on the Flemish Qualifications Structure (Vlaamse Kwalificatiestructuur, VKS). The VKS ennobles lifelong learning and thus helps people to keep up with fast changing technological, economic and social developments. It maps qualifications and improves cooperation between education and the labour market to help people find the best way to achieve a certain qualification⁹.

Qualifications are sets of knowledge and skills. In the VKS two categories of qualifications exist:

- 1) **Professional qualifications** are sets of competences with which someone can exercise a profession. They can be attained through education and training providers as well through a procedure for recognising acquired competences (EVC).
- 2) **Educational qualifications** are sets of competences that allow people to participate in the society, to embark further studies and/or exercise a profession. They can only be obtained through education.

Professional and educational qualifications can both be found on each level of the VKS.

This VKS qualifications structure consist of eight levels and provides an arrangement of qualifications that are recognized by the Flemish Government. Each level is composed on the basis of five elements: knowledge, skills, context, autonomy, and responsibility. Table 2 gives an overview of all the levels of the VKS.

Table 2

Vlaamse Kwalificatiestructuur (VKS): the National Qualifications Framework in Belgium (Flanders)

VKS-Level	Skills and knowledge	Context, autonomy and responsibility
Level 1	<ul style="list-style-type: none"> • Recognise materials, concise, unambiguous information, simple concrete basic concepts and rules from a part of a specific domain. • Use one or more of the following skills: <ul style="list-style-type: none"> ○ Cognitive: recalling, remembering and applying information from memory ○ Motor skills: using automatisms and imitating practical actions • Perform repetitive and recognisable actions in routine tasks 	<ul style="list-style-type: none"> • Act in a stable, familiar, simple and well-structured context, in which the time pressure is of little importance • Handle non-delicate objects • Function under direct supervision • Demonstrate personal effectiveness
Level 2	<ul style="list-style-type: none"> • Understand information, concrete concepts and standard procedures from a specific domain • Use one or more of the following skills: <ul style="list-style-type: none"> ○ Cognitive: analysing information by distinguishing elements and making connections ○ Motor skills: transform sensory experiences into motor actions; carry out learned practical-technical actions • Apply a selected number of standard procedures in the performing tasks; using prescribed strategies for solving a limited number of recognizable concrete problems 	<ul style="list-style-type: none"> • Act in a limited number of comparable, singular, familiar contexts • Handle delicate, passive objects • Function under supervision with limited autonomy • Take limited executive responsibility for own work

VKS-Level	Skills and knowledge	Context, autonomy and responsibility
Level 3	<ul style="list-style-type: none"> • Understand a number of abstract concepts, laws, formulas and methods from a specific domain; distinguish between the main and the secondary elements of information • Use one or more of the following skills: <ul style="list-style-type: none"> ○ Cognitive: analysing information by deduction and induction; synthesising information ○ Motor skills: make constructions on the basis of a plan; perform actions that require tactical and strategic insight; applying artistic and creative skills • Choosing, combining and using standard procedures and methods to • Perform tasks and solve a variety of well-defined concrete problems 	<ul style="list-style-type: none"> • Act in similar contexts in which a number of factors change • Deal with delicate, active objects • Function within a defined range of tasks with some autonomy • Take limited organizational responsibility for own work
Level 4	<ul style="list-style-type: none"> • Interpret concrete and abstract data (information and concepts) from a specific domain • Apply reflective cognitive and productive motor skills • Evaluate and integrate data and develop strategies to carry out various tasks and to solve various concrete, unfamiliar (but domain-specific) problems 	<ul style="list-style-type: none"> • Act in a combination of changing contexts • Function autonomously with some initiative • Take full responsibility for own work; evaluate and adjust own functioning with a view to achieving collective results
Level 5	<ul style="list-style-type: none"> • Expand the information from a specific domain with concrete and abstract data or with missing data; use conceptual frameworks; being aware of the scope of the domain-specific knowledge • Apply integrated cognitive and motor skills • Transfer knowledge and use procedures in a flexible and inventive way to carry out tasks and to solve concrete and abstract problems strategically. 	<ul style="list-style-type: none"> • Act in complex and specialized contexts • Function with full autonomy and a large degree of initiative • Take shared responsibility to achieve collective results

VKS-Level	Skills and knowledge	Context, autonomy and responsibility
Level 6	<ul style="list-style-type: none"> • Integrate or reformulate knowledge and insights from a specific domain or on the interface between different domains • Apply complex specialized skills, related to research outcomes • Collect and interpret relevant data and use selected methods and tools in an innovative way to solve unfamiliar complex problems 	<ul style="list-style-type: none"> • Act in complex and specialized contexts • Function with full autonomy and a large degree of initiative • Take shared responsibility to achieve collective results
Level 7	<ul style="list-style-type: none"> • Integrate and reformulate knowledge and insights from a specific domain or on the interface between different domains • Apply complex new skills, related to independent standardized research • Critically judge and apply complex, advanced and/or innovative problem solving techniques and methods 	<ul style="list-style-type: none"> • Act in unpredictable, complex and specialized contexts • Function with full autonomy and decision-making right • Take final responsibility to achieve collective results
Level 8	<ul style="list-style-type: none"> • Expand and/or redefine existing knowledge from a substantial part of a specific domain or on the interface between different domains • Interpret and create new knowledge through original research or advanced scientific research • Design and execute projects that expand and redefine procedural knowledge, aimed at the development of new skills, techniques, applications, practices and/or materials 	<ul style="list-style-type: none"> • Act in extraordinary complex contexts with broad, innovating implications • Take the responsibility for the development of the professional practice or scientific research with a high degree of critical sense and steering ability

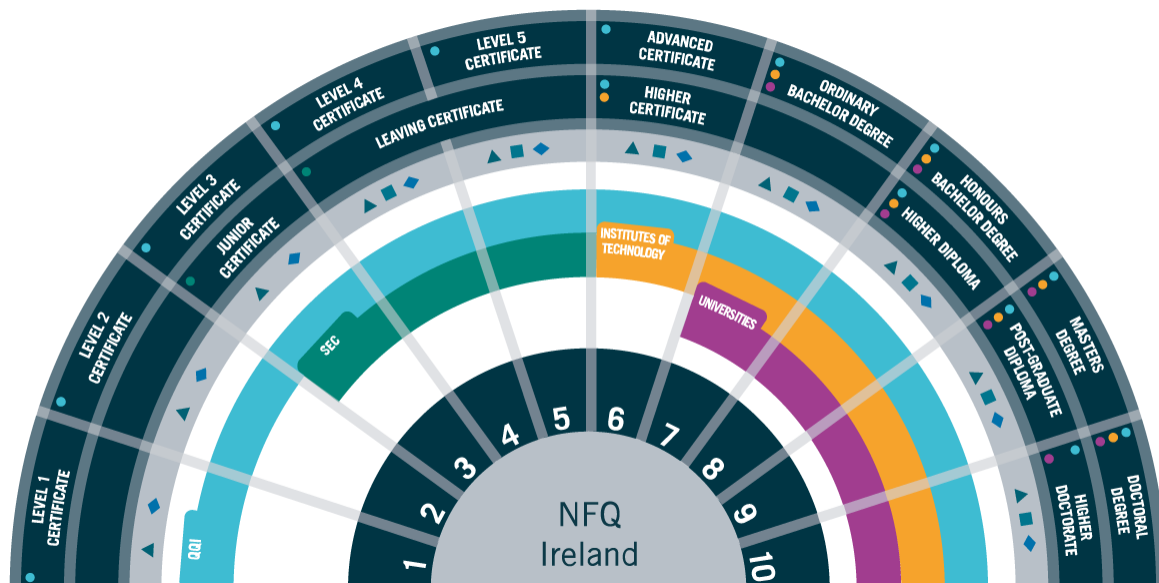
The case of Ireland

The Irish National Framework of Qualifications (NQF) is a system of 10 levels used to describe the Irish qualifications system. The NQF is based on standards of knowledge, skill and competence and incorporates awards made for all kinds of learning. Qualifications achieved in school, further education and training and higher education and training are all included. All framework awards have an NQF Level which describes the standard of learning and an NQF Award-Type which describes the purpose, volume and progression opportunities associated with a particular award. The NQF can be used by learners to guide their choices about education and training; by employers and institutions to understand qualifications; and by providers of education and training looking to assure the quality of programmes they offer.

Ireland has collaborated with other countries to ensure that qualifications frameworks are connected internationally. The relationship between the Irish NQF and the European Qualifications Framework (EQF) and the Qualifications Framework for the European Higher Education Area (QF – EHEA) has been formally established. Therefore Ireland’s Framework of Qualifications are aligned with the European Framework, as shown in Figure 1.

Figure 1

The Irish National Framework of Qualifications



Level 1 and 2 Certificates are designed to meet the needs of learners, both young and old, including those with intellectual and other disabilities, adults returning to training, and learners with few or no previous qualifications, including those within the workforce. These awards provide certification for learners who may progress to higher levels and also for those whose principal achievements rest at these levels. Each certificate comprises a number of components, most often in basic literacy and numeracy, which the learner can achieve at their own pace and

accumulate over time towards a level 1 or 2 certification. In Ireland Level 1 is for learners with general learning disabilities in the low moderate to severe and profound range of ability. Level 2 is for learners with general learning disabilities in the low mild to high moderate range of ability.

The case of Spain

On 2008, the European Parliament and the Council enacted the Recommendation on the establishment of the European Qualifications Framework for Lifelong Learning (EQF), a common European reference framework which enables linking the qualifications of the Member States and calls upon the Member States to set their own national qualification frameworks.

In 2009, the Spanish Government entrusted the Ministry of Education with the drawing up of the **Spanish Qualifications Framework**. In 2011, the Sustainable Economy Act demanded the creation of this framework in order to encourage and increase the mobility of students and workers.

The Spanish Qualifications Framework (*Marco Español de Cualificaciones - MECU*) is an instrument to promote and improve everyone's access to lifelong learning and participation in it, as well as the recognition and use of qualifications at national and European level.

The Spanish Qualifications Framework is a national qualifications framework (degrees, diplomas and certificates) that includes lifelong learning. It is a structure that organises qualifications according to levels and comprises from the most basic to the most complex learning. It, therefore, covers general and adult education, vocational education and training, and higher education. It includes:

- qualifications obtained outside the education system through in-service training, work activity, collaboration with NGOs, etc.
- qualifications obtained in the education system.

The Spanish Qualifications Framework aims to correlate and coordinate the different subsystems of education and training and include the qualifications obtained in compulsory, post-secondary and higher education, as well as integrate the validation of non-formal and informal learning.

The **eight levels** of the framework proposed cover all types of qualifications in Spain. Level descriptors are defined in terms of knowledge, skills and competences.

As Table 3 is showing, four upper levels are compatible with the levels of the **Spanish Qualifications Framework for Higher Education (*Marco Español de Cualificaciones para la Educación Superior - MECES*)**, based on the Dublin descriptors. The levels within MECES are labelled 1 to 4 and correspond to the four levels of the FQ-EHEA: técnico superior (advanced VET), grado (bachelor), master (master) and doctor (doctorate). Of these, the first is a non-university higher education level included to support and promote lifelong learning. Some advanced vocational education and training (VET) is considered higher education (HE) but is undertaken outside the university system; such advanced VET studies may be recognised not only for

admission to university but also as ECTS credits where subjects/learning outcomes are properly aligned.

Table 3

The Spanish Qualifications Framework Compared to the European Framework of Qualifications

Spanish Qualifications Framework for Higher Education (MECES)			European Qualifications Framework
LEVELS		QUALIFICATIONS	LEVELS
1	<u>Advanced Technician</u>	Vocational Training Advanced Technician Plastic Arts and Design Advanced Technician Sports Education Advanced Technician	Level 5
2	Bachelor	Bachelor's Degree Advanced Certificate in Advanced Artistic Education	Level 6
3	Master's	Master's Degree Master's Degree in Artistic Education Bachelor's Degree of at least 300 ECTS credits including at least 60 ECTS credits at Master's level, which has obtained this level of qualification by resolution of the Council of Universities	Level 7
4	PhD	Doctoral Degree	Level 8

Royal Decree that will establish the foundations for its (MECU) implementation is currently under preparation. In such project, the establishment of a committee including social actors, ministries, trade unions and the most representative employers' associations, as well as experts in vocational qualifications of different sectors, is recommended. This committee would be in charge of deciding on the assignment of qualifications to the levels of the Spanish Qualifications Framework, which should be based on three criteria:

- comparability between the descriptors of the qualifications, defined as learning outcomes, and the level descriptors of the Spanish Qualifications Framework
- implementation of a common quality assurance system in higher education and vocational training
- public consultation with the bodies and organisations involved in the design of qualifications in their respective sectors.

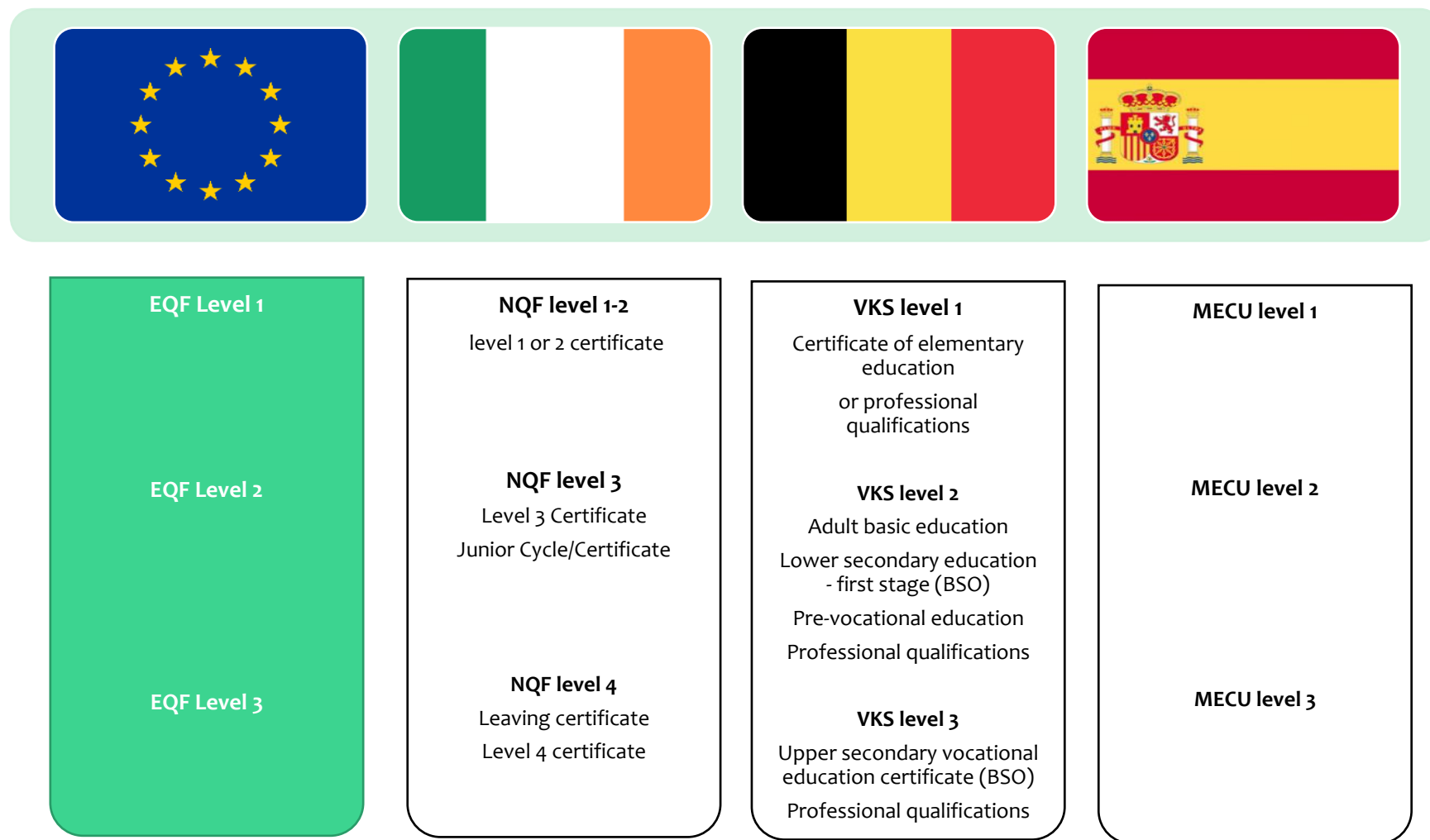
The intention is to assign formal education qualifications to the levels of the Spanish Qualifications Framework in the first place. The assignment of qualifications related to the validation of non-formal and informal learning is expected to be more complicated.

3. Aligning the European, Belgian, Spanish and Irish frameworks of qualifications

Put together, the national frameworks can be aligned to the EQF as Figure 2 is showing¹⁰.

Figure 2

Alignment of the National Frameworks of Ireland, Belgium (Flanders) and Spain to the EQF



Chapter 4: Content of the learning materials

Learning through the lens of sustainability is a fundamental feature of education for sustainable development. It is important that students can design and create today without compromising the needs of the student of tomorrow. It can promote a shift in student's mindsets and enable them to make our world safer, healthier and more prosperous, thereby improving quality of life for everyone.

1. SUSKIDS Virtual Learning Environment

Aim

The SUSKIDS Virtual Learning Environment (VLE) is an online platform in which teachers and students can engage in a course on sustainability. The platform combines information and activities to ensure a fun way of learning. Engaging in the platform not only helps build sustainability skills, but helps students building digital skills.

Content

The contents designed within SUSKIDS project are organized around four strands:

Strand 1: The environment

This strand aims to explore environments in the student's locality and to learn about materials and objects that can be discovered here. Students will learn about contributing to their immediate community through participation in keeping their locality environmentally balanced.

Strand 2: Rubbish

This strand focuses on recycling. What materials can/cannot be recycled, reducing waste and upcycling materials that cannot be recycled. Examining man-made and natural materials used to construct a dwelling. Identification of products and how these can be used to build.

Strand 3: Where does rubbish go?

This strand aims to understand what we do with the rubbish.

Strand 4: Construction and the environment

Learning about the use of recycled products in constructions and to design and create a structure that will be functional to hold a specific weight.

Learning outcomes

The materials in the strands support the teaching and learning of the skills pursued in the project. They are universally designed and can be adapted to suit individual students and short course levels.

The main learning goals are:

- Strand 1: to appreciate nature, the clean and nice things around them.
- Strand 2: to understand what rubbish is.
- Strand 3: understand the importance of reducing waste
- Strand 4: using rubbish to make materials that are good for the environment and understand how construction causes waste and the concept of sustainability

Assessment

The activities included in the VLE are evaluated on the spot, to support the learning process of the student. Students gain feedback about their performance in the form of visual and auditive cues. Throughout completing courses and successfully solving activities, students are rewarded with points.

2. SUSKIDS Short Course

Aim

The SUSKIDS short course ‘**Design for sustainable living**’ is a junior cycle course on the topic of sustainability that aims to enable and empower students to:

- understand waste reduction and recycling
- be aware of the need for sustainability in their local setting or community
- actively engage in the local and wider community
- analyse the use of materials in built objects
- design and realise an artefact of their own creation.

A junior cycle course is a type of education that places students at the centre of the educational experience, enabling them to actively participate in their communities and in society and to be resourceful and confident learners in all aspects and stages of their lives. **Junior cycle is inclusive of all students and contributes to equality of opportunity, participation and outcome for all.**

The course is aimed to be accessible for **youngsters with Down Syndrome at level 1, 2 or 3 of the EQF**. A young person with Down Syndrome will undertake this short course at the level appropriate to their learning stage and ability.

Content

The course consists of three strands with a specific focus and one unifying strand. The three strands all take the student on a journey to explore sustainability through a different lens, being:

the local environment, design and realization. The unifying strand ensures that the course as a whole gives students a multifaceted experience of sustainability.

Strand 1: Sustainability through the local environment

In this strand, students will develop the necessary skills to explore their local or community setting to identify materials and sustainable practices around them in structures, facilities and built objects. Students will act as active participants by delivering (a) sustainable initiative(s) in a setting of their choice.

Strand 2: Sustainability through design

In this strand, students will develop design skills through the lens of sustainability. They will be enabled and supported in researching and making judgements about the properties and suitability of use of a range of materials. Students will put into practice their understanding of materials through structured planning for the later realisation of an artefact.

Strand 3: Sustainability through realisation

In this strand, students will develop the necessary skills to realise an artefact of purpose using suitable recycled material. They will be encouraged to integrate the skills developed from strand two and refine their artefacts through an iterative design process.

The course has been designed for approximately 100 hours of student engagement.

Learning outcomes

Learning outcomes are statements in curriculum specifications to describe the knowledge, understanding, skills and values students should be able to demonstrate after they completed the course. The learning outcomes apply to all students and represent outcomes for students at the end of their period of study. The **learning outcomes are universally designed** to enable students and teachers to engage with them at level 1, 2 or 3. The outcomes are numbered within each strand with a maximum of six learning outcomes per strand. The numbering is intended to **support teacher planning** in the first instance and does not imply any hierarchy of importance across the outcomes themselves.

Learning outcomes unifying strand

Main goal: The following learning outcomes underpin the contextual learning outlined in the three strands and form the basis for all planning for teaching and learning in this short course.

Students should be able to:

1. investigate sustainable practices and use of materials around them
2. analyze materials based on their properties and uses
3. interpret representations of data/information
4. adhere to, and include, safety precautions as part of their work
5. incorporate reflective techniques throughout their work

6. communicate using the most suitable medium

Learning outcomes strand 1

Main goal: Students learn about being sustainable participants within their local setting or community.

Students should be able to:

- 1.1. examine their local setting or community to identify sustainable needs
- 1.2. plan and develop an initiative that delivers a specific sustainable action
- 1.3. present their ideas/thoughts to an audience
- 1.4. implement an initiative individually or a part of a team
- 1.5. evaluate their own work on completion of a task

Learning outcomes strand 2

Main goal: Students learn about the necessary skills to research and plan actions that will lead to the later realisation of an artefact.

Students should be able to:

- 3.1 research solutions to a design problem
- 3.2 progress their ideas to form a solution
- 3.3 incorporate upcycling into a solution design
- 3.4 plan and present a structured approach to solving a problem
- 3.5 test and evaluate the suitability of a range of materials
- 3.6 iteratively engage with a design process

Learning outcomes strand 3

Main goal: Students learn about the necessary skills to realise an artefact derived from their own developed plans.

Students should be able to:

- 3.1 identify a range of assembly techniques
- 3.2 develop a strategy to gather materials for sustainable reuse
- 3.3 use a range of tools/equipment to realise an artefact
- 3.4 evaluate their realised artefact

Links with statements of learning

The short course ‘Design for sustainable living’ can be taken as part of a Junior cycle and as such, the learning outcomes of this short course are related to central features of learning and teaching in junior cycle²². Table 4 provides an overview of how the short course may be linked to these central features.

Table 4*Links Between the Suskids Short Course and Junior Cycle Statements of Learning*

Statement	Examples of relevant learning in the course
SOL 1: The student communicates effectively using a variety of means in a range of contexts	<p>After exploring sustainable activities in their individual setting, students communicate their findings through any appropriate medium.</p> <p>As they develop a plan, students will refine their ideas/thinking through discussions and conversations about their work.</p>
SOL 9: The student understands the origins and impacts of environmental aspects of the world around her/him.	<p>Students examine their local setting or community for examples of sustainable practices.</p> <p>Students take part in activities that explores areas where there is a need to introduce a sustainable practice.</p>
SOL 7: The student values what it means to be an active citizen, with rights and responsibilities in local and wider contexts.	Students develop an understanding on how to become active sustainable citizens by engaging in a range of activities in their local setting or community,
SOL 23: The student brings an idea from conception to realization.	<p>As they work on a design brief, students must develop a plan to identify a response that will be produced as an artefact or built object.</p> <p>Students develop ideas on how to engage in developing and leading the enactment of a classroom initiative.</p>

Assessment

This short course supports **varied approaches to assessment**. Some learning outcomes lend themselves to once-off assessment, others to assessment on an on-going basis as students engage in different learning activities such as discussing, explaining, researching, presenting, planning and taking action. In these contexts, **students with their teachers and peers reflect upon and make judgements about their own and others' learning by looking at the quality of their work**. On-going assessment supports the students across the 3 levels of the Junior Cycle programme and prepares them for the Classroom based assessment that is related to this short course.

It is envisaged that students will have **evidence of their learning in varied formats** which include but is not limited to e-books, photographs, video, audio recordings, written pieces, portfolios of work, practical activities and differentiated tasks depending on the student level and the pathway they are engaging with.

Classroom-Based Assessment: Sustainability in action

Classroom-Based Assessments are the occasions when the teacher assesses the students in the specific assessment(s) that are set out in the subject or short course specification. Junior cycle short courses at levels 1, 2 and 3 will have **one Classroom-Based Assessment**. Where feasible, teachers of short courses will participate in **learning and assessment review meetings**.

This Classroom-Based Assessment is a **reflection task based on the participation and learning of the individual student throughout the study of this short course**. The reflection task should include aspects from all three strands of the short course. For example, student may reflect on:

- key moments of learning from the course;
- challenges they faced and how these challenges were overcome;
- their contribution in (a) specific task(s);
- personal achievements gained from their participation in this short course.

Students will capture the various experiences they had through a **learning log** that will be presented on completion of the short course. Students may choose to use a combination of approaches in **presenting their learning log**. The learning log can be produced **in a suitable format, to be decided upon in agreement** with the teacher that captures the student's work throughout the Classroom-Based Assessment. The learning log can be produced in any format that is appropriate for capturing the reflections of the students. Figure 3 sums up examples of learning log formats. This list is not intended to be exhaustive but serves to offer suggestions as to the possible choices in developing the learning log.

Figure 3

Learning Log Formats



Chapter 5: Evaluation methods

*“For assessment systems to enhance learning, and not just measure it, students need to be at the centre of the assessment framework. To become lifelong learners, they need to be able to assess their own progress, make adjustments to their understanding and take control of their own learning. Assessment can only lead to improvement in learning outcomes if students themselves take action and use assessment information to close gaps in their own learning.”
(Synergies for Better Learning, OECD, 2013 p. 220)*

1. Systematic search for evaluation methods

After the development of the learning materials and the establishment of learning goals, the question remains: are these materials capable of transferring sustainable skills in a sustainable way? Evaluation methods are needed to capture the students’ learning process and to assess the degree to which they achieved the learning goals. A learning process is complex and so are evaluation methods. This is why we want to offer **guidelines that set out the success factors and essential conditions in which evaluation could take place.**

But which evaluation methods best capture this sustainable learning process? In the following, this question will be address in a systematic way.

First, we will provide evaluation methods and cases on assessment from multiple perspectives. This is gained through **systematic search** of literature, cases and other sources of information. Secondly, this will be linked to **expert input** on evaluation methods. This is gained through a focus group discussion. Thirdly, comprehensive guidelines are proposed based on the previous steps and **expert validation**. This is gained through a Delphi analysis.

Assessment in education involves gathering, interpreting and using information about the processes and outcomes of learning. It takes different forms and can be used in a variety of ways. This is why a broad perspective is taken and a search is set for assessment methods that are suited and successful from the perspective of:

- Junior Cycle Short courses
- Students with Down Syndrome
- Inclusive education
- Sustainability

This approach from a multifaceted perspective will result in tailored evaluation guidelines that best fit the needs and context of the SUSKIDS learning materials.

Assessing Junior cycle short courses

The goal of assessment at the level of Junior Cycle Short Courses is to support student learning²². Assessment in Junior cycle short courses is usually of a **formative nature**²². Formative assessment, in contrast to summative assessment (assessment of learning), focusses on the learning process

(assessment for learning), captures growth and takes place during the learning process. This means that the evidence of learning will be generated according to the short course specification and will relate directly to the aims and learning outcomes of the short course. The guiding principle is that no more than two classroom-based assessments should be involved and the achievement of students will be described using a nationally determined common set of descriptors.

The SUSKIDS short course is developed to lend itself to a wide variety of approaches to assessment. Some learning outcomes lend themselves to once-off, classroom-based assessment, whereas others could best be assessed on an ongoing basis.

Ongoing, formative assessment consists of routine teach-designed tasks and tests and is best suited for learning activities such as discussing, explaining, researching, presenting, planning and taking action. Assessing these activities would consist of reflection by students, teachers and peers by judging and looking at the quality of their own or other's work. Formative assessment starts from learning outcomes as specified by a subject or course to develop learning intentions and success criteria to be shared and discussed with students in the form of feedback. These ways of giving and receiving feedback supports the students on their way to next steps in their learning process and prepares them for classroom-based assessment.

Classroom-based assessment is a situation in which the teacher assesses the students in the specific assessments that are set out in the subject or short course specification. In the case of junior cycle courses, there is typically one classroom-based assessment. Examples of classroom-based assessments are: publishing a page on the school website, design and conduct a survey study, ...

This **combination of assessments provides information on a broad range**, which is of great importance to value all student's learning opportunities and experiences during their learning process and provides them as well as their parents with a broader picture of student's learning²².

Focusing on the learning process ahead is of key importance, as assessment should move beyond marks and grades and not only focus on past work. Short courses are assessed by the student's teachers and reported to students and parents during and at the end of junior cycle.

In sum, **key principles for assessing Junior cycle short courses** are:

- ❖ Formative assessment is recommended, but the SUSKIDS learning outcomes lend themselves to ongoing as well as classroom-based assessment;
- ❖ Students should provide evidence of their learning in a variety of ways, including digital media, audio recordings and written pieces;
- ❖ Assessment is most effective when it moves beyond marks and grades and reporting focuses not only on how the student has done in the past but on the next steps for further learning

Assessing students with Down Syndrome

First of all, the methodologies used should be adapted to the target group, in this case, individuals with Down Syndrome aged 12-18 years. Individual assessment is often recommended. Each student with Down syndrome should be treated as an individual whose education is based on an assessment of his/her strengths and needs.

Students with Down Syndrome are strong visual learners with a preference for explicit learning. However, they may be impeded by visual impairments. Assessment can therefore best tap into their explicit and visual learning process by using images, pictures or visual keys, but this should be big or clear enough to be visible.

Learning takes time, so the assessment should too. Repetition of information can go along with ongoing assessment, as a way of monitoring the learning process. Small steps can be taken by giving limited pieces of information, repeating this and evaluating how this information is processed before moving onto the next step.

Preferably, teachers take on a broad perspective on assessment by combining methods. Questioning, observing and gathering work samples are all methods that can be used and should be combined to gather a broad perspective on the student's functioning². Also, a broad perspective on learning goals should be taken outside of those in the curriculum and classroom. This means that learning goals should also contain social skills (e.g. building friendships and communicating with classmates) or self-care skills. It is also recommended to apply and transfer as much as possible to their everyday environment, so signs of learning and consolidation outside of the classroom should also be taken into account in the assessment.

Consequently, social skills should be part of the assessment. Students with Down Syndrome generally show good social skills and a great capacity to learn by imitation. Therefore, peer-assessment and information gathered through role models such as classmates or parents could be used in assessment.

The need for predictability also translates into recommendations for assessment. More specifically, assessment should focus on skills, activities and methods that students have already encountered during their learning process. It is also advised to assess in a systematic way to enhance predictability.

In sum, **key principles for assessing students with Down Syndrome** are:

- ❖ Treat each student with Down syndrome as an individual and assess according to his/her strengths and needs;
- ❖ Focus on limited steps in the learning process to repeat and assess;
- ❖ Use visual methods, adapted to visual impairments;
- ❖ Combine assessment methods such as questioning, observing and gathering work samples to gain a broad perspective;
- ❖ Be systematic and predictable;
- ❖ Keep social learning and skills in mind, inside as well as outside of the classroom.

Assessing sustainability

Education for Sustainable Development (ESD) or environmental education aims to activate students in the topic of the environment, by raising awareness, building positive attitudes, enhancing knowledge and transferring sustainable skills¹¹. It's important to notice that knowledge sharing isn't sufficient in teaching sustainability, because knowledge alone doesn't lead to pro-environmental behavior. Teachers should address these skills by creating opportunities to build positive attitudes, provide role models and perform activities to increase sustainability competencies¹¹.

Countries in the United Nations set out common goals to achieve changes in skills, values and attitudes that lead to more sustainable societies in the **Sustainable Development Goals (SDGs)**. Education is included as an explicit, stand-alone Sustainable Development goal in The 2030 Agenda for Sustainable Developments: "Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all" (<https://sdgs.un.org/goals/goal4>). This not only indicates the importance of environmental education, but defines it as a goal itself as well as a means for achieving other SDGs. The SUSKIDS project contributes to this goal and means by creating learning opportunities for inclusive education whilst teaching sustainable skills, thus ensuring that all learners acquire knowledge and skills needed to promote sustainable development.

Moreover, the United Nations Educational, Scientific and Cultural Organization (UNESCO) recently published a guide on the use of ESD in learning for and achieving the SDGs, by identifying learning objectives, topics and learning activities¹². This can serve as a guidelines to international learning objectives for ESD. Since the SUSKIDS learning materials can relate to multiple SDGs, table 5 presents **general learning goals** that are relevant to all SDGs is presented.

UNESCO also proposes **assessment of ESD learning outcomes**. Although these can act as solid starting points for assessing sustainability, it must be mentioned that assessment of this type of learning goals strongly depends on the context. There are many ways of assessing ESD learning outcomes, which is why UNESCO recommends to align the assessment method with the learning objectives and with teaching and learning practices and to use a range of methods¹². This range of assessment methods should go beyond traditional assessment and encompass more **reflective**

and performance-based methods to gain a deep understanding of the learning process and capture learners' insights. Examples are: teacher feedback, peer feedback and self-assessment (e.g. reflective journals or portfolios). The goal should be to empower the student to monitor their own learning process and to identify possibilities for improvement.

Table 5General ESD learning goals relevant to all SDGs¹².

Key competence	Explanation
Systems thinking competency	the abilities to recognize and understand relationships; to analyse complex systems; to think of how systems are embedded within different domains and different scales; and to deal with uncertainty
Anticipatory competency	the abilities to understand and evaluate multiple futures – possible, probable and desirable; to create one’s own visions for the future; to apply the precautionary principle; to assess the consequences of actions; and to deal with risks and changes.
Normative competency	the abilities to understand and reflect on the norms and values that underlie one’s actions; and to negotiate sustainability values, principles, goals, and targets, in a context of conflicts of interests and trade-offs, uncertain knowledge and contradictions
Strategic competency	the abilities to collectively develop and implement innovative actions that further sustainability at the local level and further afield.
Collaboration competency	the abilities to learn from others; to understand and respect the needs, perspectives and actions of others (empathy); to understand, relate to and be sensitive to others (empathic leadership); to deal with conflicts in a group; and to facilitate collaborative and participatory problem solving.
Critical thinking competency	the ability to question norms, practices and opinions; to reflect on own one’s values, perceptions and actions; and to take a position in the sustainability discourse.
Self-awareness competency	the ability to reflect on one’s own role in the local community and (global) society; to continually evaluate and further motivate one’s actions; and to deal with one’s feelings and desires.
Integrated problem-solving competency	the overarching ability to apply different problem-solving frameworks to complex sustainability problems and develop viable, inclusive and equitable solution options that promote sustainable development, integrating the abovementioned competences.

In sum, **key principles for assessing sustainability** are:

- ❖ Consider attitudes and behavior as key indicators of sustainability, knowledge isn’t sufficient;
- ❖ Align assessment with learning goals;
- ❖ Use a mixed range of assessment methods, with attention to more reflective and performance-based methods;
- ❖ Empower the student to monitor their own learning process by feedback from teachers, peers and themselves (e.g. using reflective journals or portfolios).

Assessing in an inclusive way

Assessment should facilitate instead of form a barrier to inclusion. Inclusive assessment is an approach to assessment in mainstream settings where policy and practice are designed to promote the learning of all pupils as far as possible. The overall goal of inclusive assessment is that all assessment policies and procedures should support and enhance the successful participation and inclusion of all pupils.

Concerning the form of assessment, considerations should be given to **assessment arrangements**. Assessment arrangements for students, e.g. the support provided by a special needs assistant or the support of assistive technologies, should be in line with the arrangements the school has put in place to support the student's learning throughout the year. Where a school judges that a student has a specific physical or learning difficulty, appropriate assessment arrangements may be put in place to remove, as far as possible, the impact of the disability on the student's performance in the Assessment. Such accommodations which enable all students to access curriculum and assessment are based on specific needs.

Concerning the content of assessment, considerations should be given to the **self-esteem and general wellbeing** of the students to achieve an inclusive approach¹³. Assessment should serve to enhance learning and make progress, so reporting should show progress and ways for the student to improve. Especially for students with special needs assessment should qualitatively evaluate the progress towards learning goals. Assessment should search for and be able to generate examples of positive achievements, so that these can be reported as examples and be used as a starting point to formulate upcoming learning steps. This kind of **growth mindset** that focusses on positive achievements helps building self-esteem and motivates students.

Also important in keeping students motivated is to **provide appropriate challenge**. In inclusive teaching as well as assessment, high expectations should be held for all students in the class². Adapting to special needs doesn't equal lowering the bar. Every student needs to be supported in achieving goals. Motivation to reach a certain goal is highest when this goal is feasible (possible, not too hard) and challenging (not too easy). Inclusive assessment therefore is aimed at providing an appropriate and challenging level of achievement.

In sum, **key principles for inclusive assessment** are:

- ❖ All assessment policies and procedures should support and enhance the successful participation and inclusion of all pupils;
- ❖ Align assessment arrangements to learning arrangements;
- ❖ Give considerations to self-esteem and wellbeing of all students;
- ❖ Engage in a growth mindset by focusing on positive achievements;
- ❖ Hold high expectations for every student and provide appropriate challenge.

2. Delphi analysis

A Delphi study was conducted to validate the evaluation guidelines of the SUSKIDS learning materials. A Delphi study is a systematic forecasting technique to collect expert input and reach expert consensus¹⁴. The first round of the Delphi study consisted of a brainstorm in the form of a focus group discussion. The second round of the Delphi consisted of a survey (supplemented by a focus group discussion) in which the proposed evaluation guidelines can be rated and adapted and feedback on the guidelines can be provided.

First round: collecting expert input

The case of Belgium

Method for validating the evaluation guidelines

We organized a (online - Covid-proof) focus group with five experts from education to discuss the evaluation standards and methods in Flanders. We worked according to a structured scheme in which we first framed the project, gave a brief overview of the developed training and then came to the main objective: evaluation methods for the learning objectives

Description of the expert group.

The experts present in the online focus group were:

- **Izabel Janssens**, expert in broad evaluation and involved in an educational project to clarify support roles in relation to students with specific educational needs
- **Sofie van Eynde**, expert in special education and inclusive education and involved in an educational project to clarify support roles in relation to students with specific educational needs
- **Els Teijssen**, expert and hands-on expert on vulnerable young people and diversity in education
- **Dr. Hannah Boonen**, expert in inclusive education and leader of the research line within the expertise center “inclusive society”
- **Dr. Elke Emmers**, expert in inclusive (higher) education and diversity, head of the research center “inclusive society”.

Results

The key message of the expert group was to pay attention to learning objectives and evaluation methods tailored to the pupil in front of us. The most important thing is to adapt and create learning opportunities for a certain pupil. It is therefore important to see and read the results as guidelines or advice that can be used to test the learning objectives or to gain insight into the learning process of the pupil.

When you design evaluation, it is important that it fits well with the design requirements of the course. It is not enough to give "techniques" or "methods". The main guideline remains to possibly define smaller intermediate objectives. Attention must also be paid to the difference between process and product.

Making the learning process visible through self-direction, is crucial. The learning goals in the form of process and product must be made very clear in one way or another so that the pupil can assess himself in his learning process. This is also an important element to take into account in the further development of the training within the SUSKIDS project.

The expert group also thinks it is very important not to let the course stand alone, but to integrate it into the whole learning process at school. So that parts of the course are integrated in, for instance, language lessons, math lessons and other practical lessons. In this way, the teacher or training provider is given more scope to activate the pupil on the basis of his or her talents and strengths.

The expert group aims at guidelines for evaluation methods that appeal to different senses and can therefore consist of visual methods, oral learning conversations and other ways of increasing awareness of the learning process. Using a multitude of different things alongside each other keeps learning exciting and ensures interactivity during learning and evaluation. That is why we start from the Flemish portfolio of evaluation methods and practices

The first guideline we set is about the finish line: where do we want to go with these students around sustainability?

Through the SUSKIDS programme, we mainly offer the building blocks or inspiration to support the teacher to make choices in learning about sustainability. So it is about creating a learning line and this can differ from school to school, from teacher to teacher and from pupil to pupil. In itself, the learning line should be sustainable.

The second guideline is that we want to evaluate broadly and that a broad evaluation should be possible to make the pupil's learning visible.

Increasing the self-directedness of young people and enabling self-assessment in an appropriate way requires alignment with the learning objectives, evaluation methods and the broader learning of that pupil/young person.

The third guideline is about the techniques of evaluation which should be adapted to the learners and should be as much as possible UDL and used in different sensory ways.

The case of Spain

Method for validating the evaluation guidelines

The (online) meeting of five experts related to the Diversity Care environment aims to discuss appropriate forms of assessment within the scope of the course which is included in both the Short course and the Virtual Learning Environment (VLE). The content and methodology of the course was presented to the experts before the meeting. At the meeting, a short presentation of the project was given, and the recommended evaluation methods were shared.

Description of the expert group.

In this case, the Spanish Working Group for the FOCUS GROUP of the SUSKIDS Project was composed of:

- M^a Isabel Calvo Álvarez, member of the Department of Didactics, Organisation and MIDE of the Faculty of Education at the University of Salamanca, Spain. Lecturer in subjects focused on Special and Inclusive Education, Attention to Diversity, Educational Intervention and Elaboration of programmes for intervention in the community environment.
- Emilio Ruiz is a member of the Down Syndrome Foundation of Cantabria and the Down21 Channel. He is a specialist in Therapeutic Pedagogy and Advisor on Attention to Diversity at the Teacher Training Centre in Santander (Cantabria), Spain.
- Consuelo Rodríguez, Psychologist. Educational Counsellor at the Centro Concertado de Educación Especial Estela in Burgos, Spain.
- Cristina Arranz Barcenilla, head teacher of the Compulsory Basic Education stage in the Estela Special Education Centre, Psychopedagogue, Special Education teacher and tutor teacher of Training Programmes for the Transition to Adult Life.
- Sara Gutiérrez González coordinator of SUSKIDS and family of a person with Down's Syndrome. She is building engineer, industrial organization engineer and PhD from University of Burgos (Spain). University lecturer (Associate Professor) and head of UBU cooperation, development and social action centre. PhD Ms. Gutiérrez is Teacher Trainer in subjects related with sustainability in the field of materials used in buildings and has developed educational workshops on sustainable building.

The variety in the profiles of those attending the group has allowed for a global response to the questions raised.

Results

Five questions on the different forms of evaluation were posed to the attendees, the most relevant comments from the meeting are presented below.

How can this learning objective be assessed?

First of all, the abilities of each individual student must be taken into account, given the heterogeneity that usually occurs among students with Down's syndrome, so it would be advisable to have several tests or tasks planned, each with a different level of difficulty. For example, those who can read and those who cannot read do not have the same possibilities of showing what they have learnt. For this reason, COMPETENCY-BASED assessment could be the most appropriate, it is necessary to create a context in which the pupil is asked to perform a "task" and in this way check the pupil's mastery of the content in order to transform the learning achieved. It should be borne in mind that this type of assessment requires certain conditions:

- Having previously determined the assessment criteria that express the behaviours to be displayed by learners in performing particular tasks.
- Have clearly identified the tasks that will provide learners with the opportunity to acquire and demonstrate the skills to be assessed.

The recommended method of evaluation involves the use of reflection techniques from the everyday "I think, I share, and we arrive at the solution", or evaluating their own work when completing a task, with self-evaluation using the rubric system with the method "In process - achieved - satisfactorily achieved - very satisfactorily achieved", always taking into account the

difficulty for students to plan, the high component at the level of conceptualisation and abstraction.

Another set of tests or tasks, each with a different level of difficulty, adapted to the learner's own profile, could be:

- For the assessment of the different learning objectives, quantitative or qualitative assessment systems could be used. On the one hand, traditional systems, based on pencil and paper tests: exams with open or closed questions, questionnaires, essay questions, true/false, matching words or images, choosing between different alternatives, etc.
- To these systems we could add others based on the collection of samples of tasks, such as Portfolios or Portfolios, either physical (with a folder in which the collected documents are stored - notebooks, diaries, photographs, class tasks, field notebooks, drawings, leaflets, work samples, exercises, activities, etc.) or digital, in a folder on the computer.
- Systematic observation, with observation record templates, can also be used in a complementary way by the pupils themselves or by their teachers.
- It would be advisable to combine individual systems with other group systems, such as the 1-2-4 dynamic: 1: individual prior reflection; 2: work in pairs; 4: small group work and sharing. Cooperative work techniques can also be used in a complementary way.
- Pair work can also be applied to assessment, with systems of co-assessment or shared assessment, which can be combined with mutual help between peers.
- Self-assessment allows the learner to check his or her own level of knowledge at each stage of the learning process. Rubrics can be used as a self-monitoring system for learning.

Each of these assessment systems should be applied to specific content, depending on its practical usefulness in checking the progress of the learning process or the objective we are trying to achieve. If we want to collect the results of a task carried out over a period of time, a portfolio would be better; if we want to know the practical application of a recycling principle, we would use an observation scale; if we want the young person to monitor their own learning process and where they are, a rubric is better; and if we want them to show their skills in a group task, it would be better to apply a technique based on cooperative learning.

What are good ways to assess young people with DS?

Related to the previous question, the most appropriate assessment systems for students with Down syndrome are those that respond to their unique psychological and learning characteristics. For example, visual perception is a strong point in Down syndrome as opposed to auditory perception. For this reason, tests that use drawings, images, photographs, pictograms, or other visual aids are recommended. On the other hand, as they usually have a limitation in verbal expressive language, it is better to ask them to do something rather than to explain it (so that they can demonstrate in a practical way what they know).

Combining both characteristics, a test in which they must put two related images together will give us a better idea of their level of knowledge of a topic than a test in which they are asked to give an oral answer. Another option would be to watch videos to identify the problem and ask them to identify the solution from a series of alternatives, always starting from the concrete and

every day, in order to be able to identify the problem. Within the complexity of the search for solutions, it is necessary to replace the term "search" with "choose" from a series of alternatives, and for the exercise of ordering ideas to form a solution, it is necessary to replace the word "ideas" with "actions".

Moreover, since they work essentially through concrete thinking, it is always better to start from the concrete to arrive at abstraction in cases where this is possible. For this reason, it is advisable to start with tests that focus on content related to what they know and to activities in their daily lives (such as identifying who is doing what in their environment).

What is important to teach young people with SD (about Sustainability)?

The acquisition of skills and abilities related to the care of the environment is a means to encourage their formation as a more involved and responsible citizen. If we want to promote social inclusion, they need to be aware of all these aspects that are becoming so important for the planet.

These competences are a means to achieve autonomous and independent development, for which they will need to understand, relate, reflect... try to facilitate access to the contents in a simple and attractive, visual, concise... (VLE) way and try to ensure a practical and functional application that favours real learning, both in the medium and long term. Rather than dealing with theoretical and abstract contents, far removed from their reality, it is better to focus on those related to daily life skills that can help them to function normally in their daily environment and in a possible future job.

How could the VLE be implemented in a classroom or school?

The ways of implementing the sustainability course in a school could vary from informal and sporadic to formal and systematic. Understanding that when we talk about a school, we mean a primary school or a secondary school as well as a special education centre or an association specialised in Down's syndrome, we can implement this course in either case:

- Occasionally in isolated talks on general culture that deal with specific topics on sustainability, for example, to talk about recycling.
- As part of specific cultural days or weeks focusing on the topic of sustainability.
- In the framework of a broader comprehensive education, for example in a social skills training or Transition to Adult Life training programme.
- In a more systematic way, including the course within a free configuration subject or as a content within the Curricular Project of each centre.

Within the minimums and objectives set in terms of the curriculum by current legislation, it is possible to justify it in the general classroom programme, not only within the area of natural sciences but also in a cross-cutting manner, supported by the use and acquisition of ICT skills, the work on content and the creation of awareness and attitudes towards care and respect for the environment.

How can we know if the student's course/work was successful?

All the above-mentioned evaluation systems will help us to check the degree of achievement of the objectives sought. But it is necessary to elaborate evaluation criteria adapted to the

objectives set and to the level of the students to whom they are addressed. It is necessary to clearly establish the objective we want to achieve; for example, acquiring vocabulary, knowing basic plumbing elements is not the same as recycling the waste generated personally or showing civic behaviour related to respect for the environment....

However, it would be advisable to contrast this with information obtained from people close to them, based on interviews or questionnaires. It may be the case that they have mastered the theoretical concepts but do not apply them to the reality of their daily lives, as there has not been a real change in their attitudes. It is necessary to ask questions and talk about it to get them to internalise routines in their daily lives.

In the field of sustainability, it is as important to know the strategies as it is to apply them, since the final goal should be to achieve responsible citizens, aware of their role and congruent with their ideas.

The case of Ireland

Method

As the individuals responsible for learning, teaching and assessment, teachers were invited to participate in the focus group for this consultation. Due to Covid 19 public health guidelines, the focus group was conducted virtually. The group received the short course and ‘Rubbish’ strand of VLE in advance and a quick overview was given at the beginning of the online event.

Description of the expert group

The group consisted of four practising teachers:

- **Teacher 1:** Special School Principal - predominantly students participating in Level 1 Learning Programmes (L1LPs).
- **Teacher 2:** Special School teacher - predominantly students participating in Level 2 Learning Programmes (L2LPs) with some Level 3 (L3) subjects offered.
- **Teacher 3:** Mainstream post-primary special class teacher - students participating in L1LPs and L2LPs with some L3 subject teaching.
- **Teacher 4:** Mainstream post-primary Wood Technology teacher - students predominantly taking L3 subjects with some students participating in L2LPs in some classes. Member of Universal Design for Learning team.

The broad range of teaching experience covers the spectrum of learning for which this short course was designed.

Results

The primary benefit was inclusion of students with special educational needs. Teachers having access to Learning Outcomes that were applicable to all levels was also noted. The Examples of Learning Outcomes across levels was noted as an excellent resource to guide teachers. The possibilities to develop students’ life skills was a major selling point of this Short Course as was the opportunity for teachers to provide students with choices for their engagement. The

rationale, aims and key skills were well aligned. The VLE was considered a motivator for those students who enjoy technology. The fact that the theme of the Short Course is topical, relevant and very meaningful for young people at the moment was considered a benefit. Additionally, it ties into holistic school thinking, and has the potential to support learning outside of the classroom, for example Green School initiatives, which enables a deeper learning experience for the students. Furthermore, this holistic aspect further promotes inclusion as it encourages students with special education needs to get involved in these projects and initiatives and this course will capture that potential very well. A final benefit is that the course is coherent with the goals as outlined in the 'Education for Sustainability' -The National Strategy on Education for Sustainable Development in Ireland, 2014-2020. There is a public consultation underway currently in Ireland on the second National Strategy on Education for Sustainable Development up to 2030. The teachers recognized how the Short Course supports the development of knowledge, skills and attitudes for sustainability and sustainable living.

The primary challenge of teaching the Short Course is ensuring teachers can see how this course will work in their local school context and for their students. The teachers noted that the Examples of Learning Outcomes across levels show how L1, L2 and L3 fit in, and this is the type of support that the teachers found beneficial. Teachers will need support developing success criteria in order to assess the CBA. The absence of some verbs from the Glossary of verbs will need to be addressed.

Second round: reaching expert consensus

Method

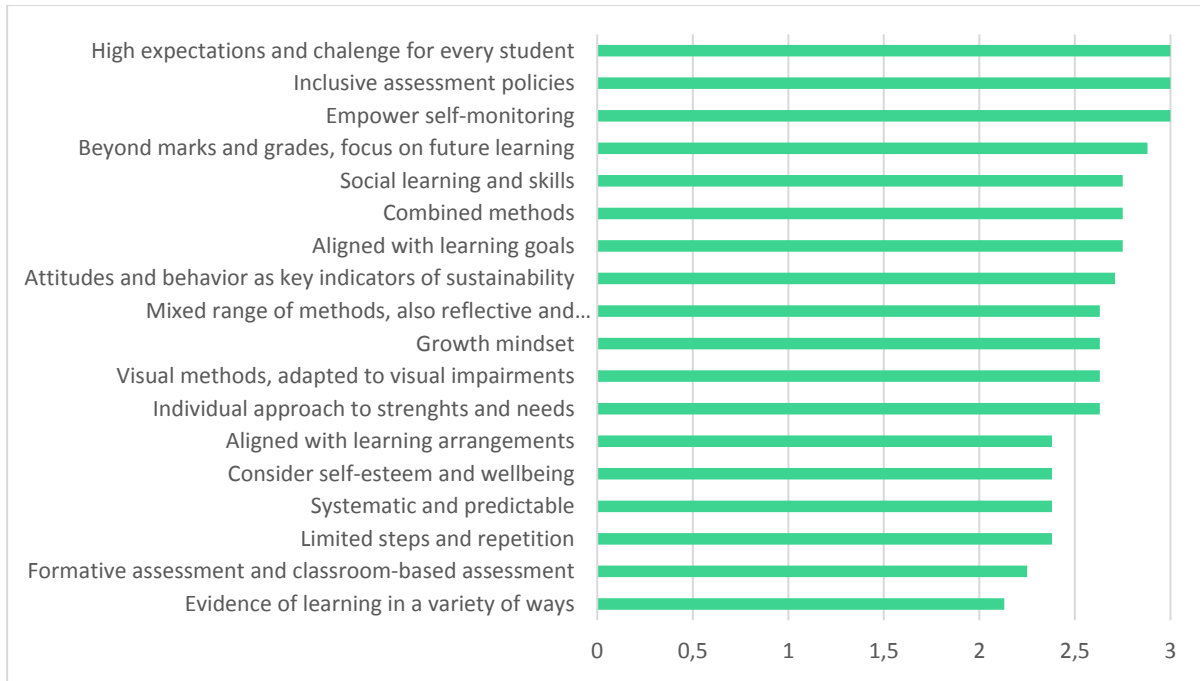
In the first round of validation, input was asked from experts in the three different countries. This input was used to create a draft of evaluation guidelines. In the second round of validation, all the experts received a draft and filled in an online survey. The survey contained the proposed evaluation guidelines and assessed the degree of importance according to the experts. This way, expert consensus was assessed. Moreover, experts were asked for overall feedback on the guidelines and the use of a learning log as assessment method. This way, quantitative as well as qualitative feedback was gained. The survey was sent out to all the experts who participated in the first round of validation.

Results

The survey was completed by 8 out of the 15 experts. Results from the different countries are taken together. First, the degree of importance of the proposed guidelines stemming from the systematic research was measured (see Figure 4). Three key principles were rated as 'most important' (score of 3) by all the experts, being: 'Hold high expectations for every student and provide appropriate challenge', 'All assessment policies and procedures should support and enhance the successful participation and inclusion of all pupils' and 'Empower the student to monitor their own learning process by feedback from teachers, peers and themselves (e.g. using reflective journals or portfolios)'. The experts noted that providing evidence of learning in a variety of ways can be an option, but should not be obliged to the student and that the teacher

should have the autonomy to decide what is the best method of assessment as well as the knowledge, skills and abilities required of each student according to their individual characteristics.

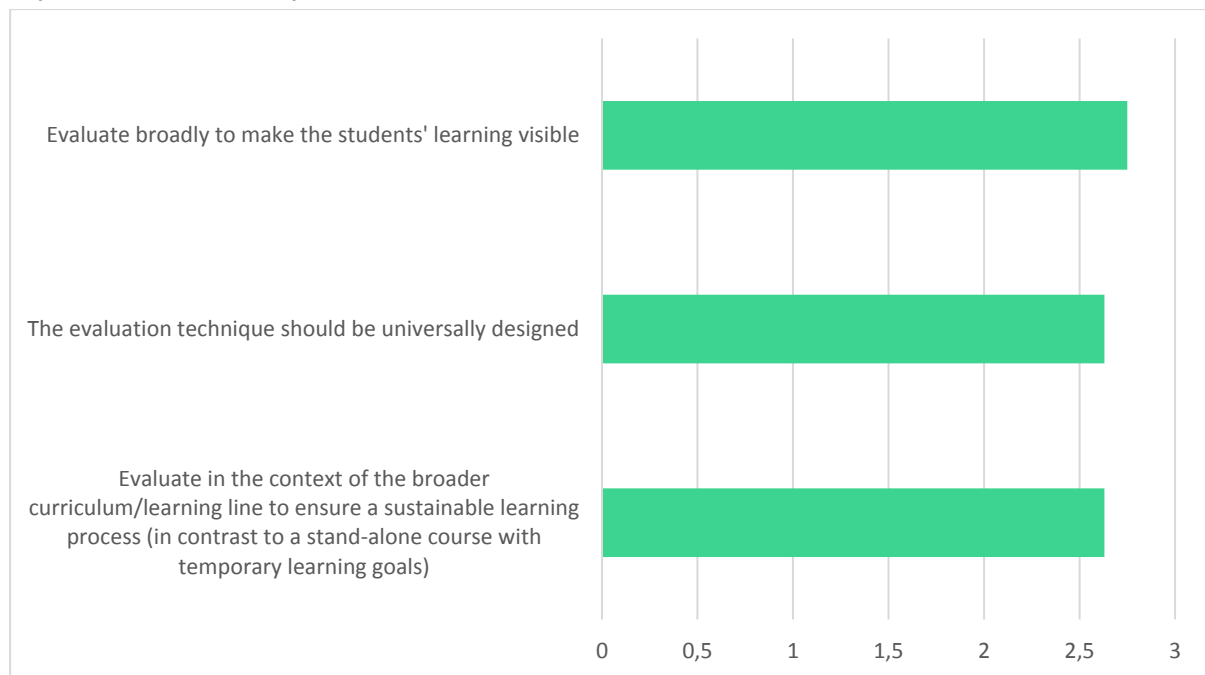
Figure 4
Expert Consensus on Evidence-Based Evaluation Guidelines



Second, the degree of importance of the proposed guidelines stemming from expert input was measured (see Figure 5). Most of the experts considered the expert-based evaluation guidelines as important to very important. Only the guidelines that the evaluation technique should be universally designed was rated as of low importance by one of the experts. Broad evaluation gained the most consensus on importance. One of the experts noted that, when you want to work toward equal educational opportunity, the universal design of assessment is very important, because this way, even the most learning-disadvantaged students can join the rest of the class without stigma. Another expert advised to include practical assessment to check real understanding and internalization of knowledge.

Figure 5

Expert Consensus on Expert-Based Evaluation Guidelines



The experts also gave overall feedback on the evaluation guidelines. Multiple experts found the guidelines clearly defined, relevant and useful in the field. However, one of the experts stated the the guidelines could be more goal-oriented, because it is important to know your goal to be able to adapt the evaluation to it. A quote from another expert is: “The guidelines are clearly defined. They give rise to action and thus invite you to put them into practice. They are evidence-based and therefore recognizable for professionals who also work with scientific insights and who have an investigative approach to classroom practice. The guidelines also cover all aspects and so nothing seems to be missing. They are easy to understand and give rise to collaboration and reflection”.

Lastly, experts were asked about their opinion on the learning log as an assessment method. The learning log was found to be a good and interesting way of assessment and a good way to empower students to monitor and reflect on their own learning process. However, it should be universally designed and aligned with the growth mindset The experts also remark that, when using the learning log, attention should be paid to sufficiently define the goal as a learning log can be used in a variety of ways with a variety of goals. The form of a learning log should also be considered because it should match the needs and possibilities of the target group, for example only written or also using visual and digital methods and the extend to which a template and structure are provided. According to them, the learning log can be indicative and informative about the learner's learning process and can show personal competencies in the form of difficulties and strengths which will help the teacher to adjust support more effectively. One of the experts believes that a variety of assessment methods need to be used to check the acquisition of knowledge and skills.

3. Evaluation method for the SUSKIDS learning materials

To conclude, an **evaluation method for the SUSKIDS learning materials** stemming from these guidelines can be derived. This is a **suggestion** of an evaluation method, which can serve as a handle to work according to the guidelines that are set out throughout this output. The evaluation method should always stem from the abilities of the student in the first place and is subject to the freedom of choice and action of the teacher or supervising professional.

A **learning log** is suggested as an assessment method for the SUSKIDS learning materials (cf. supra). A learning log is an instrument for formative assessment for a planned, purposeful follow-up written response to a students' learning experience¹³. This can be considered as a journal on the learning journey. It contains information on 1) what the student is learning and 2) how they are going about learning it. The learning log is a means for the student to reflect on his or her learning and should enable a dialogue between the student and teacher on their learning journey¹³.

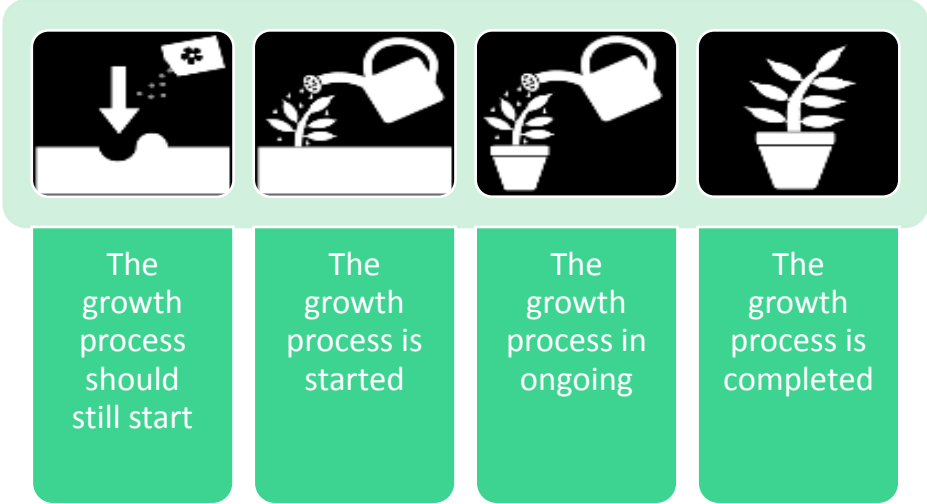
The **format of the learning log** is up to the choice of the student and teacher. It is suggested that the format is **sustainable** (e.g. avoid printing too much paper) and thus line with SUSKIDS sustainability principles. It is also encouraged to **combine multiple formats** (e.g. photos, videos, written reports, drawings) to achieve a broad picture of the students learning process and skills from various perspectives.

The **content of the learning log** is up to the student to fill in, but teachers can **provide some structure** on what the log can look like and what it should contain, for example in the form of prompts or reflective questions. However, giving too much structure gets in the way of the students' creativity and can overwhelm them. A suggestions is to provide a limited number of questions from which students can choose and provide a few question that are required to respond. A starting **prompt can be "Work I am proud of"**, which invites the student to collect samples of their successes. A teachers can choose to define examples of which work the student should or can include in line with the learning goals. For example: "Take a photo of an item and described the material which it is made of", "Describe what you recycled", ...

An evaluation method for the learning log can be to **compare the evidence gathered in the learning log to the learning goals**. Taking into account the key principles of assessment (cr. Supra), the assessment should be about the growth process and reflect the degree to which a learning goal is achieved. An evaluation method in line with the SUSKIDS project and materials can be to consider the growth process of the student to as an actual growth process in nature. Figure 6 gives an example of the evaluation method consisting of statements and pictograms (<https://www.sclera.be/en/vzw/home>). This visual approach can be beneficial in discussing the learning process with the student.

Figure 6

Example of an Evaluation Method for the Suskids Learning Materials



Chapter 6: Practice what you teach – guidelines on use and implementation

1. Implementing Inclusive education

The general recommendation is to **make maximum use of inclusive education settings**. Research shows that students with Down's syndrome do significantly better in numeracy skills, general knowledge and social independence when they are educated in an inclusive setting within mainstream education when compared to students in special education^{15,16}.

We then organise the recommendations according to the **index for inclusion**¹⁷. This instrument gives direction to the process towards inclusive education and builds on **three very important pillars to make inclusion a reality**¹⁸. In this way we arrive at three pillars, each of which falls apart into nine concrete guidelines that schools or school teams must observe in order to ensure inclusive education for students with down syndrome.

First of all, it is important to create an **inclusive culture** where teachers and other support staff believe in inclusion and therefore have inclusive attitudes^{17,19}. This is about expressing the value that every student is welcome and then every student can learn, especially students with Down syndrome. In concrete terms, this translates into the following actions:

- Raise awareness at school among teachers so that everyone believes in the value of diversity among pupils.
- Provide psychoeducation for teachers and support staff to build knowledge about students with specific needs such as students with Down's syndrome.
- Professionalize your entire school team so that they have the skills to stand in front of an inclusive class with an open attitude and a positive student-teacher relationship.

Secondly, it is then important to implement an **inclusive practice** where it becomes possible for each learner to learn and where a powerful learning environment can be built¹⁷. This then passes into practice:

- Learning to assess the initial situation of a student (also for students with Down's syndrome) so that the support provided is tailored to the individual and focuses on the knowledge and skills already acquired and further strengthened on the basis of the student with Down's syndrome are talents.
- Create possibilities for experiential learning in which the students with Down have sufficient opportunity to observe and look at their peers in order to create experiences in which they can copy (learning) behaviour. In this way peers are role models for the children with Down and the transfer of knowledge, skills and attitudes is more natural and sustainable²⁰.

- Professionalise teachers in creating powerful learning environments that are inclusive and performant for any type of educational need by using the principles of the universal design of learning²¹.

Thirdly, it is also important that this inclusive culture and practice is surrounded by an **inclusive school policy**¹⁷. An inclusive school policy that contributes to the educational opportunities of students with Down's syndrome is one that has the following characteristics:

- There is a mission and vision that clearly states that every effort is made to give students with specific needs (including students with Down's syndrome) the opportunity to learn in school with or without extra support.
- There is a strong focus on working together to achieve inclusion and where there are partnerships between teachers and supporters, between the school and parents and where paramedics can play a supportive role
- This inclusive policy also frees up sufficient space and time to develop powerful learning environments in which students with Down's syndrome can learn and pays extra attention to strengthening the school team on classroom management, inclusive instruction and an inclusive school climate.

2. Implementing a Junior cycle short course

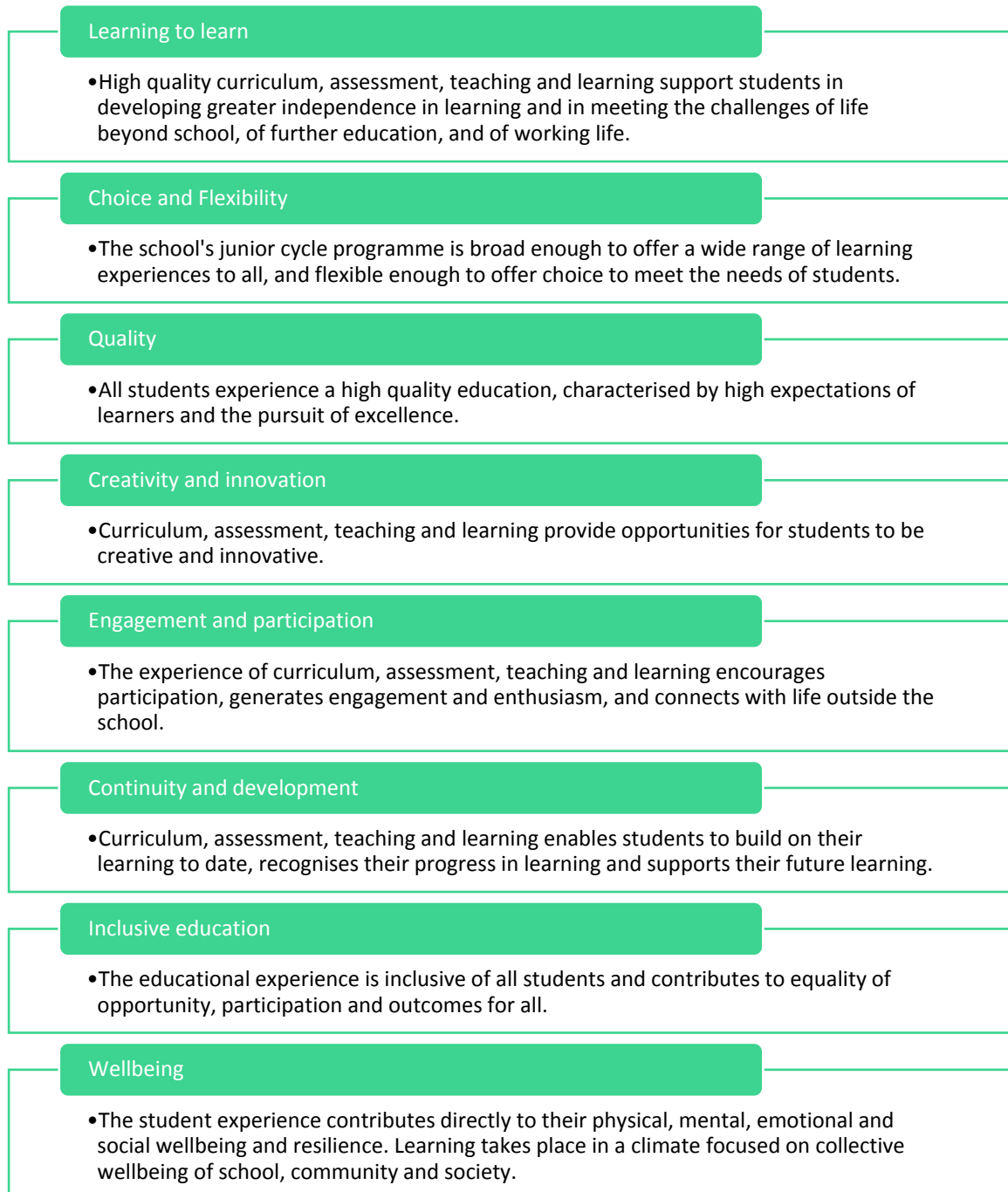
Short courses are learning programmes that can be implemented within a junior cycle to allow schools to broaden the learning experiences of students, address their interests and encompass areas of learning that are not covered by regular curricular subjects²².

The importance of teacher autonomy and flexibility for schools cannot be overemphasised. On the other hand, differences in educational systems in different countries make it almost impossible to put forward one single strategy to implement a short course in a specific class or school. Not to mention the range of different classroom setting in which youngsters with Down Syndrome can be found, from inclusive school to special needs education. However, some guidelines on how to get started on implementing the SUSKIDS learning materials can be found in NCCA's **Framework for Junior Cycle** (see Figure 7)²². The eight principles stated in the framework can serve as guidelines for the quality implementation of the SUSKIDS short course in your specific country, school and classroom.

Figure 7

Eight Framework for Junior Cycle Principles

Adapted from: Department of Education and Skills (2015). Framework for junior cycle 2015. Retrieved from: <https://www.education.ie/en/Publications/Policy-Reports/Framework-for-Junior-Cycle-2015.pdf>



3. Implementing the SUSKIDS learning materials

In order to make these guidelines measurable and to determine the impact of our developed course on the education of students with Down's syndrome, we were inspired by existing tools²⁰ that have already been validated and, if adapted, are extremely suitable for use in this context. A **measuring instrument to validate these guidelines** then looks as follows:

How do you teach an inclusive classroom that is also suitable for students with Down Syndrome? Do you create a learning environment in which:

1. ideas and information are **represented in multiple ways?**

- Your course or course syllabus clearly describes the content and your expectations of the students with and without down syndrome.
- You present information in multiple formats (e.g., lecture, text, graphics, audio, video, hands-on exercises).
- You begin each teaching moment with an outline of what will be covered.
- You summarize key points throughout the teaching moment, and tie these points to the larger objectives.
- You post electronic equivalents of paper handouts and required reading assignments in alternative formats such as audio and video on the online learning environment of each student.
- You employ technologies (e.g., Moodle, Padlet) that enhance learning.

2. Children with and without down syndrome can express their **comprehension in multiple ways?**

- You encourage students with and without down syndrome to demonstrate knowledge and skills in ways other than traditional tests and exams (e.g., projects, art, portfolios, journals).
- Your assessments measure students' achievements in different ways
- You incorporate technologies that facilitate class communication and participation of all students in class.

3. Students with and without down syndrome have **multiple opportunities for engagement?**

- You express enthusiasm for each topic you teach, and explain its real-world significance.
- You challenge students with and without down syndrome with meaningful assignments.
- You create a class climate in which student's diversity is respected.
- You give prompt and instructive feedback on assignments.
- You supplement teaching moments and reading assignments with visual aids (e.g., photographs, videos, diagrams, interactive simulations).
- You make yourself available to students with and without down syndrome during office hours in flexible formats (e.g., face-to-face, email, online chat, telephone).

If you answered YES to most or all of these questions, congratulations!

You succeed in creating a powerful learning environment in which every individual can learn and in which special attention is paid to the inclusion of individuals with Down Syndrome.

References

- ¹ European Commission. (2020). *The Erasmus+ Annual Report 2019*.
- ² Faragher, R., Robertson, P., & Bird, G. (2020). *International guidelines for the education of learners with Down syndrome*. Teddington, UK: DSI
- ³ Van Hooste, A., Kuti, K., Maes, B., De Munter, A., 2008. *Kinderen met Down. Een kind met een verstandelijke handicap in je gezin*. Lanoo
- ⁴ Basten, I. A., Boada, R., Taylor, H. G., Koenig, K., Barrinuevo, V. L., Brandão, A. C., & Costa, C. S. (2018). On the Design of Broad-Based Neuropsychological Test Batteries to Assess the Cognitive Abilities of Individuals with Down Syndrome in the Context of Clinical Trials. *Brain Sci*, 8, 1-21. <https://doi.org/10.3390/brainsci8120205>
- ⁵ Jarrold, C., Baddeley, A. D., Phillips, C. E. (2002). Verbal short-memory in Down Syndrome: A problem of memory, audition, or speech? *J Speech Lang Hear Res*, 45(3), 530-544. [https://doi.org/10.1044/1092-4388\(2002/042\)](https://doi.org/10.1044/1092-4388(2002/042))
- ⁶ Smith, E., Naess, K-A, B., & Jarrold, C. (2017). Assessing pragmatic communication in children with Down Syndrome. *J Com Dis*, 68, 10-23. <https://doi.org/10.1016/j.jcomdis.2017.06.003>
- ⁷ Almendra, R.A., Elvas, M., 2020. Inclusion of Children with Down Syndrome Through the Creation and Use of a “Learning Object.” *Adv. Intell. Syst. Comput.* 954, 292–300.
- ⁸ European Union. (2018). *The European qualifications framework: supporting learning, work and cross-border mobility*. Luxembourg: Publications Office of the European Union. doi:10.2767/385613
- ⁹ Agentschap voor Hoger Onderwijs Volwassenenonderwijs, Kwalificaties en Studietoelagen (AHOVOKS). (2020). *De Vlaamse Kwalificatiestructuur: Wegwijs in kwalificaties*. Retrieved from <http://www.vlaanderen.be/onderwijs-en-vorming/diplomas-en-getuigschriften/de-vlaamse-kwalificatiestructuur-vks>
- ¹⁰ <https://europa.eu/europass/en/compare-qualifications>
- ¹¹ Chawla, L., & Cushing, D.F., 2007. Education for strategic environmental behavior. *Environ. Educ. Res.* 13, 437–452. <https://doi.org/10.1080/13504620701581539>
- ¹² United Nations Educational, Scientific and Cultural Organization (UNESCO). (2017). *Education for Sustainable Development Goals: Learning Objectives*. Retrieved from <https://en.unesco.org/themes/119915/publications/>
- ¹³ National Council for Curriculum and Assessment (2017). *Ongoing reporting for effective teaching and learning*. Retrieved from: <https://ncca.ie/en/resources/ongoing-reporting-for-effective-teaching-and-learning/>
- ¹⁴ Rowe, G. & Wright, G. (1999). The deplhi technique as a forecasting tool: issues and analysis. *International Journal of Forecasting*, 15(4), 353-375.
- ¹⁵ Buckley, S., Bird, G., Sacks, B., & Archer, T. (2006). A comparison of mainstream and special education for teenagers with Down syndrome: Implications for parents and teachers. *Down Syndrome Research and Practice*, 14.

¹⁶ European Agency for Special Needs and Inclusive Education. (2014). *Inclusive Education in Europe: Putting theory into practice. International Conference, 18 November 2013. Reflections from researchers.* Odense, Denmark: European Agency for Special Needs and Inclusive Education.

¹⁷ Booth, T., Ainscow, M., Black-Hawkins, K., Vaughan, M., & Shaw, L. (2002). *Index for inclusion.* Bristol: Centre for Studies on Inclusive Education. Retrieved from <http://csie.org.uk/resources/translations/IndexEnglish.pdf>

¹⁸ Emmers, Elke, Geerts, Ine, & Plessers, Esther. (2017). What does a successful diversity policy look like? Diversity as the most valuable tool to make learning potential flourish. *EAPRIL Proceedings*, 4, 193–203.

¹⁹ Hassanein, E. E. A. (2015). Changing teachers' negative attitudes toward persons with intellectual disabilities. *Behavior modification*, 39(3), 367–389.

²⁰ Buckley, S. & Birg, G. (2000). *Education for individuals with Down syndrome – an overview.* Hampshire, United Kingdom: The Down Syndrome Educational Trust.

²¹ Meyer, A., Rose, D. H., & Gordon, D. T. (2014). *Universal design for learning: Theory and practice.* CAST Professional Publishing.

²² Department of Education and Skills (2015). *Framework for junior cycle 2015.* Retrieved from: <https://www.education.ie/en/Publications/Policy-Reports/Framework-for-Junior-Cycle-2015.pdf>

European Commission (2016). *Education and training monitor 2016: Spain.* https://ec.europa.eu/education/sites/education/files/monitor2016-es_en.pdf European Commission; Cedefop; ICF International (2016).

European inventory for validation of non-formal and informal learning 2016: country report: Spain. <http://www.cedefop.europa.eu/en/events-andprojects/projects/validation-non-formal-and-informal-learning/europeaninventory#country>

Cedefop (2019) Spain European inventory on NQF 2018 <https://journals.sagepub.com/doi/abs/10.1177/0040059999602800209#articlePermissionsContainer>
Caren, L. W. & King, R. P. (1996) Portfolio assessment and special education students
The use of portfolios for students with autism: <https://journals.sagepub.com/doi/10.1177/108835760301800206?icid=int.sj-abstract.citing-articles.1>